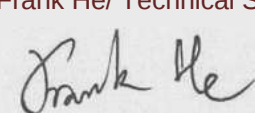
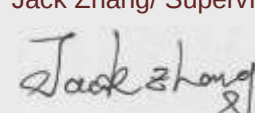


Test report No:
20A0891R-RF-US-P06V01

FCC TEST REPORT

Product Name	BLUETOOTH EARPHONES
Trademark	LIBRATONE
Model and /or type reference	LTW600/LTW500
FCC ID	2AW92LTW600
Applicant's name / address	Little Bird Co., Ltd 18F, Building D, No.7 Zhichun Road, Beijing, PRC
Test method requested, standard	FCC CFR Title 47 Part 15 Subpart C Section 15.247 ANSI C63.10: 2013 KD558074 D01 15.247 Meas Guidance v05r02
Verdict Summary	IN COMPLIANCE
Documented by (name / position & signature)	Kitty Li/Project Assistant 
Reviewed by (name / position & signature)	Frank He/ Technical Supervisor 
Approved by (name / position & signature)	Jack Zhang/ Supervisor 
Date of issue	2020-11-26
Report template No	Template_FCC 15.247-RF-V1.0

INDEX

	page
General conditions	5
Environmental conditions	5
Possible test case verdicts	6
Abbreviations	6
Document History	7
Remarks and Comments.....	7
Used Equipment	8
Uncertainty	10
1 General Information.....	11
1.1 General Description of the Item(s)	11
1.2 Antenna Information	12
1.3 Channel List	13
2 Description of Test Setup	14
2.1 Operating mode(s) used for tests.....	14
2.2 Auxiliary equipment / Test software for the EUT.....	14
2.3 Test Configuration / Block diagram used for tests	15
2.4 Testing process	16
3 Verdict summary section	17
3.1 Standards.....	17
3.2 Deviation(s) from the Standard(s) / Test Specification(s).....	17
3.3 Overview of results.....	18
3.4 Test Facility.....	19
4 Test Results	20
4.1 Conducted Emission.....	20
4.1.1 Limit	20
4.1.2 Test Setup.....	20
4.1.3 Test Procedure.....	20
4.1.4 Test Data	21
4.2 Emissions in restricted frequency bands	23
4.2.1 Limit	23
4.2.2 Test Setup.....	25
4.2.3 Test Procedure.....	26
4.2.4 Test Data	27
4.3 20dB Bandwidth	47

4.3.1	Limit	47
4.3.2	Test Setup.....	47
4.3.3	Test Procedure.....	47
4.3.4	Test Data	48
4.4	Carrier Frequency Separation.....	53
4.4.1	Limit	53
4.4.2	Test Setup.....	53
4.4.3	Test Procedure.....	53
4.4.4	Test Data	54
4.5	Number of hopping Frequencies.....	59
4.5.1	Limit	59
4.5.2	Test Setup.....	59
4.5.3	Test Procedure.....	59
4.5.4	Test Data	60
4.6	Time of Occupancy(Dwell Time).....	61
4.6.1	Limit	61
4.6.2	Test Setup.....	61
4.6.3	Test Procedure.....	61
4.6.4	Test Data	62
4.7	Peak Output Power	65
4.7.1	Limit	65
4.7.2	Test Setup.....	65
4.7.3	Test Procedure.....	66
4.7.4	Test Data	67
4.8	Emissions in non-restricted frequency band.....	68
4.8.1	Limit	68
4.8.2	Test Setup.....	68
4.8.3	Test Procedure.....	68
4.8.4	Test Data	69
4.9	Duty cycle	70
4.9.1	Limit	70
4.9.2	Test Setup.....	70
4.9.3	Test Procedure.....	70
4.9.4	Test Data	71
4.10	Radiated Emission Band Edge	72
4.10.1	Limit	72
4.10.2	Test Setup.....	72



4.10.3	Test Procedure.....	72
4.10.4	Test Data	73
4.11	Antenna Requirement.....	97
4.11.1	Limit:	97
4.11.2	Antenna Connector Construction:	97
5	Test setup photo and EUT Photo.....	98

COMPETENCES AND GUARANTEES

DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA.

GENERAL CONDITIONS

Test Location	No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China
Date(receive sample)	Oct. 29, 2020
Date (start test)	Oct. 29, 2020
Date (finish test)	Nov. 26, 2020

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.

ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	15 °C – 35 °C
Relative Humidity air	30% - 60%

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT	: Equipment Under Test
QP	: Quasi-Peak
CAV	: CISPR Average
AV	: Average
CDN	: Coupling Decoupling Network
SAC	: Semi-Anechoic Chamber
OATS	: Open Area Test Site
BW	: Bandwidth
AM	: Amplitude Modulation
PM	: Pulse Modulation
HCP	: Horizontal Coupling Plane
VCP	: Vertical Coupling Plane
U_N	: Nominal voltage
Tx	: Transmitter
Rx	: Receiver
N/A	: Not Applicable
N/M	: Not Measured

DOCUMENT HISTORY

Report No.	Version	Description	Issued Date
20A0891R-RF-US-P06V01	V1.0	Initial issue of report.	2020-11-26

REMARKS AND COMMENTS

1. The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with Part 15 Subpart C Paragraph 15.247.
3. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result.
4. The test results presented in this report relate only to the object tested.
5. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
6. This report will not be used for social proof function in China market.
7. DEKRA declines any responsibility with the following test data provided by customer that may affect the validity of result:
 - Chapter 1.1 General Description of the Item(s);
 - Chapter 1.2 Antenna Informaion;
 - Chapter 1.3 Channel List.

USED EQUIPMENT

AC Power Line Conducted Emission / TR1

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100906	2020.04.20	2021.04.19
Two-Line V-Network	R&S	ENV216	101190	2019.12.28	2020.12.27
Two-Line V-Network	R&S	ENV216	101044	2019.12.28	2020.12.27
Current Probe	R&S	EZ-17	100678	2020.03.12	2021.04.11
50ohm Termination	SHX	TF2	07081402	2020.09.23	2021.09.22
50ohm Termination	SHX	TF2	07081403	2020.09.23	2021.09.22
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-8S	TR1-TH	2020.08.13	2021.08.12
Coaxial Cable	Suhner	RG 223	TR1-C1	2020.08.13	2021.08.12
Coaxial Cable	Suhner	RG 223	TR1-C2	2020.08.13	2021.08.12
Dekra test software	Dekra	-	-	-	-

Emissions in non-restricted frequency bands/ Occupied Bandwidth/ Fundamental emission output power Power Spectral Density / TR8

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2020.08.15	2021.08.14
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2020.08.15	2021.08.14
Temperature/Humidity Meter	RTS	RTS-8S	RF08	2020.08.13	2021.08.12
Dekra test software	Dekra	-	-	-	-

Radiated Emission(30MHz-1GHz) / AC3

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100573	2020.03.03	2021.03.02
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2020.08.19	2021.08.18
Temperature/Humidity Meter	RTS	RTS-8S	AC2-TH	2020.08.13	2021.08.12
Coaxial Cable	Huber+Suhner	RG 214	AC2-C	2020.04.05	2021.04.04
Dekra test software	Dekra	-	-	-	-

Radiated Emission / AC5(1GHz-40GHz)(Chamber details)

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2020.05.08	2021.05.07
Preamplifier	Miteq	NSP1800-25	1364185	2020.05.06	2021.05.05
Preamplifier	QuieTek	AP-040G	CHM-0906001	2020.05.06	2021.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2020.01.22	2021.01.21
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2020.08.13	2021.08.12
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2020.04.05	2021.04.04
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2020.04.05	2021.04.04
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2020.04.05	2021.04.04
Dekra test software	Dekra	-	-	-	-

UNCERTAINTY

Uncertainties have been calculated according to the DEKRA internal document. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

Test item	Uncertainty
Conducted Emission	± 2.02 dB
Emissions in restricted frequency bands	above 1G : ± 3.9 dB below 1G is : ± 3.8 dB
20dB Bandwidth	± 1 kHz
Carrier Frequency Separation	± 1 kHz
Number of Hopping Frequencies	± 1 kHz
Time of Occupancy (Dwell Time)	± 0.1 us
Peak Output Power	± 1.0 dB
Emissions in non-restricted frequency bands	± 1.0 dB
Radiated Emission Band Edge	above 1G : ± 3.9 dB below 1G : ± 3.8 dB

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Product Name	BLUETOOTH EARPHONES
Model No.	LTW600/LTW500
Trademark.....	LIBRATONE
FCC ID.....	2AW92LTW600
Manufacturer	Little Bird Co., Ltd
Manufacturer Address	18F, Building D, No.7 Zhichun Road, Beijing, PRC

Wireless specification.....	Bluetooth					
Bluetooth Specification	V3.0					
Operating frequency range(s)	2400~2483.5MHz					
Type of Modulation.....	GFSK					
PHYS	☒	GFSK	☒	Pi/4 DQPSK	☒	8DPSK
Data Rate.....	☒	1 Mbit/s	☒	2 Mbit/s	☒	3 Mbit/s
Number of channel	79					

Rated power supply..... :	Voltage and Frequency					
	☐	AC: 220 – 240 V, 50 / 60 Hz				
	☐	AC: 100 – 240 V, 50 / 60 Hz				
	☐	DC: 3.7 Vdc				
	☒	Battery: 3.7 Vdc				
Mounting position	☐	Table top equipment				
	☐	Wall/Ceiling mounted equipment				
	☐	Floor standing equipment				
	☒	Hand-held equipment				
	☐	Other:				

Note: There is no difference between the two models except the color and logo design. The ID, mechanical and electronic design of LTW500 and LTW600 are the same, except the color and the finish of the bird logo. The charging case of LTW500 is equipped with a plastic lid. And for LTW600, the charging case is equipped with a plastic or metal lid..

1.2 Antenna Information

Antenna model / type number.....:	N/A		
Antenna serial number	N/A		
Antenna Delivery	☒	1TX + 1RX	
	☐	2TX + 2RX	
Antenna technology.....:	☒	SISO	
	☐	MIMO	☐ CDD
			☐ Beam-forming
Antenna Type.....:	☐	External	☐ Dipole
			☐ Sectorized
	☒	Internal	☐ PIFA
			☒ PCB
			☐ Metal Monopole Antenna
			☐ Ceramic chip
			☐ Others.....
Antenna Gain	2 dBi		

1.3 Channel List

Bluetooth Working Frequency of Each Channel: (For BR/EDR)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2403 MHz	02	2404 MHz	03	2405 MHz
04	2406 MHz	05	2407 MHz	06	2408 MHz	07	2409 MHz
08	2410 MHz	09	2411 MHz	10	2412 MHz	11	2413 MHz
12	2414 MHz	13	2415 MHz	14	2416 MHz	15	2417 MHz
16	2418 MHz	17	2419 MHz	18	2420 MHz	19	2421 MHz
20	2422 MHz	21	2423 MHz	22	2424 MHz	23	2425 MHz
24	2426 MHz	25	2427 MHz	26	2428 MHz	27	2429 MHz
28	2430 MHz	29	2431 MHz	30	2432 MHz	31	2433 MHz
32	2434 MHz	33	2435 MHz	34	2436 MHz	35	2437 MHz
36	2438 MHz	37	2439 MHz	38	2440 MHz	39	2441 MHz
40	2442 MHz	41	2443 MHz	42	2444 MHz	43	2445 MHz
44	2446 MHz	45	2447 MHz	46	2448 MHz	47	2449 MHz
48	2450 MHz	49	2451 MHz	50	2452 MHz	51	2453 MHz
52	2454 MHz	53	2455 MHz	54	2456 MHz	55	2457 MHz
56	2458 MHz	57	2459 MHz	58	2460 MHz	59	2461 MHz
60	2462 MHz	61	2463 MHz	62	2464 MHz	63	2465 MHz
64	2466 MHz	65	2467 MHz	66	2468 MHz	67	2469 MHz
68	2470 MHz	69	2471 MHz	70	2472 MHz	71	2473 MHz
72	2474 MHz	73	2475 MHz	74	2476 MHz	75	2477 MHz
76	2478 MHz	77	2479 MHz	78	2480 MHz	N/A	N/A

Note: The General Description of the Item, antenna information and Channel List for the EUT in clause 1 are provided and confirmed by the client.

2 DESCRIPTION OF TEST SETUP

2.1 Operating mode(s) used for tests

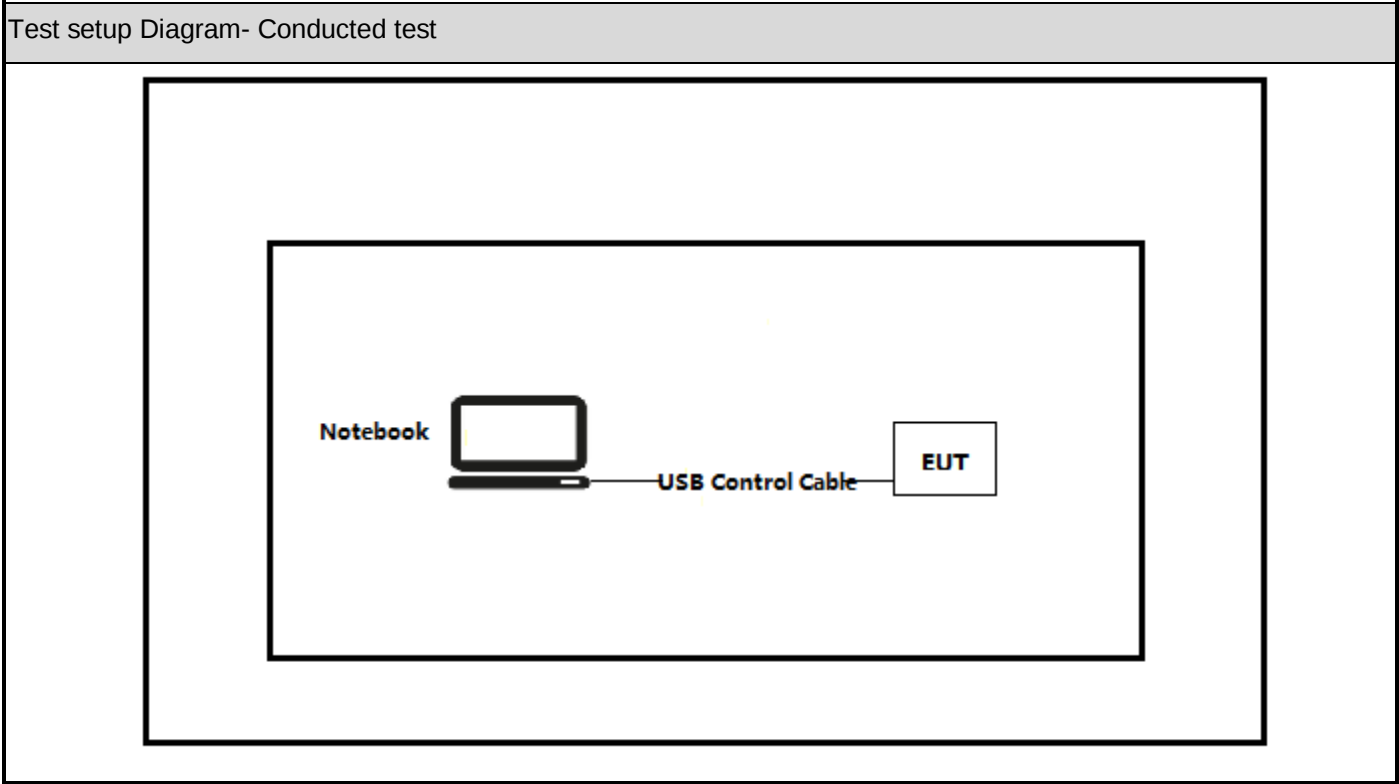
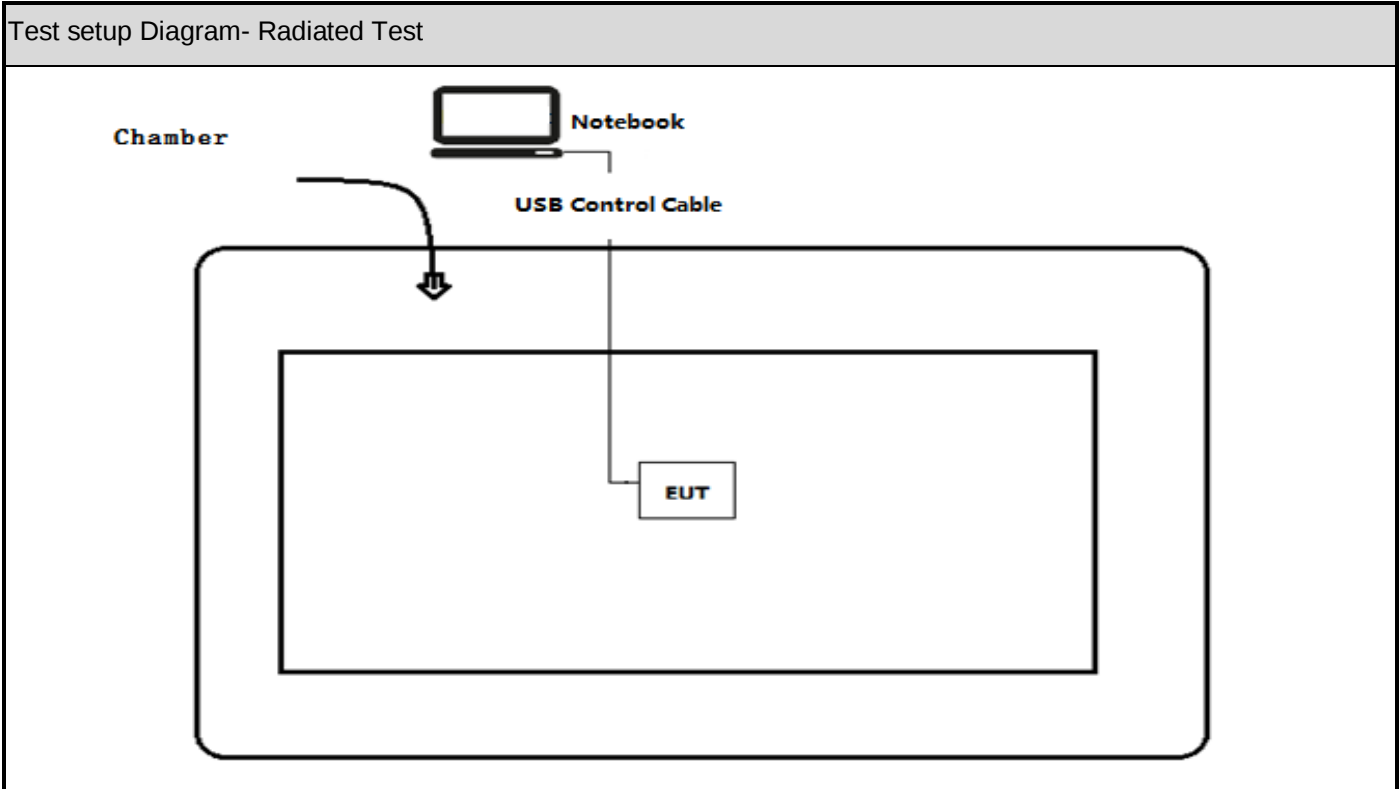
During the tests the following operating mode(s) has(have) been used.

Test Mode For Bluetooth	Mode 1: Transmitter-1Mbps(GFSK_DH5)
	Mode 2: Transmitter-2Mbps(Pi/4 DQPSK_DH5)
	Mode 3: Transmitter-3Mbps(8DPSK_DH5)
	Mode 4: Transmitter-1Mbps(GFSK_DH5)-Hopping
	Mode 5: Transmitter-2Mbps(Pi/4 DQPSK_DH5)-Hopping
	Mode 6: Transmitter-3Mbps(8DPSK_DH5)-Hopping
	Mode 7: Simultaneous transmission.

2.2 Auxiliary equipment / Test software for the EUT

Auxiliary equipment	Type / Version	Manufacturer	Supplied by
Notebook computer	XPS 13.9350	DELL	Adapter
software	Type / Version	Manufacturer	Supplied by
BlueTest3	N/A	N/A	N/A

2.3 Test Configuration / Block diagram used for tests



2.4 Testing process

1	Setup the EUT as shown in Section 2.3.
2	Run the software “BlueTest3” on the notebook computer.
3	Configure the test mode, the test channel, and the data rate.
4	Verify that the EUT works properly.

3 VERDICT SUMMARY SECTION

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

3.1 Standards

Standard	Year	Description
FCC CFR Title 47 Part 15 Subpart C Section 15.247	2019	Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.
ANSI C63.10	2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
KDB 558074 D01 v05r02	2019	Guidance for performing compliance measurements on Digital Transmission System (DTS) operating under section 15.247

3.2 Deviation(s) from the Standard(s) / Test Specification(s)

The following deviation(s) was / were made from the published requirements of the listed standards: N/A.

(Please define the deviations from the standard(s) if applicable)

3.3 Overview of results

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.207	Yes	No
Emissions in restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.209	Yes	No
20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)	Yes	No
Carrier Frequency Separation	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)	Yes	No
Number of Hopping Frequencies	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)(iii)	Yes	No
Time of Occupancy (Dwell Time)	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)(iii)	Yes	No
Peak Output Power	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(b)(1)	Yes	No
Emissions in non-restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.215(c), 15.247(d)	Yes	No
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(d)	Yes	No
Antenna Requirement	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.203	Yes	No

3.4 Test Facility

USA : FCC Designation Number: CN1199

4 TEST RESULTS

4.1 Conducted Emission

VERDICT: N/A

4.1.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.207	
Frequency range [MHz]	Limit: QP [dB(μV) ¹⁾]	Limit: AV [dB(μV) ¹⁾]
0,15 - 0,50	66 - 56 ²⁾	56 - 46 ²⁾
0,50 - 5,0	56	46
5,0 - 30	60	50

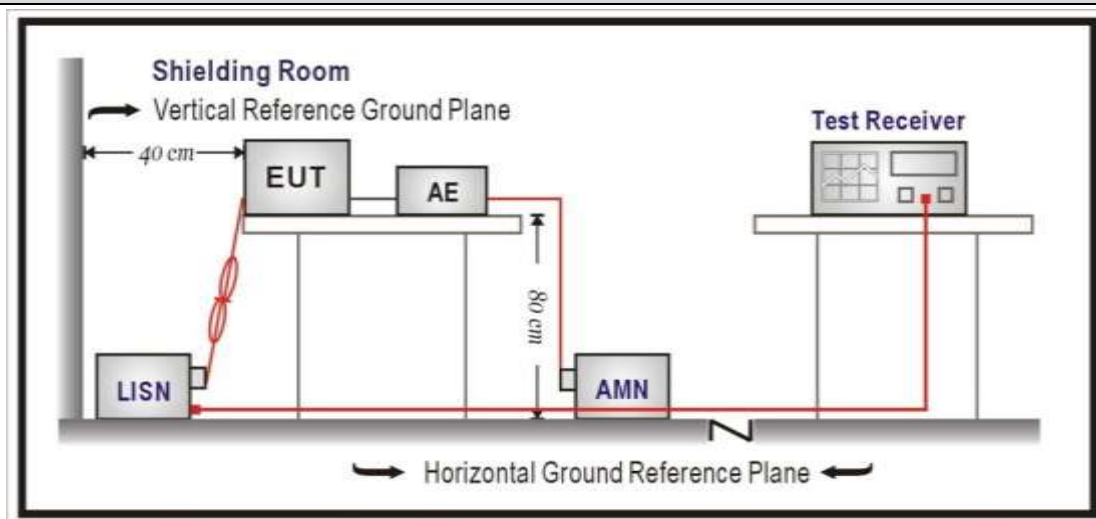
¹⁾ At the transition frequency, the lower limit applies.

²⁾ The limit decreases linearly with the logarithm of the frequency.

NOTE 1: The exclusion band for transmitters shall be considered for transmitters operating at frequencies below 30 MHz.

NOTE 2: Where the AC output port is directly connected (or via a circuit breaker) to the AC power input port of the EUT the AC power output port need not to be tested.

4.1.2 Test Setup

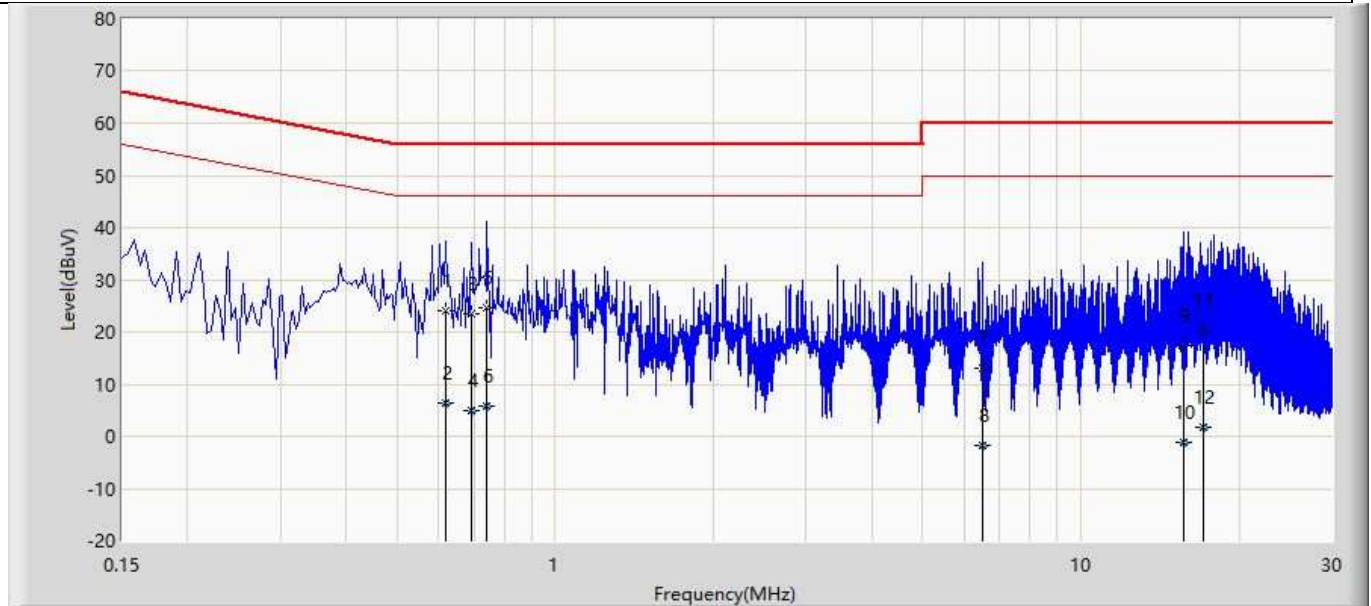


4.1.3 Test Procedure

	References Rule	Chapter	Item
☒	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices

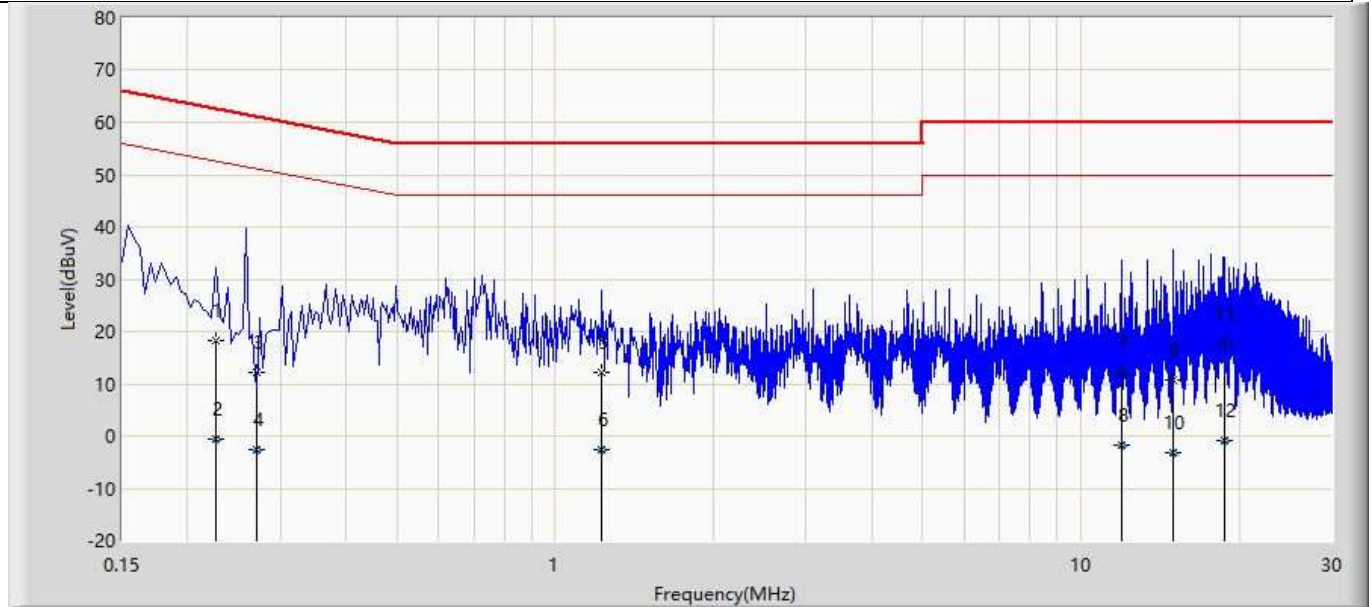
4.1.4 Test Data

Profile: 20A0891R	Page No.: 1
Engineer: Pawn	
Site: TR1	Time: 2020/11/14 - 16:00
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Line
EUT: BLUETOOTH EARPHONES	Power: AC 120V/60Hz
Note: Model1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.618	24.139	14.477	-31.861	56.000	9.662	QP
2		0.618	6.420	-3.242	-39.580	46.000	9.662	AV
3		0.694	23.400	13.731	-32.600	56.000	9.669	QP
4		0.694	4.946	-4.722	-41.054	46.000	9.669	AV
5	*	0.742	24.648	14.977	-31.352	56.000	9.671	QP
6		0.742	5.888	-3.784	-40.112	46.000	9.671	AV
7		6.494	12.953	3.037	-47.047	60.000	9.916	QP
8		6.494	-1.849	-11.765	-51.849	50.000	9.916	AV
9		15.714	17.357	7.185	-42.643	60.000	10.172	QP
10		15.714	-1.186	-11.358	-51.186	50.000	10.172	AV
11		17.071	20.371	10.172	-39.629	60.000	10.198	QP
12		17.071	1.703	-8.496	-48.297	50.000	10.198	AV

Profile: 20A0891R	Page No.: 2
Engineer: Pawn	
Site: TR1	Time: 2020/11/14 - 16:14
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Neutral
EUT: BLUETOOTH EARPHONES	Power: AC 120V/60Hz
Note: Model1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.226	18.385	8.765	-44.210	62.595	9.620	QP
2		0.226	-0.476	-10.097	-53.071	52.595	9.620	AV
3		0.270	12.167	2.540	-48.944	61.110	9.626	QP
4		0.270	-2.498	-12.125	-53.608	51.110	9.626	AV
5		1.226	12.308	2.614	-43.692	56.000	9.694	QP
6		1.226	-2.602	-12.297	-48.602	46.000	9.694	AV
7		11.966	11.952	1.842	-48.048	60.000	10.110	QP
8		11.966	-1.620	-11.730	-51.620	50.000	10.110	AV
9		14.950	10.859	0.663	-49.141	60.000	10.195	QP
10		14.950	-3.291	-13.487	-53.291	50.000	10.195	AV
11	*	18.758	17.774	7.487	-42.226	60.000	10.287	QP
12		18.758	-0.906	-11.193	-50.906	50.000	10.287	AV

4.2 Emissions in restricted frequency bands**VERDICT: PASS****4.2.1 Limit**

Standard		FCC Part 15 Subpart C Paragraph 15.207	
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 – 16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.81425 – 8.81475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 – 12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675 – 12.57725	322 – 335.4	3600 – 4400	
13.36 – 13.41			
Restricted Bands of operation for ISSED			
0.090 - 0.110	13.36 - 13.41	960 - 1427	9.0 - 9.2
0.495 - 0.505	16.42 - 16.423	1435 - 1626.5	9.3 - 9.5
2.1735 - 2.1905	16.69475 - 16.69525	1645.5 - 1646.5	10.6 - 12.7
3.020 - 3.026	16.80425 - 16.80475	1660 - 1710	13.25 - 13.4
4.125 - 4.128	25.5 - 25.67	1718.8 - 1722.2	14.47 - 14.5
4.17725 - 4.17775	37.5 - 38.25	2200 - 2300	15.35 - 16.2
4.20725 - 4.20775	73 - 74.6	2310 - 2390	17.7 - 21.4
5.677 - 5.683	74.8 - 75.2	2483.5 - 2500	22.01 - 23.12
6.215 - 6.218	108 - 138	2655 - 2900	23.6 - 24.0
6.26775 - 6.26825	149.9 - 150.05	3260 - 3267	31.2 - 31.8
6.31175 - 6.31225	156.52475 - 156.52525	3332 - 3339	36.43 - 36.5
8.291 - 8.294	156.7 - 156.9	3345.8 - 3358	Above 38.6
8.362 - 8.366	162.0125 - 167.17	3500 - 4400	
8.37625 - 8.38675	167.72 - 173.2	4500 - 5150	
8.41425 - 8.41475	240 - 285	5350 - 5460	
12.29 - 12.293	322 - 335.4	7250 - 7750	
12.51975 - 12.52025	399.9 - 410	8025 - 8500	
12.57675 - 12.57725	608 - 614	--	

Restricted Band Emissions Limit

Frequency (MHz)	Field strength ($\mu\text{V/m}$)	Field strength (dB $\mu\text{V/m}$)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300 _(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30 _(Note 1)
1.705 - 30	30	29.5	30 _(Note 1)
30 - 88	100	40	3 _(Note 2)
88 - 216	150	43.5	3 _(Note 2)
216 - 960	200	46	3 _(Note 2)
Above 960	500	54	3 _(Note 2)

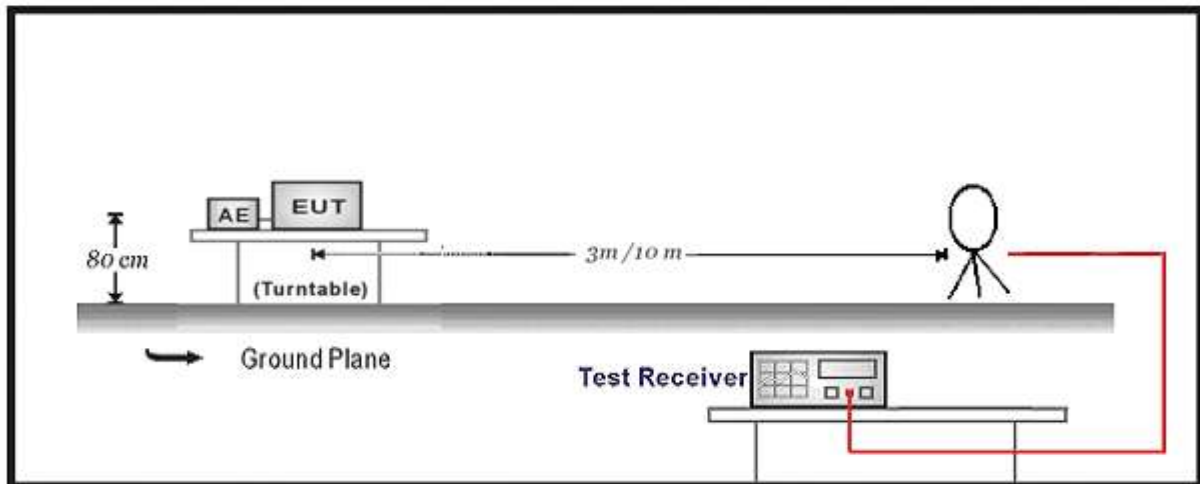
Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment.

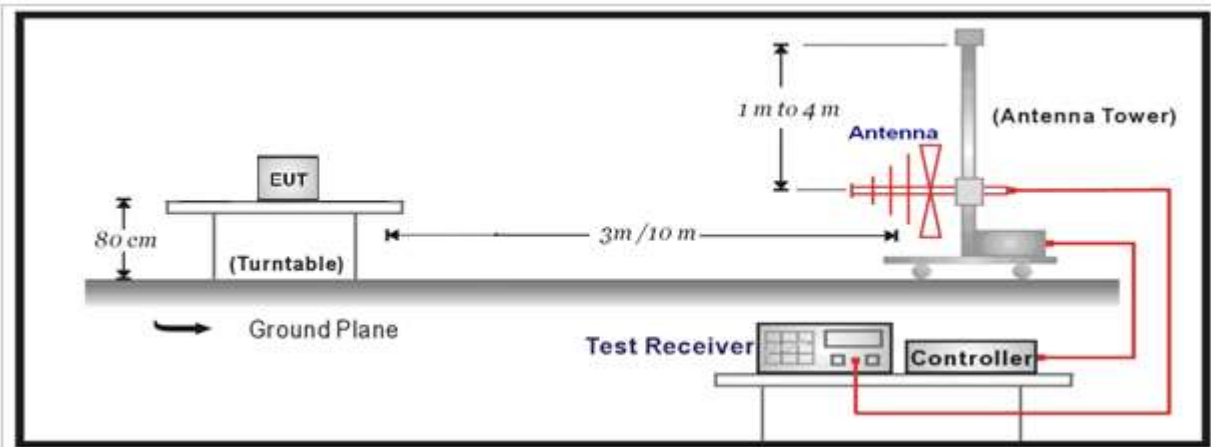
Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

4.2.2 Test Setup

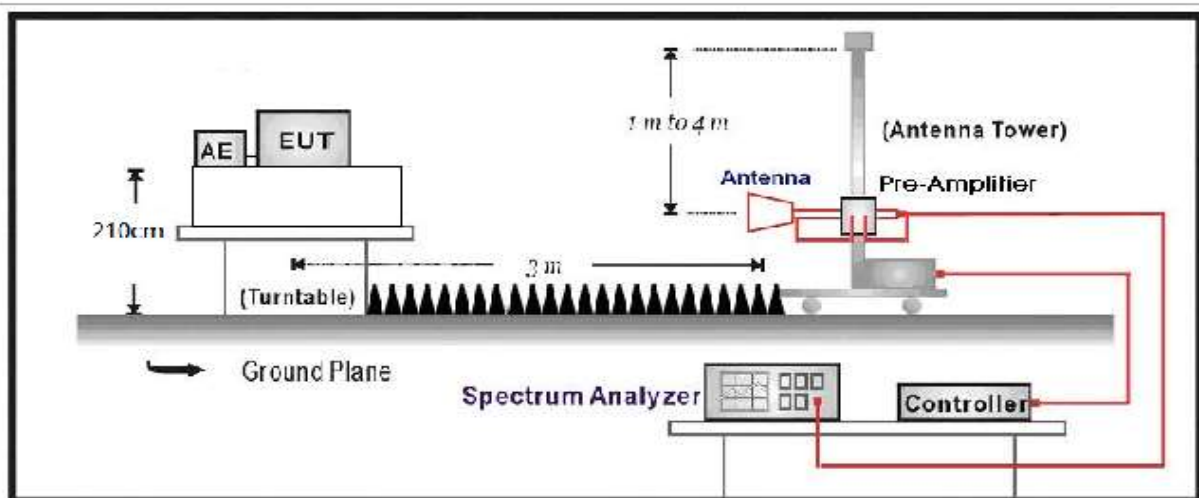
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



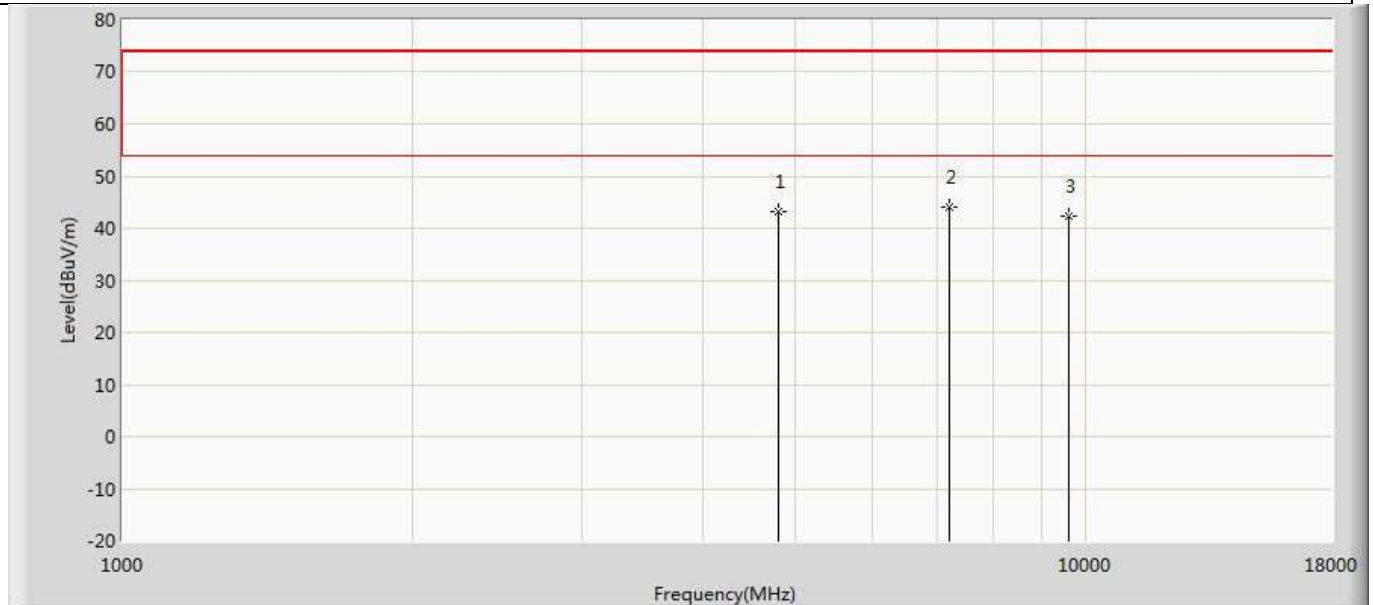
SS

4.2.3 Test Procedure

	References Rule	Chapter	Description
☒	ANSI C63.10	11.12	Emissions in restricted frequency bands
	☒	ANSI C63.10	11.12.1 Radiated emission measurements
	☒	ANSI C63.10	11.12.2.7 Radiated spurious emission test
	☒	ANSI C63.10	6.4 Radiated emissions from unlicensed wireless devices below 30 MHz
	☒	ANSI C63.10	6.5 Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
	☒	ANSI C63.10	6.6 Radiated emissions from unlicensed wireless devices above 1 GHz

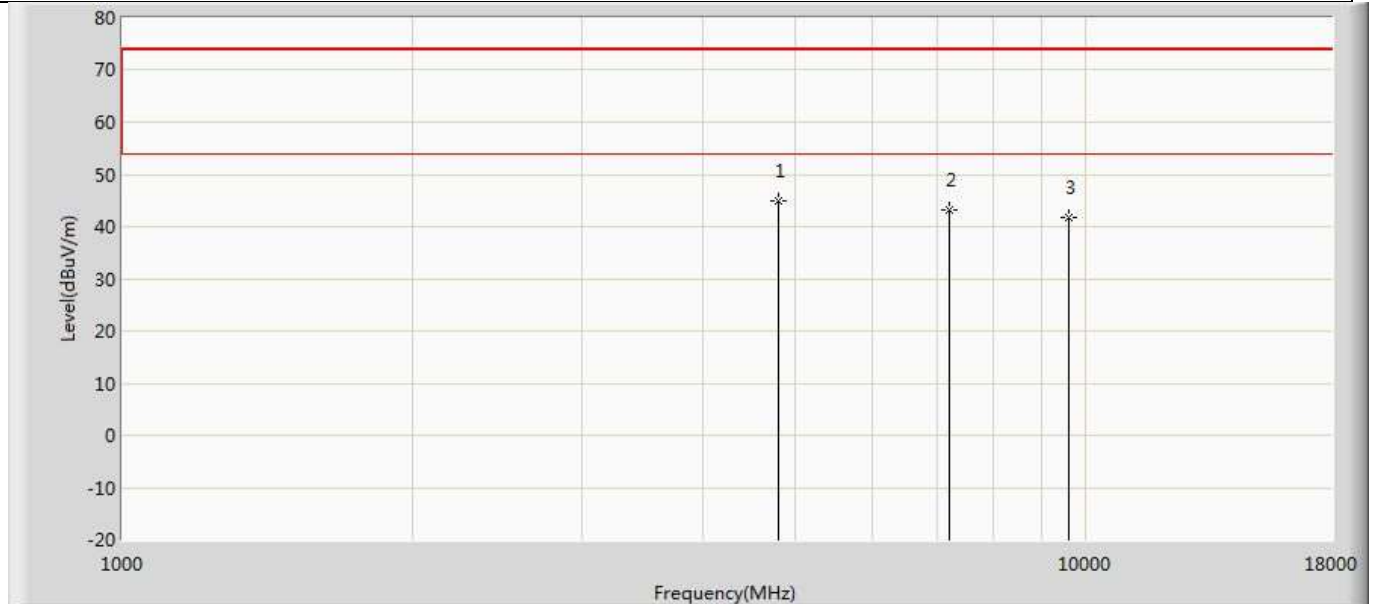
4.2.4 Test Data

Profile: 20A0891R	Page No.: 49
Engineer: Pawn	
Site: AC5	Time: 2020/11/12 - 15:00
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode1: Transmit at 2402MHz by 1Mbps(GFSK_DH5)	



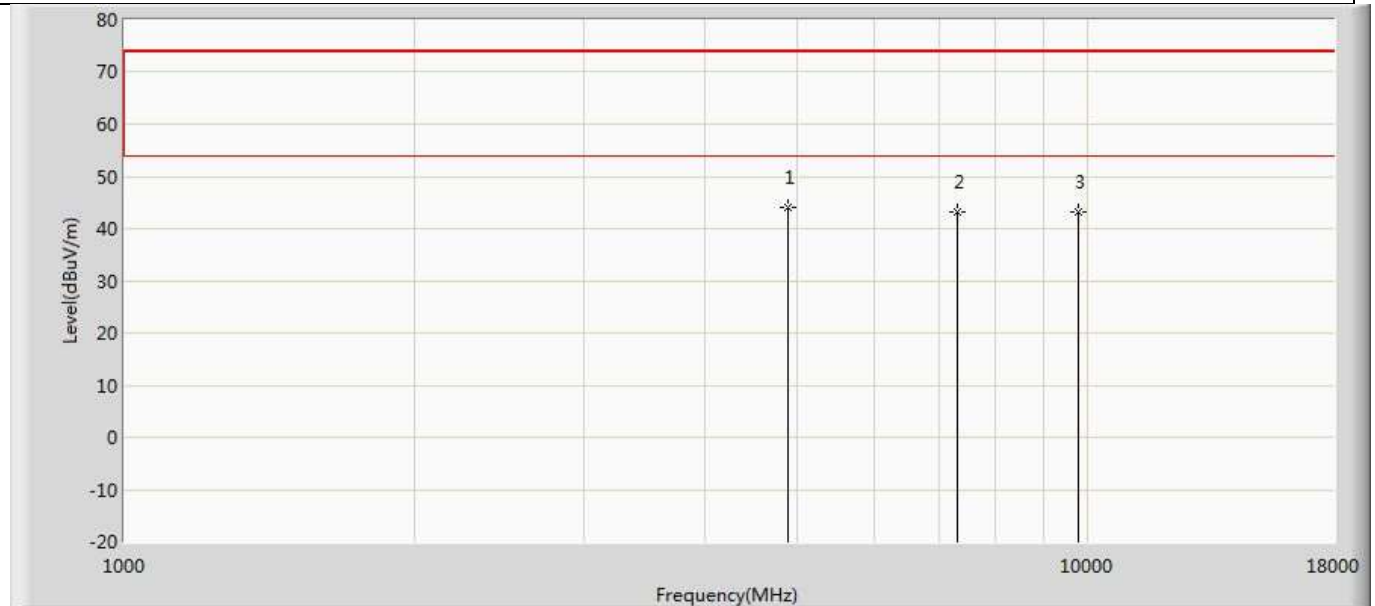
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	43.185	47.845	-30.815	74.000	-4.660	PK
2	*	7206.000	43.933	46.081	-30.067	74.000	-2.148	PK
3		9608.000	42.223	43.347	-31.777	74.000	-1.124	PK

Profile: 20A0891R	Page No.: 50
Engineer: Pawn	
Site: AC5	Time: 2020/11/12 - 15:00
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode1:Transmit at 2402MHz by 1Mbps(GFSK_DH5)	



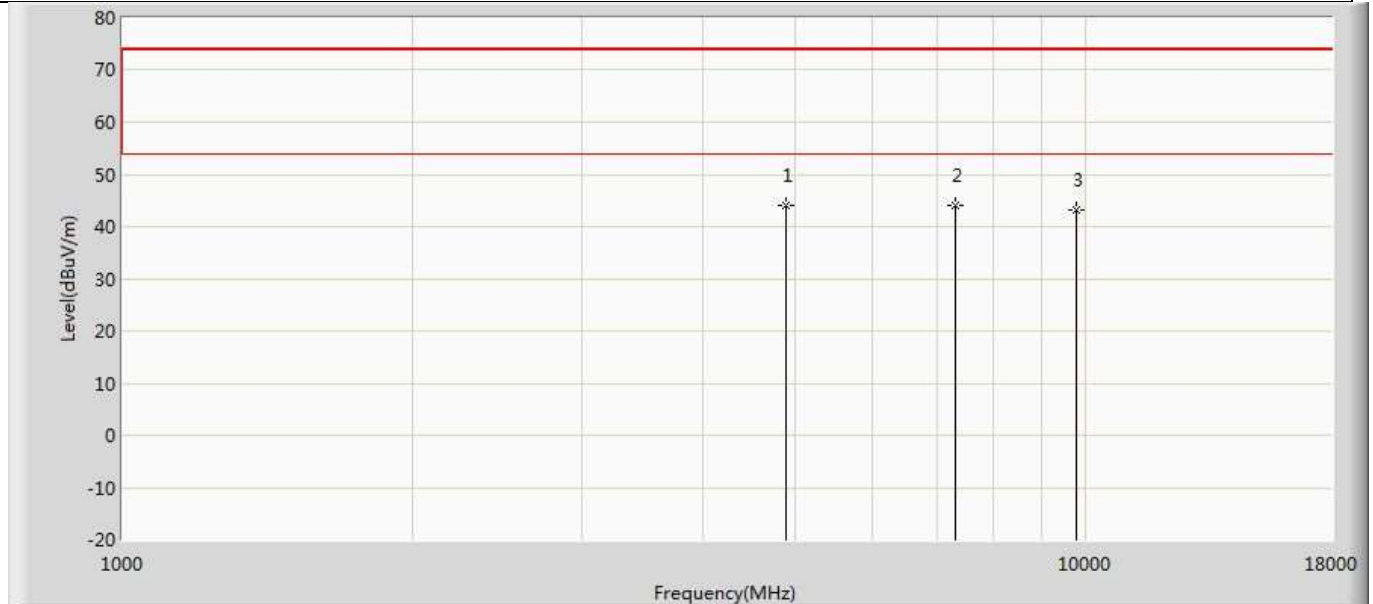
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4804.000	44.986	49.646	-29.014	74.000	-4.660	PK
2		7206.000	43.274	45.422	-30.726	74.000	-2.148	PK
3		9608.000	41.663	42.787	-32.337	74.000	-1.124	PK

Profile: 20A0891R	Page No.: 51
Engineer: Pawn	
Site: AC5	Time: 2020/11/12 - 15:00
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode1:Transmit at 2441MHz by 1Mbps(GFSK_DH5)	



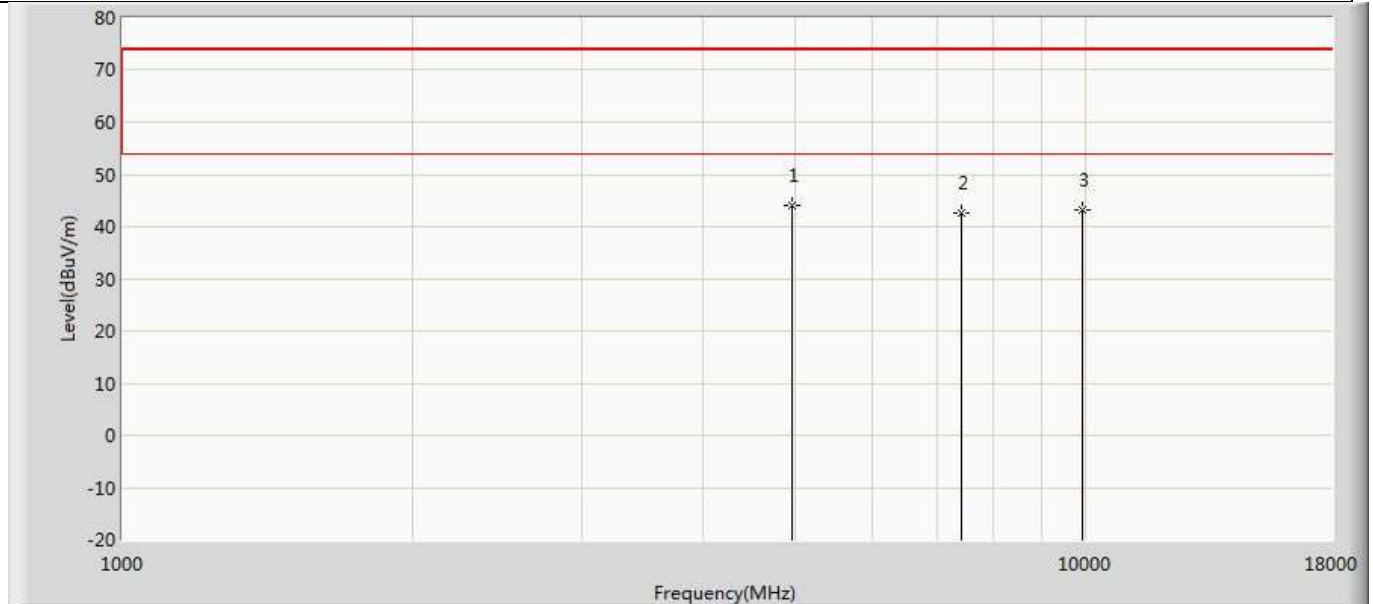
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4882.000	44.095	49.048	-29.905	74.000	-4.953	PK
2		7323.000	43.316	45.321	-30.684	74.000	-2.006	PK
3		9764.000	43.249	43.846	-30.751	74.000	-0.598	PK

Profile: 20A0891R	Page No.: 52
Engineer: Pawn	
Site: AC5	Time: 2020/11/12 - 15:00
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode1:Transmit at 2441MHz by 1Mbps(GFSK_DH5)	



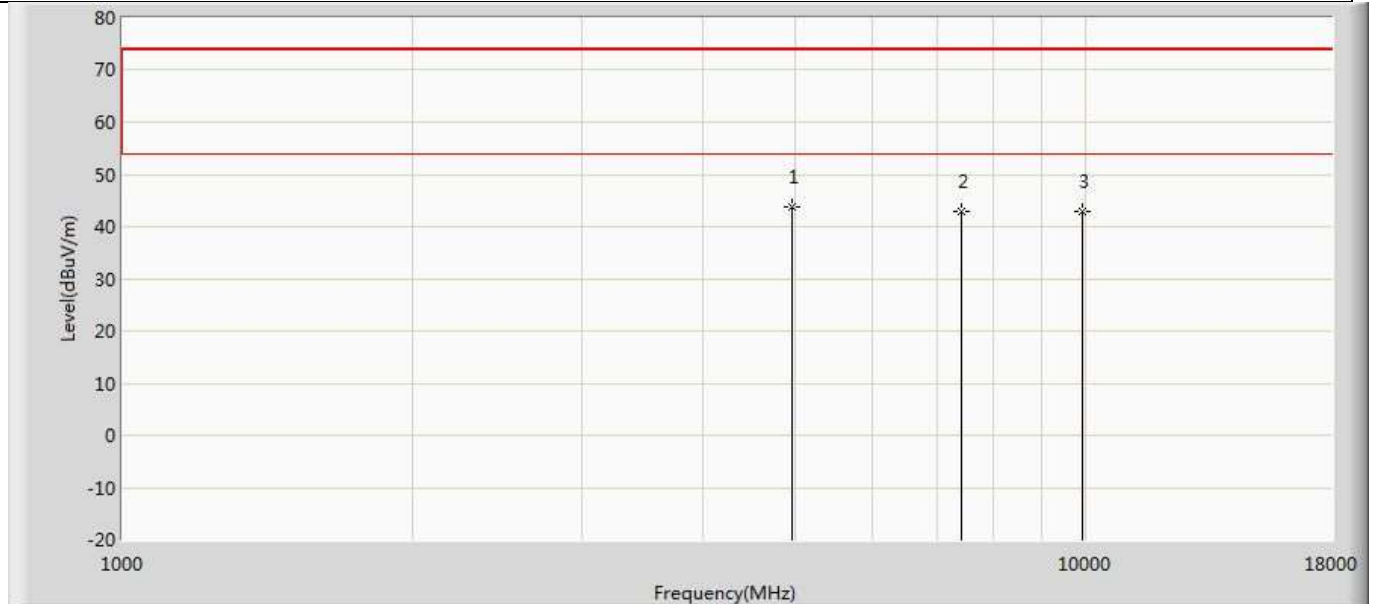
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4882.000	44.158	49.111	-29.842	74.000	-4.953	PK
2		7323.000	44.013	46.018	-29.987	74.000	-2.006	PK
3		9764.000	43.229	43.826	-30.771	74.000	-0.598	PK

Profile: 20A0891R	Page No.: 53
Engineer: Pawn	
Site: AC5	Time: 2020/11/12 - 15:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode1:Transmit at 2480MHz by 1Mbps(GFSK_DH5)	



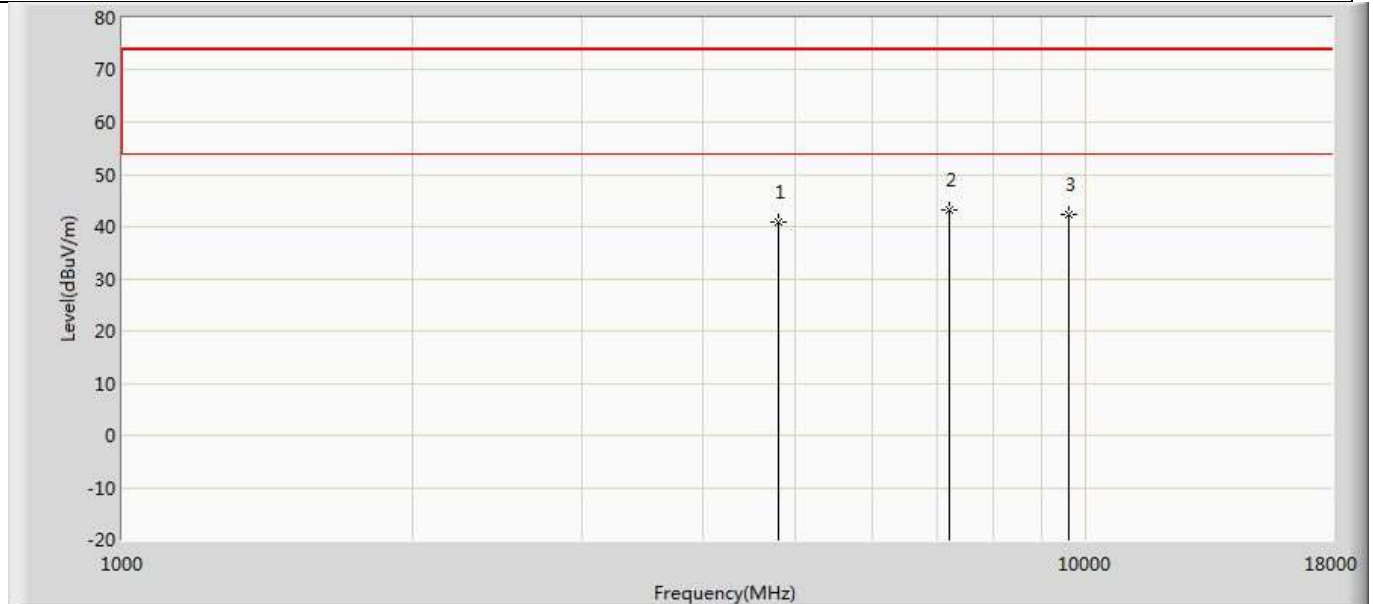
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4960.000	43.967	48.938	-30.033	74.000	-4.972	PK
2		7440.000	42.572	44.549	-31.428	74.000	-1.978	PK
3		9920.000	43.216	43.049	-30.784	74.000	0.167	PK

Profile: 20A0891R	Page No.: 54
Engineer: Pawn	
Site: AC5	Time: 2020/11/12 - 15:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode1:Transmit at 2480MHz by 1Mbps(GFSK_DH5)	



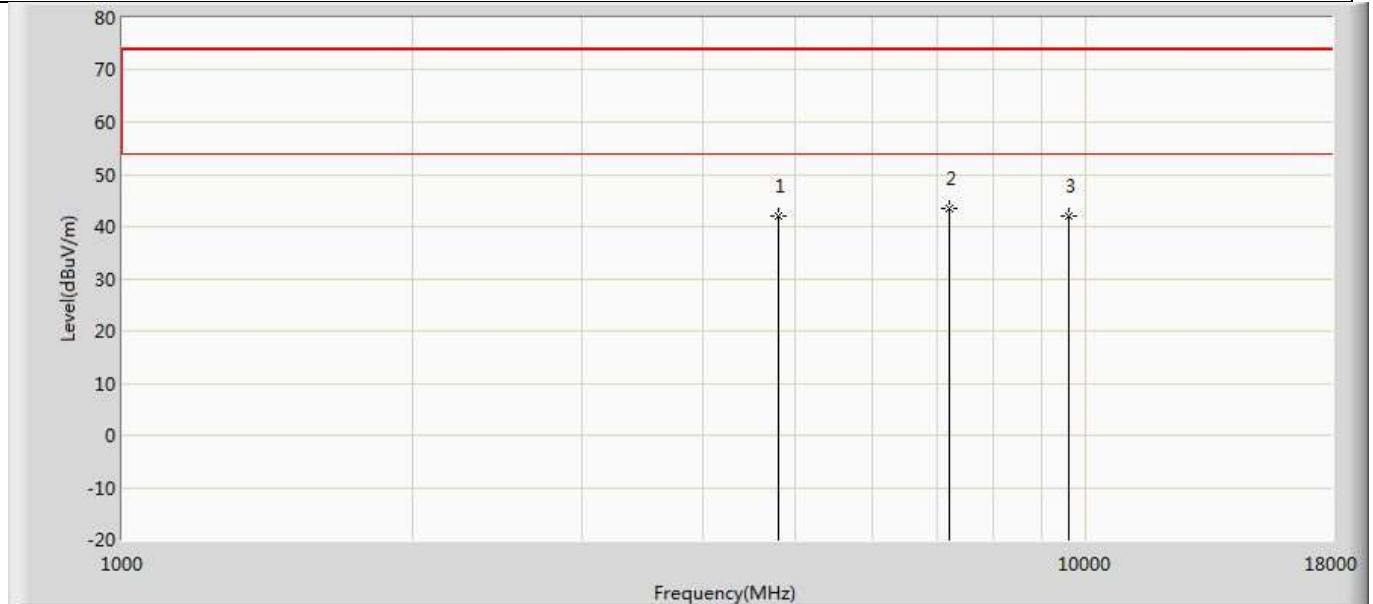
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4960.000	43.685	48.656	-30.315	74.000	-4.972	PK
2		7440.000	42.794	44.771	-31.206	74.000	-1.978	PK
3		9920.000	42.907	42.740	-31.093	74.000	0.167	PK

Profile: 20A0891R	Page No.: 55
Engineer: Pawn	
Site: AC5	Time: 2020/11/12 - 15:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode2:Transmit at 2402MHz by 2Mbps(Pi/4 DQPSK_DH5)	



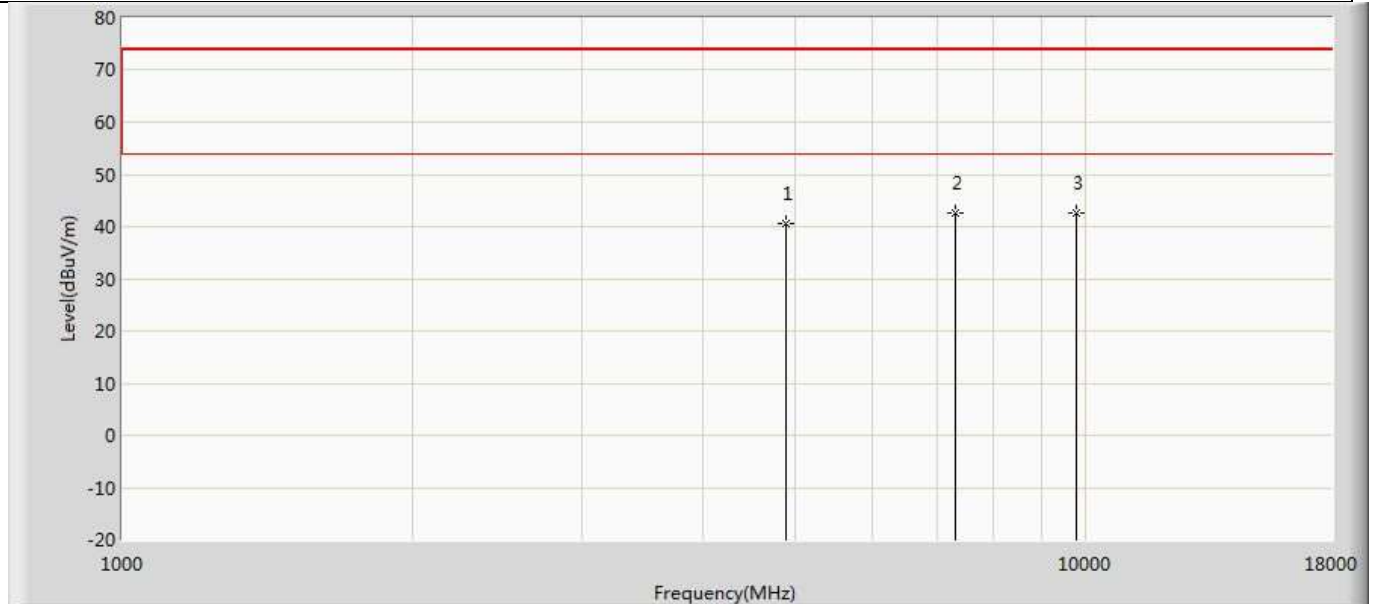
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	40.787	45.447	-33.213	74.000	-4.660	PK
2	*	7206.000	43.226	45.374	-30.774	74.000	-2.148	PK
3		9608.000	42.193	43.317	-31.807	74.000	-1.124	PK

Profile: 20A0891R	Page No.: 56
Engineer: Pawn	
Site: AC5	Time: 2020/11/12 - 15:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode2:Transmit at 2402MHz by 2Mbps(Pi/4 DQPSK_DH5)	



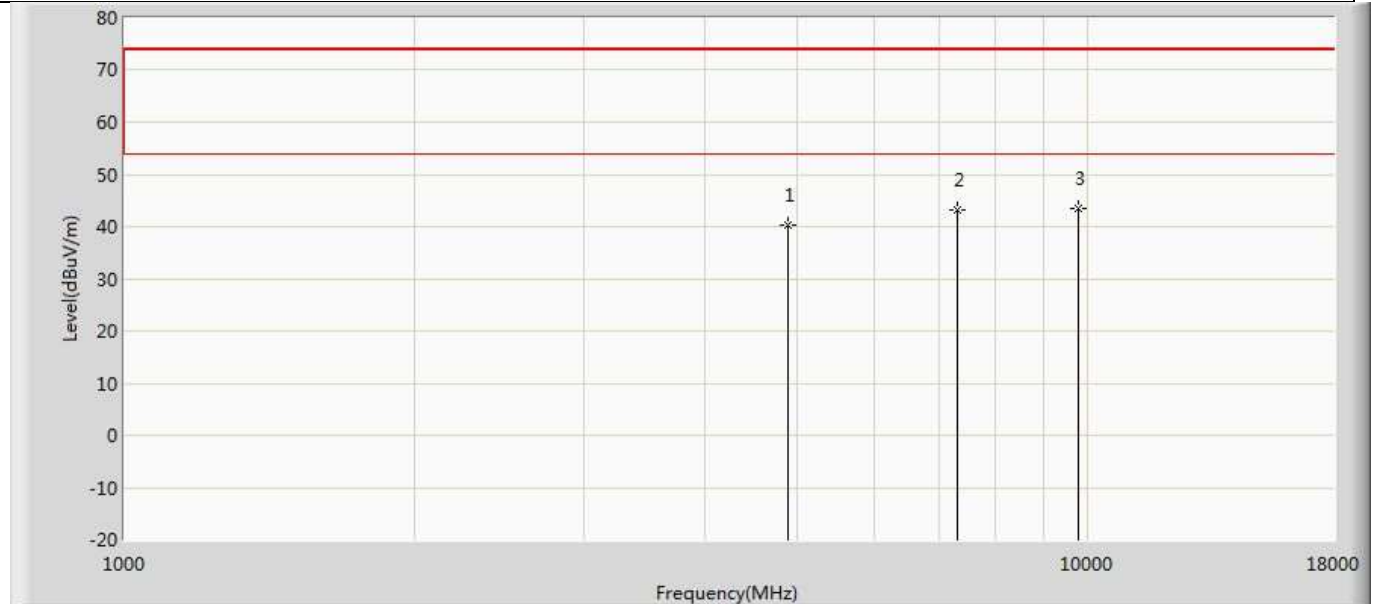
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.940	46.600	-32.060	74.000	-4.660	PK
2	*	7206.000	43.410	45.558	-30.590	74.000	-2.148	PK
3		9608.000	41.933	43.057	-32.067	74.000	-1.124	PK

Profile: 20A0891R	Page No.: 57
Engineer: Pawn	
Site: AC5	Time: 2020/11/12 - 15:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode2:Transmit at 2441MHz by 2Mbps(Pi/4 DQPSK_DH5)	



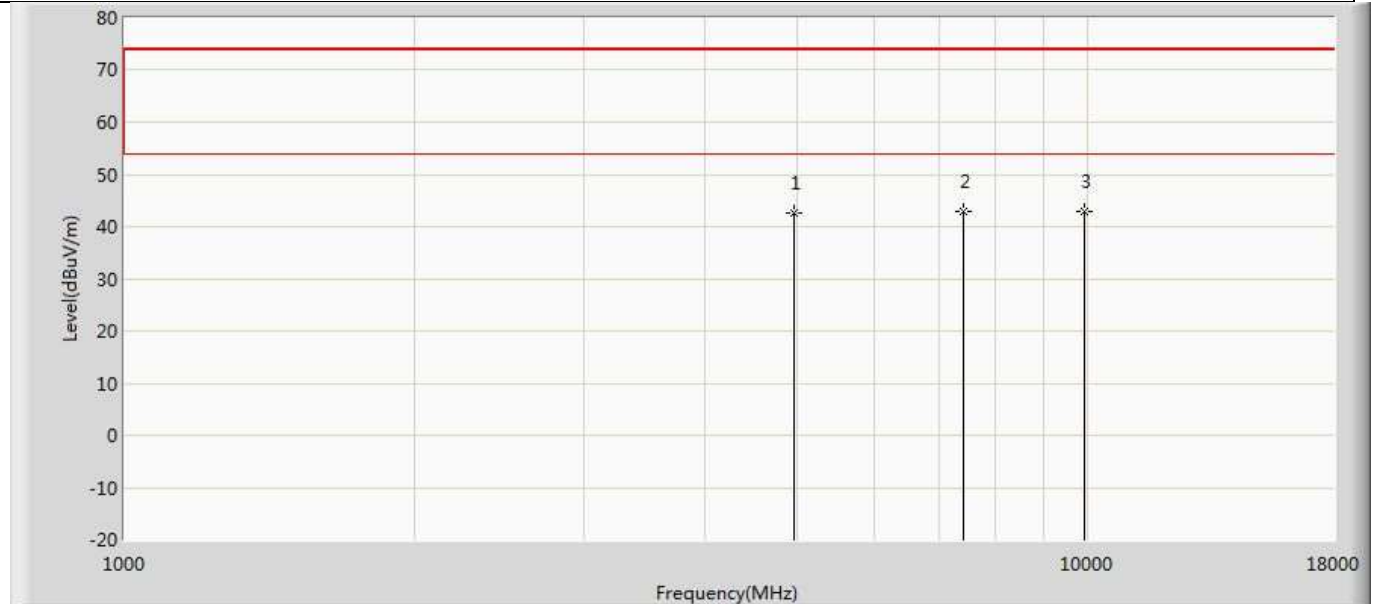
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	40.583	45.536	-33.417	74.000	-4.953	PK
2	*	7323.000	42.534	44.539	-31.466	74.000	-2.006	PK
3		9764.000	42.502	43.099	-31.498	74.000	-0.598	PK

Profile: 20A0891R	Page No.: 58
Engineer: Pawn	
Site: AC5	Time: 2020/11/12 - 15:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode2:Transmit at 2441MHz by 2Mbps(Pi/4 DQPSK_DH5)	



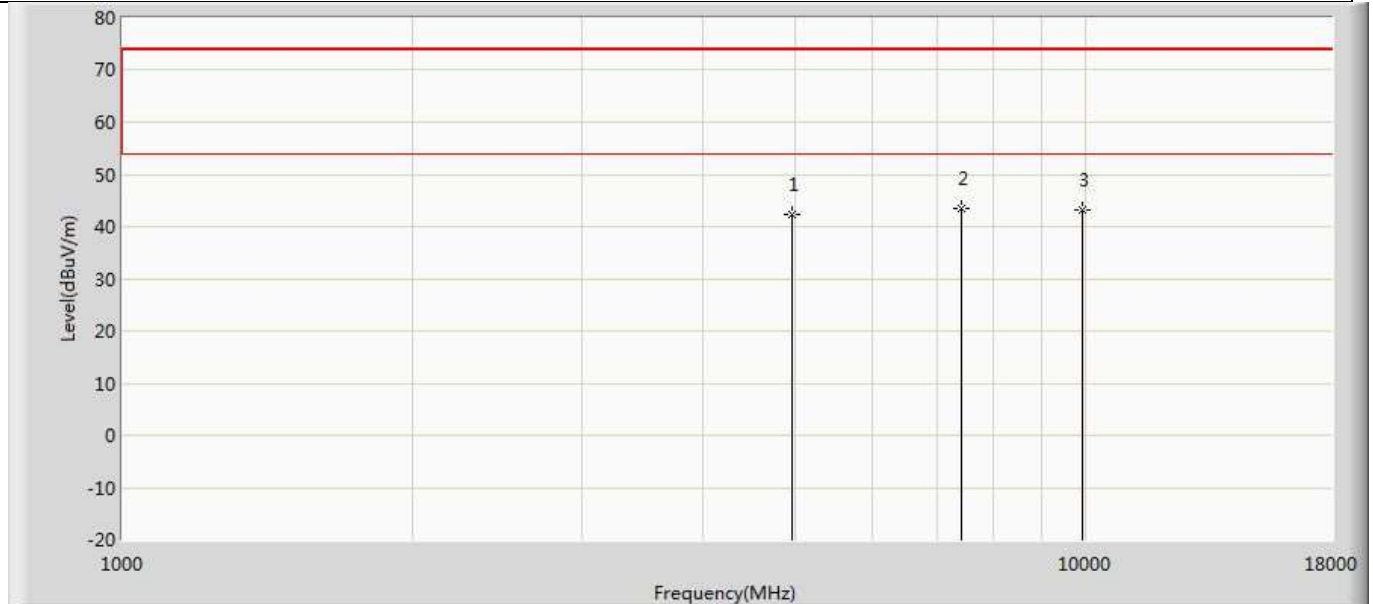
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	40.356	45.309	-33.644	74.000	-4.953	PK
2		7323.000	43.164	45.169	-30.836	74.000	-2.006	PK
3	*	9764.000	43.564	44.161	-30.436	74.000	-0.598	PK

Profile: 20A0891R	Page No.: 59
Engineer: Pawn	
Site: AC5	Time: 2020/11/12 - 15:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode2:Transmit at 2480MHz by 2Mbps(Pi/4 DQPSK_DH5)	



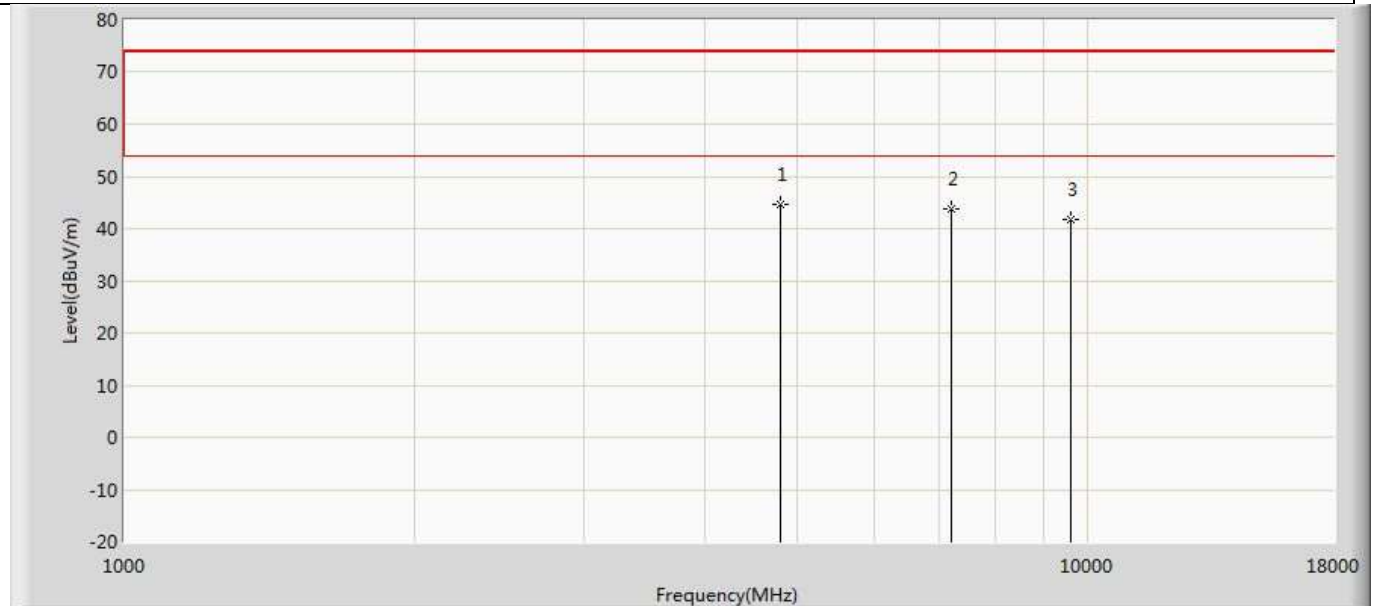
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	42.555	47.526	-31.445	74.000	-4.972	PK
2	*	7440.000	42.960	44.937	-31.040	74.000	-1.978	PK
3		9920.000	42.938	42.771	-31.062	74.000	0.167	PK

Profile: 20A0891R	Page No.: 60
Engineer: Pawn	
Site: AC5	Time: 2020/11/12 - 15:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode2:Transmit at 2480MHz by 2Mbps(Pi/4 DQPSK_DH5)	



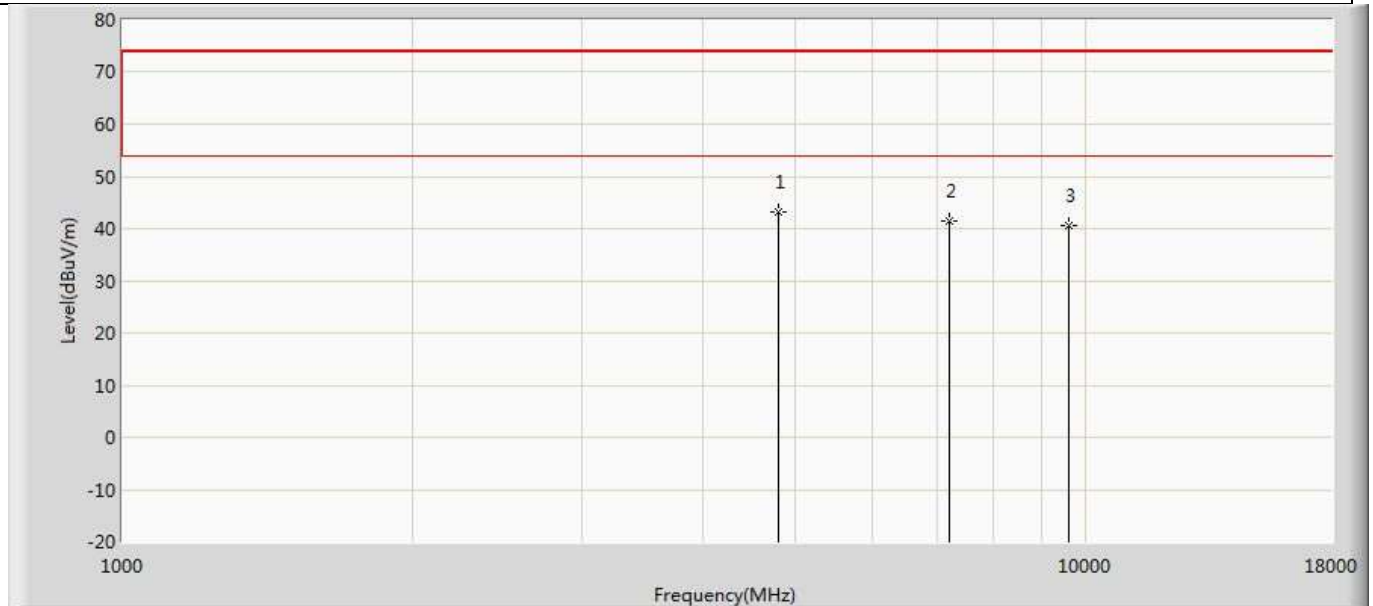
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	42.418	47.389	-31.582	74.000	-4.972	PK
2	*	7440.000	43.422	45.399	-30.578	74.000	-1.978	PK
3		9920.000	43.255	43.088	-30.745	74.000	0.167	PK

Profile: 20A0891R	Page No.: 61
Engineer: Pawn	
Site: AC5	Time: 2020/11/12 - 15:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode3:Transmit at 2402MHz by 3Mbps(8DPSK_DH5)	



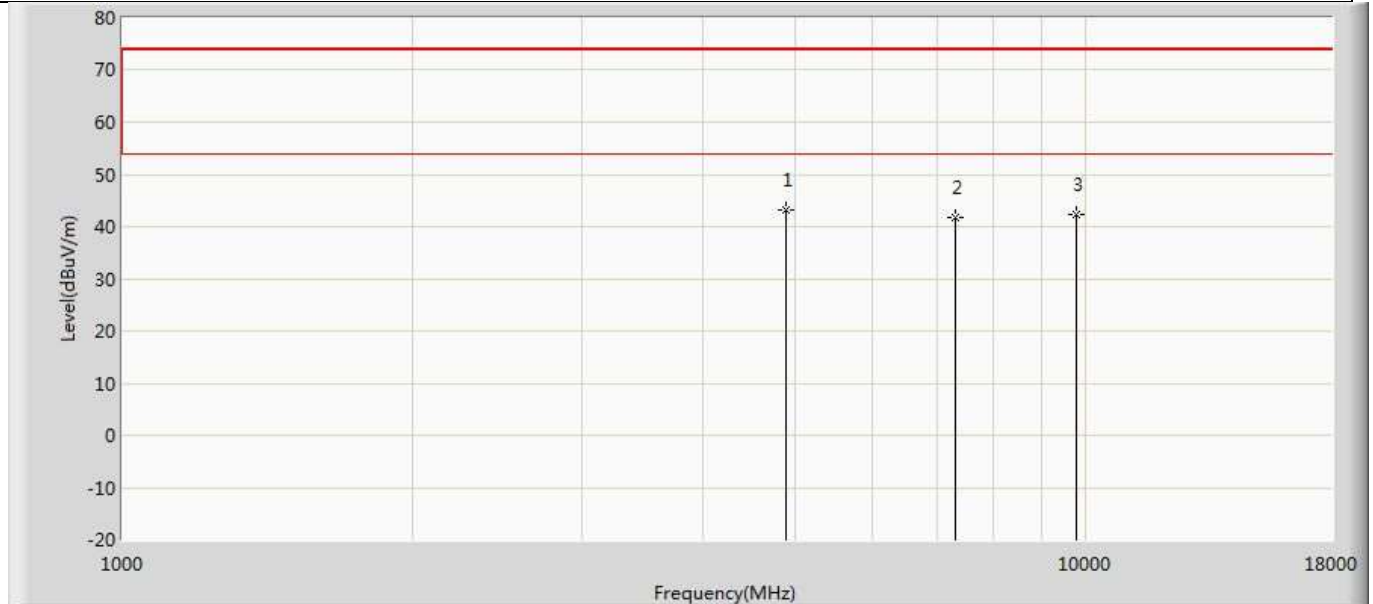
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4804.000	44.595	49.255	-29.405	74.000	-4.660	PK
2		7206.000	43.663	45.811	-30.337	74.000	-2.148	PK
3		9608.000	41.836	42.960	-32.164	74.000	-1.124	PK

Profile: 20A0891R	Page No.: 62
Engineer: Pawn	
Site: AC5	Time: 2020/11/12 - 15:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode3:Transmit at 2402MHz by 3Mbps(8DPSK_DH5)	



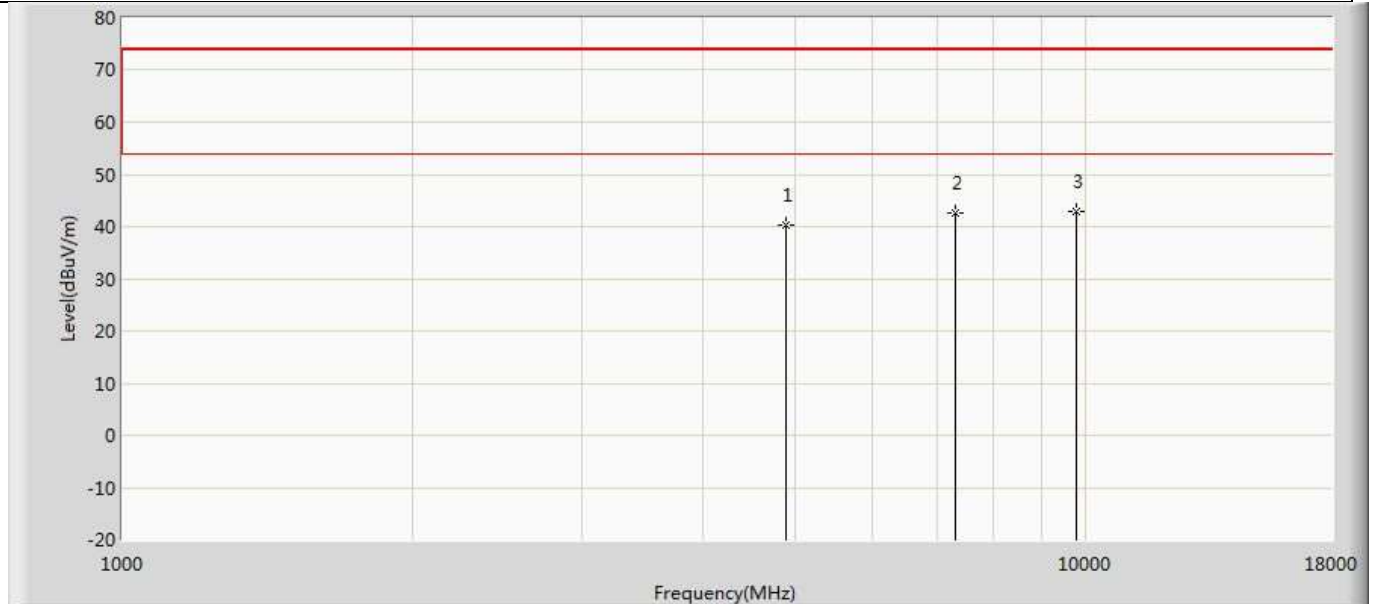
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4804.000	43.119	47.779	-30.881	74.000	-4.660	PK
2		7206.000	41.398	43.546	-32.602	74.000	-2.148	PK
3		9608.000	40.548	41.672	-33.452	74.000	-1.124	PK

Profile: 20A0891R	Page No.: 63
Engineer: Pawn	
Site: AC5	Time: 2020/11/12 - 15:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode3:Transmit at 2441MHz by 3Mbps(8DPSK_DH5)	



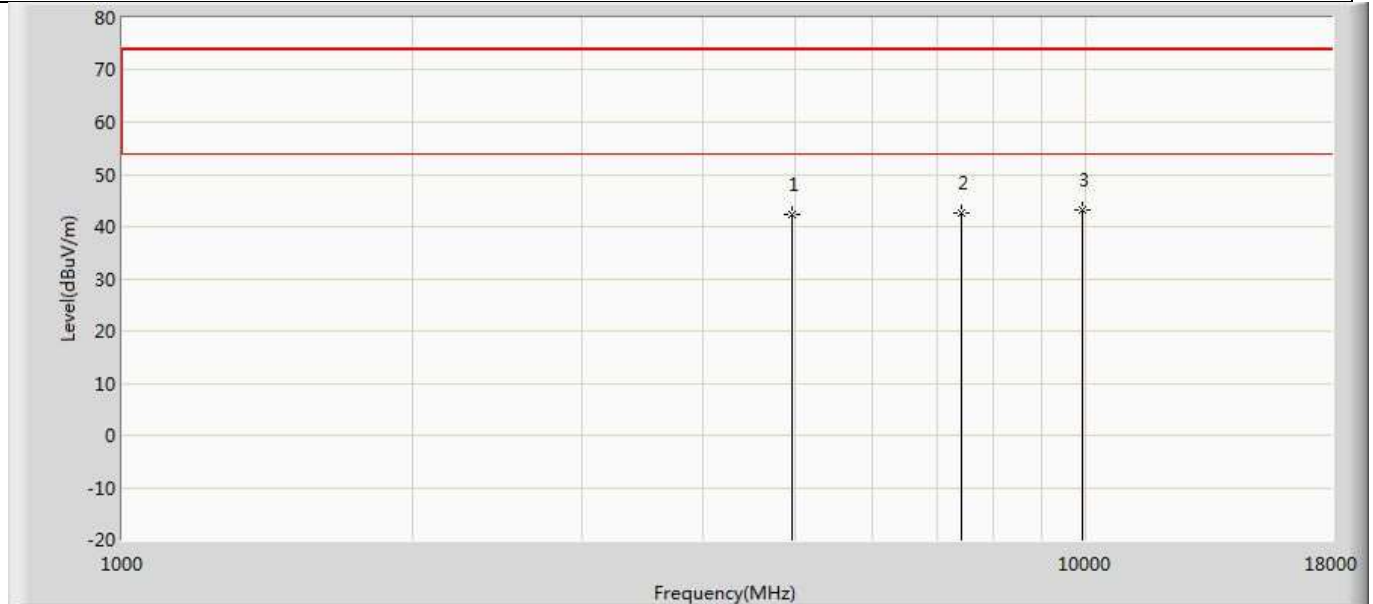
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4882.000	43.194	48.147	-30.806	74.000	-4.953	PK
2		7323.000	41.797	43.802	-32.203	74.000	-2.006	PK
3		9764.000	42.296	42.893	-31.704	74.000	-0.598	PK

Profile: 20A0891R	Page No.: 64
Engineer: Pawn	
Site: AC5	Time: 2020/11/12 - 15:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode3:Transmit at 2441MHz by 3Mbps(8DPSK_DH5)	



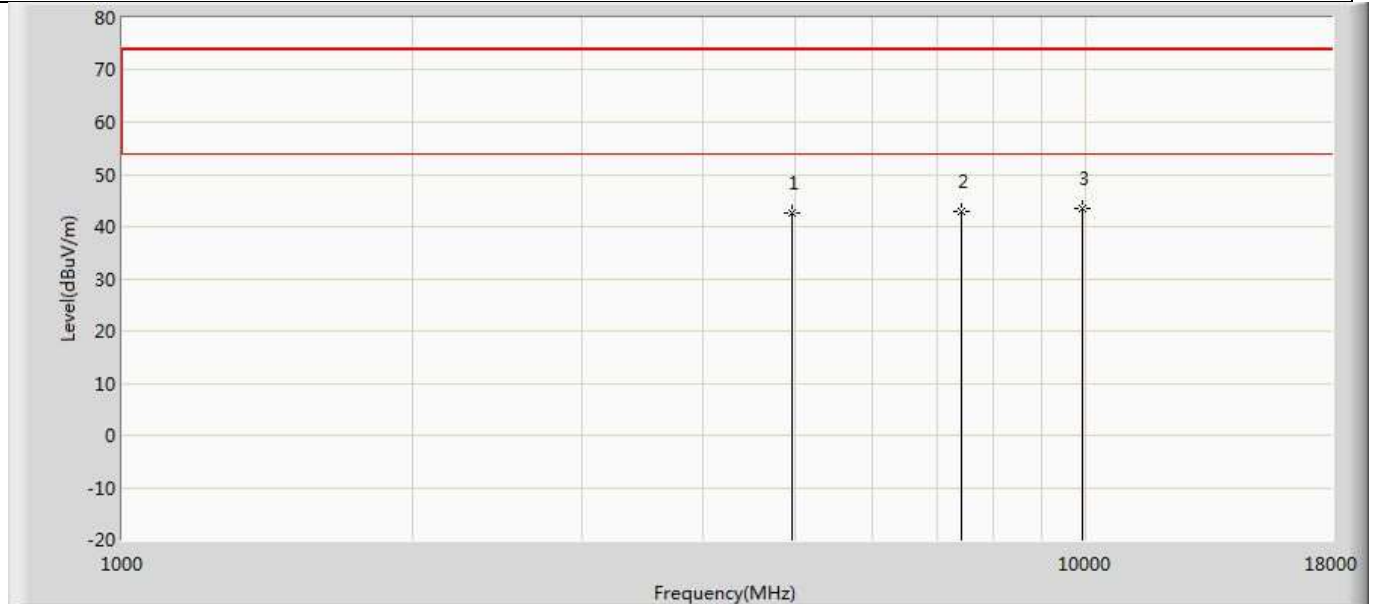
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	40.356	45.309	-33.644	74.000	-4.953	PK
2		7323.000	42.703	44.708	-31.297	74.000	-2.006	PK
3	*	9764.000	42.789	43.386	-31.211	74.000	-0.598	PK

Profile: 20A0891R	Page No.: 65
Engineer: Pawn	
Site: AC5	Time: 2020/11/12 - 15:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode3:Transmit at 2480MHz by 3Mbps(8DPSK_DH5)	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	42.381	47.352	-31.619	74.000	-4.972	PK
2		7440.000	42.609	44.586	-31.391	74.000	-1.978	PK
3	*	9920.000	43.181	43.014	-30.819	74.000	0.167	PK

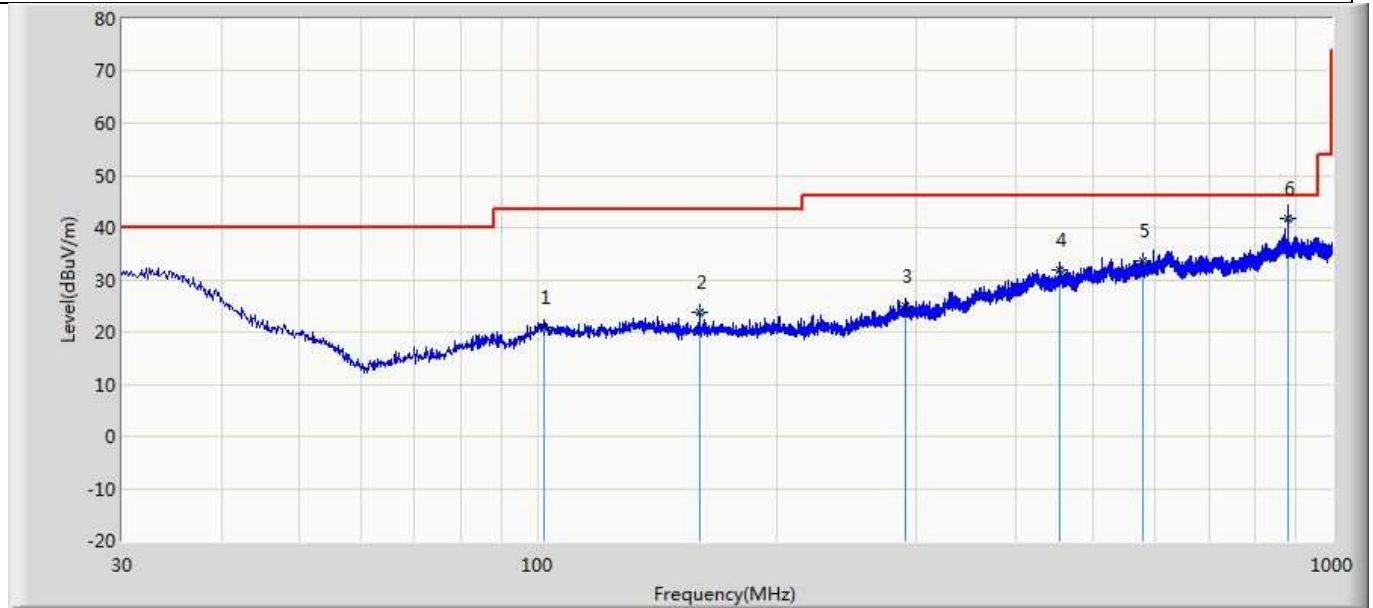
Profile: 20A0891R	Page No.: 66
Engineer: Pawn	
Site: AC5	Time: 2020/11/12 - 15:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode3:Transmit at 2480MHz by 3Mbps(8DPSK_DH5)	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	42.569	47.540	-31.431	74.000	-4.972	PK
2		7440.000	43.029	45.006	-30.971	74.000	-1.978	PK
3	*	9920.000	43.538	43.371	-30.462	74.000	0.167	PK

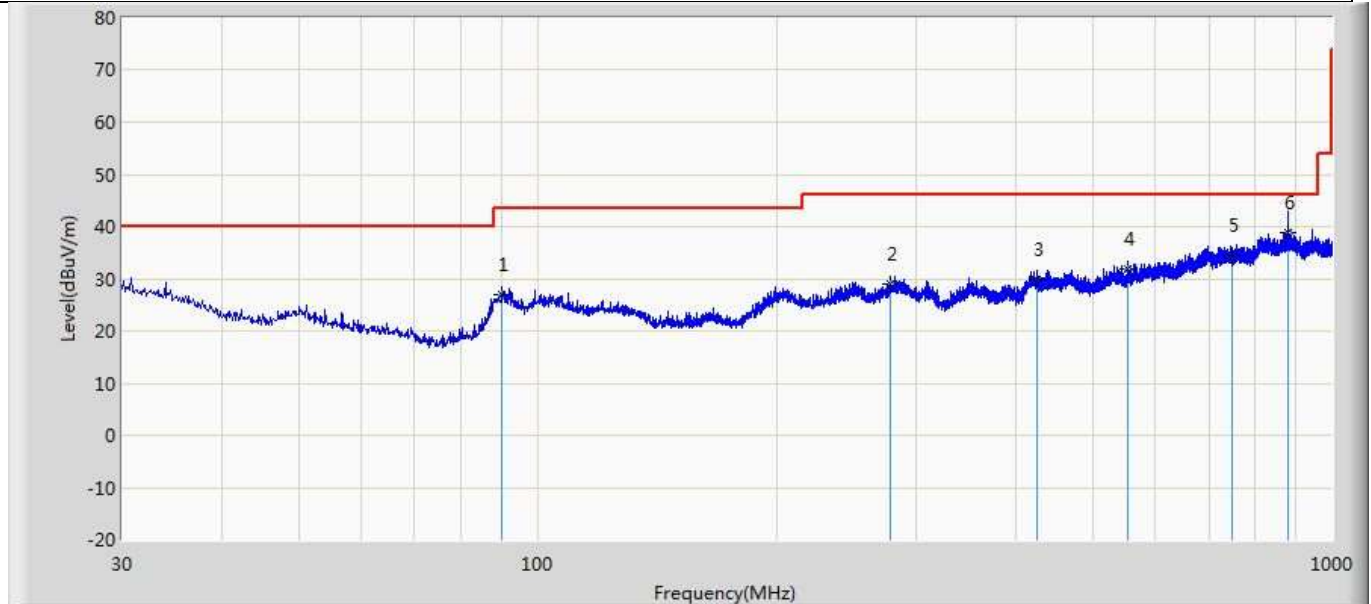
The worst case of Radiated Emission below 1GHz:

Profile: 20A0891R	Page No.: 1
Engineer: Pawn	
Site: AC2	Time: 2020/11/14 - 15:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Model1:	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		102.022	21.009	4.023	-22.491	43.500	16.986	QP
2		159.980	23.678	6.645	-19.822	43.500	17.033	QP
3		290.566	24.968	4.389	-21.032	46.000	20.579	QP
4		454.011	31.841	4.628	-14.159	46.000	27.213	QP
5		579.086	33.723	5.349	-12.277	46.000	28.374	QP
6	*	879.963	41.747	9.356	-4.253	46.000	32.391	QP

Profile: 20A0891R	Page No.: 2
Engineer: Pawn	
Site: AC2	Time: 2020/11/14 - 15:13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Model1:	



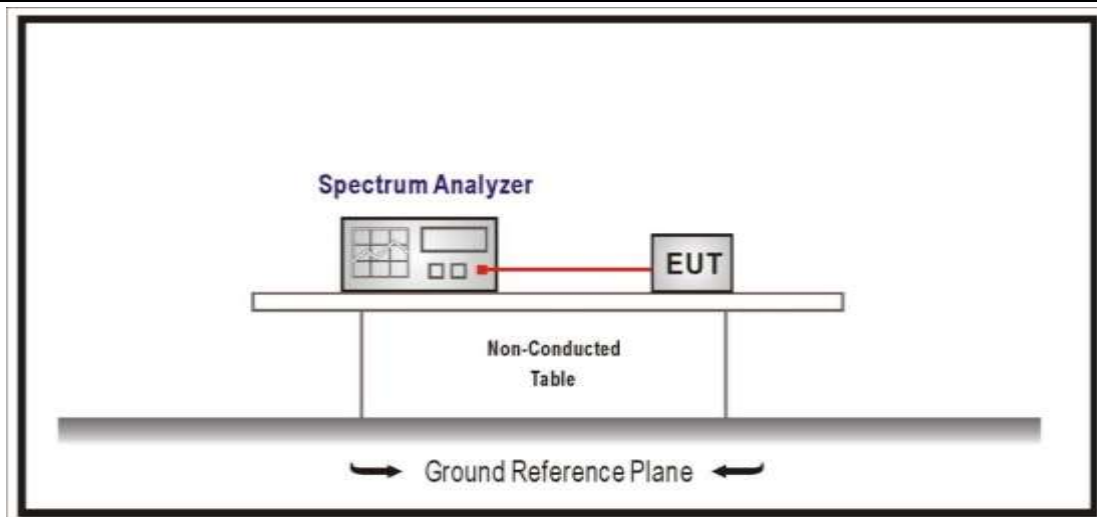
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		90.261	27.095	10.126	-16.405	43.500	16.969	QP
2		277.714	28.870	4.384	-17.130	46.000	24.486	QP
3		426.124	29.857	3.879	-16.143	46.000	25.978	QP
4		552.345	31.822	5.356	-14.178	46.000	26.466	QP
5		750.104	34.612	3.912	-11.388	46.000	30.700	QP
6	*	879.477	38.892	5.640	-7.108	46.000	33.252	QP

Note:

1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

4.3 20dB Bandwidth**VERDICT: PASS****4.3.1 Limit**

Standard	FCC Part 15 Subpart C Paragraph 15.247(a)
☒	For frequency hopping systems operating in 2400-2483.5 MHz band, within frequency range.
☐	For frequency hopping systems operating in 902-928 MHz band, the maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.
☐	For frequency hopping systems operating in 5725-5850 MHz band, the maximum 20 dB bandwidth of the hopping channel is 1 MHz.

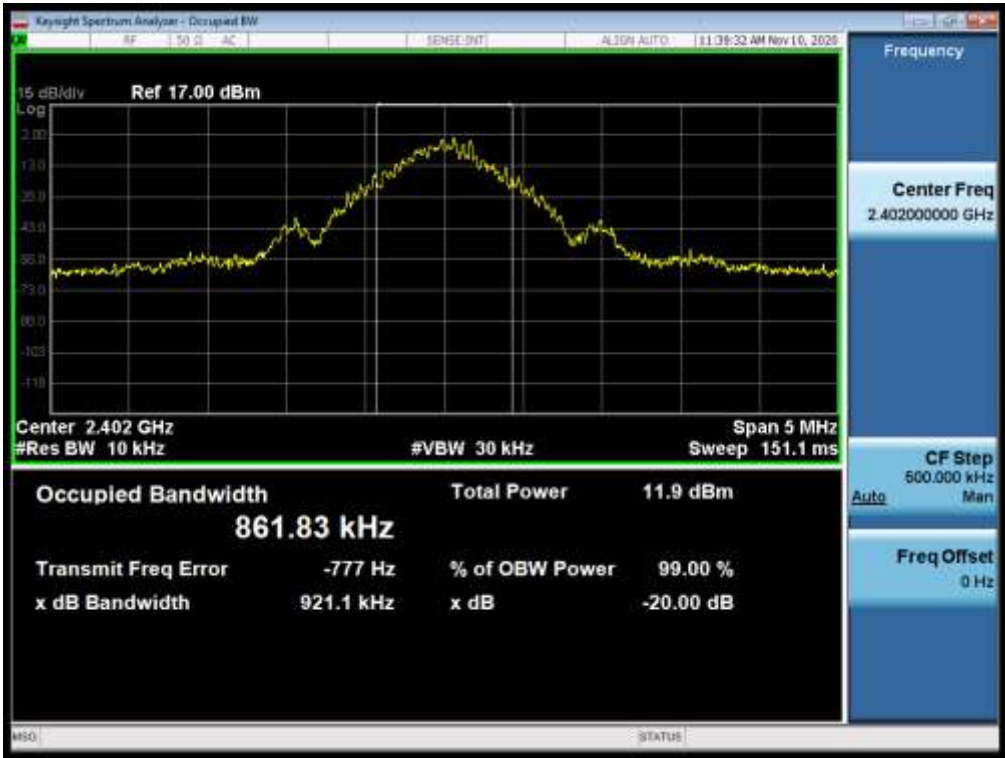
4.3.2 Test Setup**4.3.3 Test Procedure**

References Rule	Chapter	Description
☒ ANSI C63.10	6.9	Occupied bandwidth tests
☒ ANSI C63.10	6.9.2	Occupied bandwidth—relative measurement procedure

4.3.4 Test Data

Mode	Channel	Frequency (MHz)	20dB Bandwidth (kHz)	Limit (kHz)	Result
1	00	2402	921.1	≥ 500	Pass
	39	2441	924.7	≥ 500	Pass
	79	2480	921.5	≥ 500	Pass
2	00	2402	1322	≥ 500	Pass
	39	2441	1340	≥ 500	Pass
	79	2480	1338	≥ 500	Pass
3	00	2402	1275	≥ 500	Pass
	39	2441	1262	≥ 500	Pass
	79	2480	1265	≥ 500	Pass

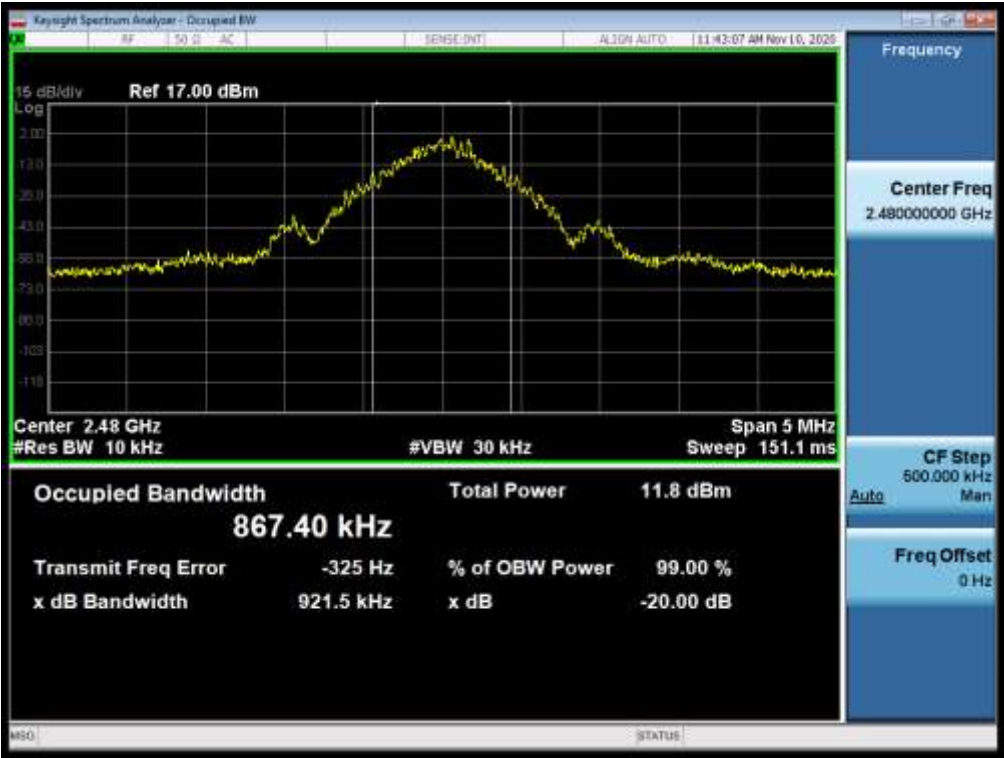
Mode 1 CH00(2402MHz)



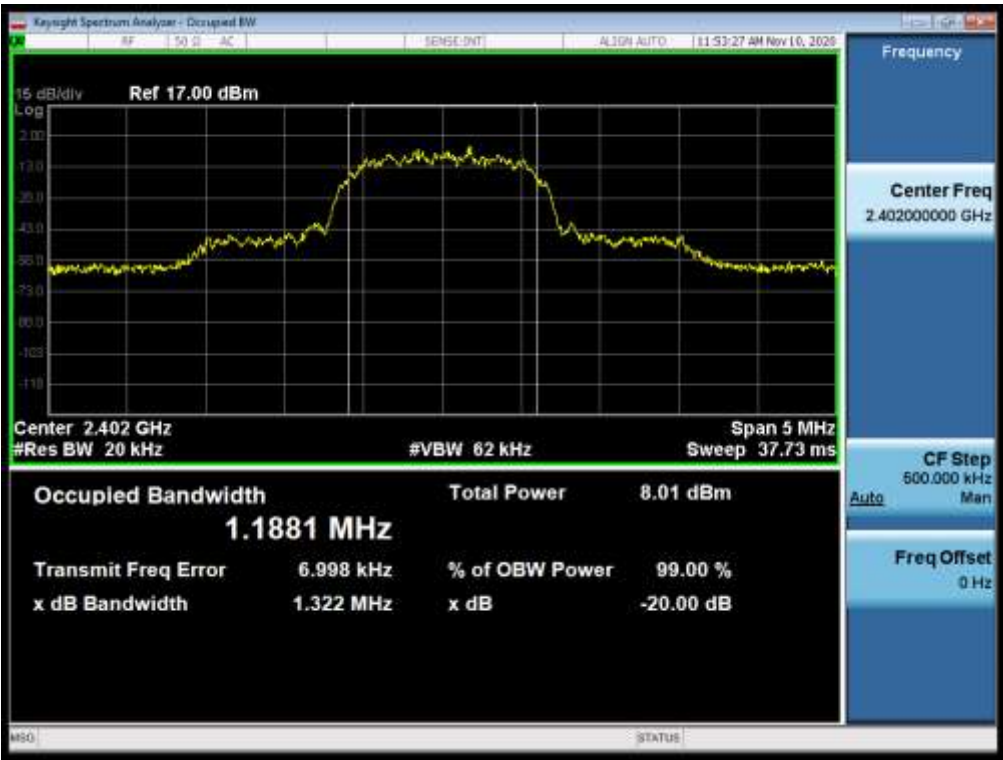
Mode 1 CH39(2441MHz)



Mode 1 CH78(2480MHz)



Mode 2 CH00(2402MHz)



Mode 2 CH39(2441MHz)



Mode 2 CH78(2480MHz)



Mode 3 CH00(2402MHz)



Mode 3 CH39(2441MHz)



Mode 3 CH78(2480MHz)



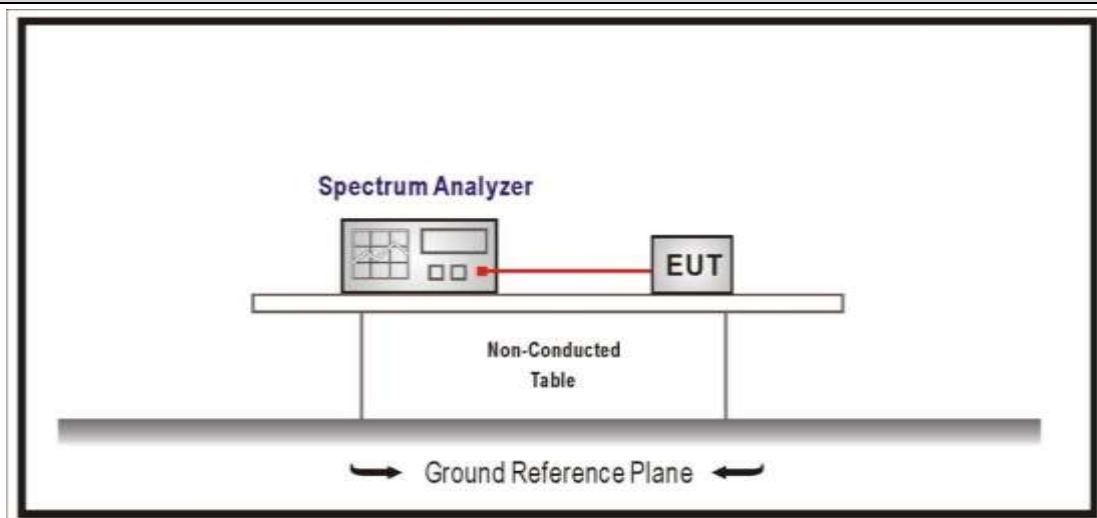
4.4 Carrier Frequency Separation

VERDICT: PASS

4.4.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.247(a)
☐	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.
☒	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.
☐	The 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4
☐	The 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4
☐	Frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz.

4.4.2 Test Setup



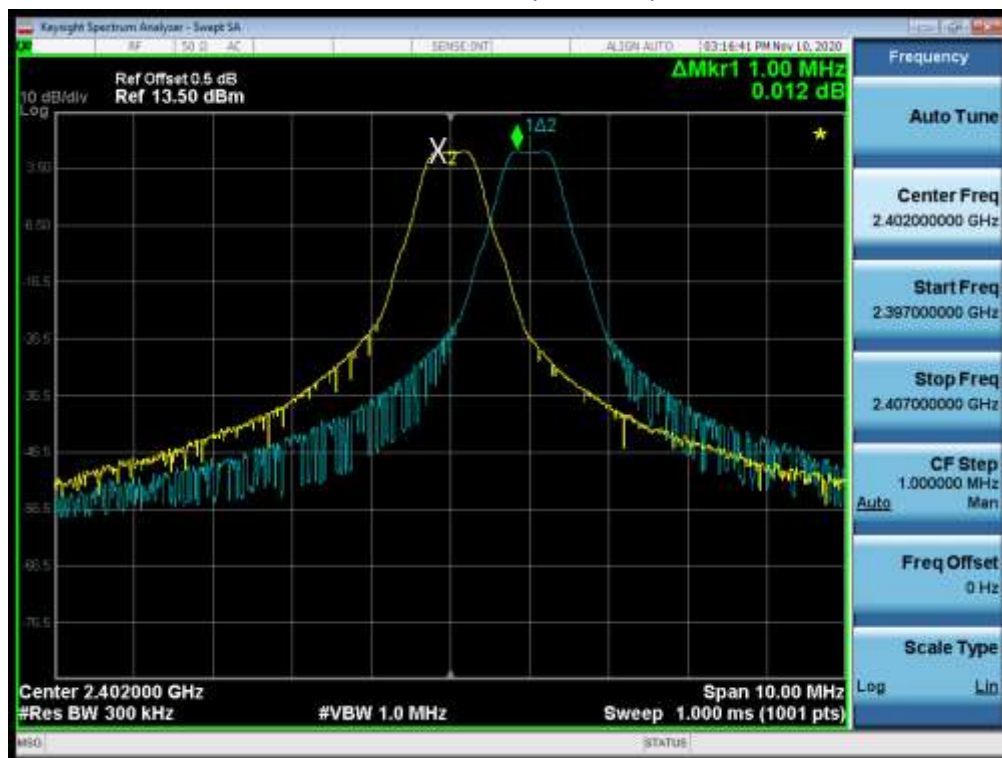
4.4.3 Test Procedure

References Rule	Chapter	Description
☒ ANSI C63.10	7.8	Evaluation of frequency-hopping device parameters
☒ ANSI C63.10	7.8.2	Carrier frequency separation

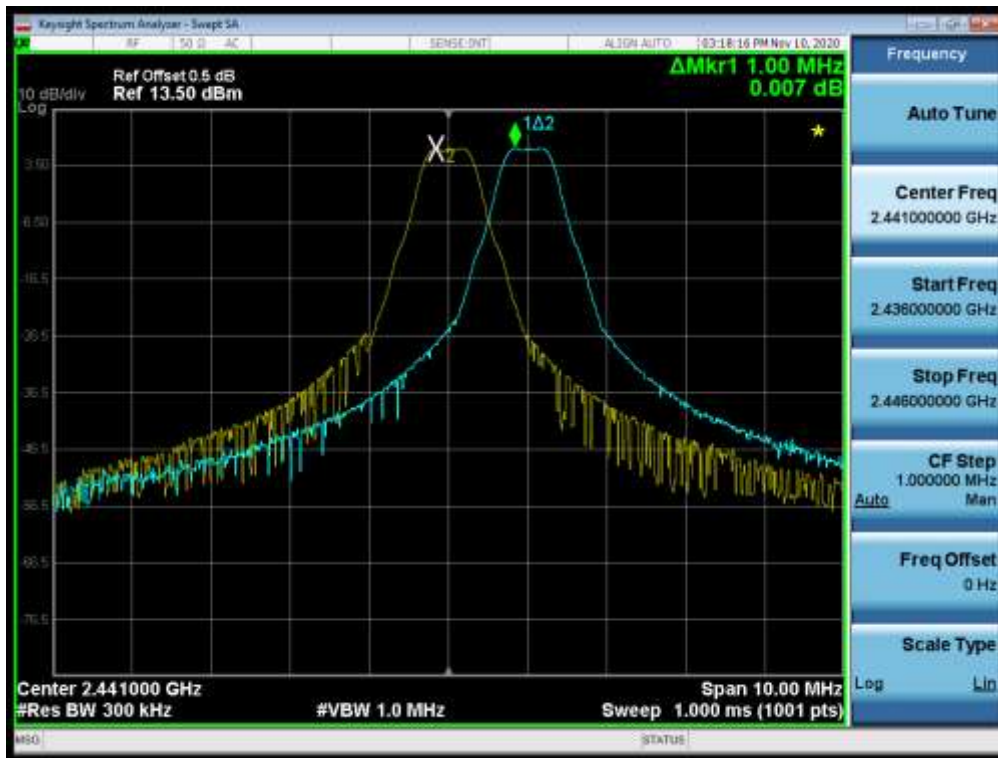
4.4.4 Test Data

Mode	Channel	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
1	00	2402	1000	619.13	Pass
	39	2441	1000	617.87	Pass
	78	2480	1000	617.80	Pass
2	00	2402	1000	902.67	Pass
	39	2441	1000	902.67	Pass
	78	2480	1000	901.33	Pass
3	00	2402	1000	896.00	Pass
	39	2441	1000	896.67	Pass
	78	2480	1000	895.33	Pass

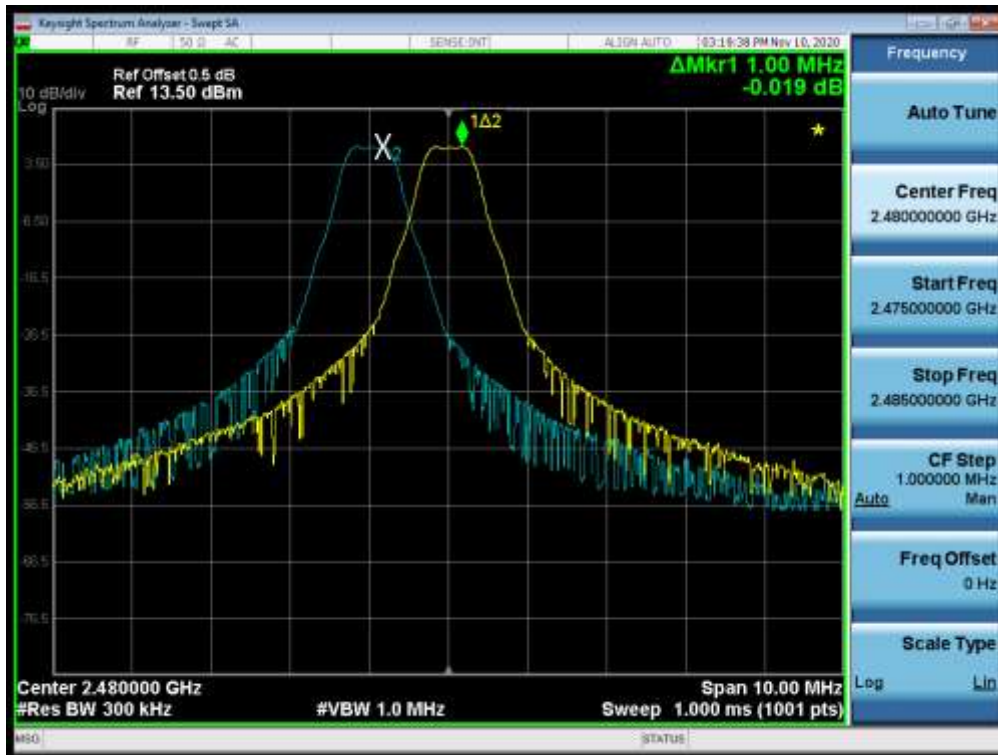
Mode 1 CH00(2402MHz)



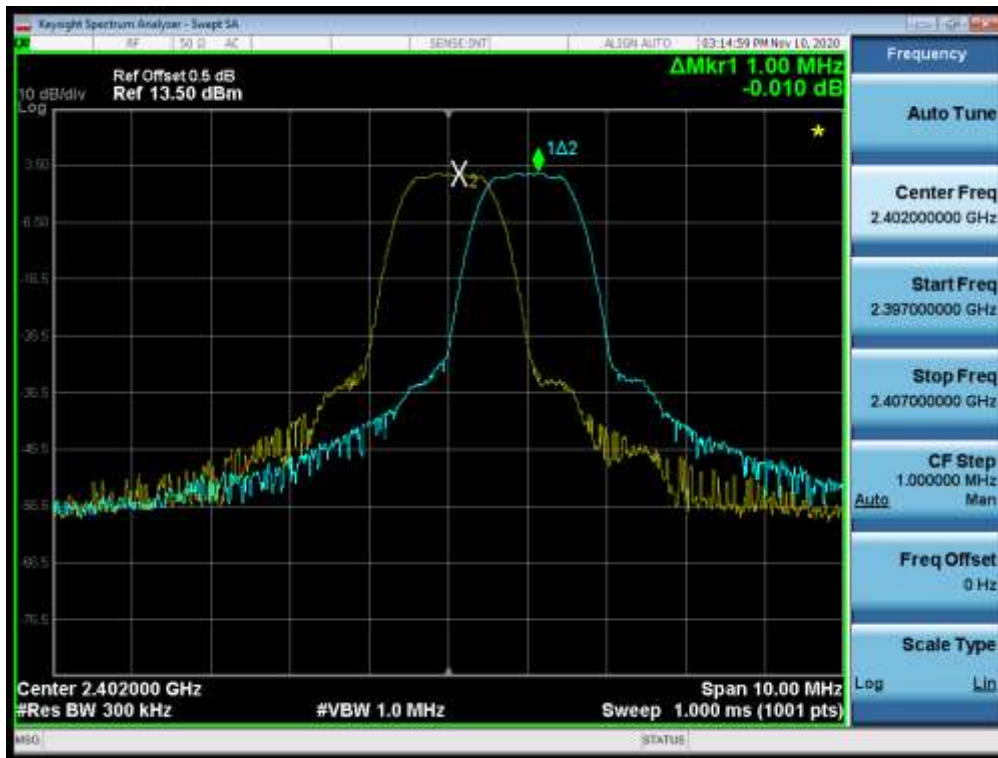
Mode 1 CH39(2441MHz)



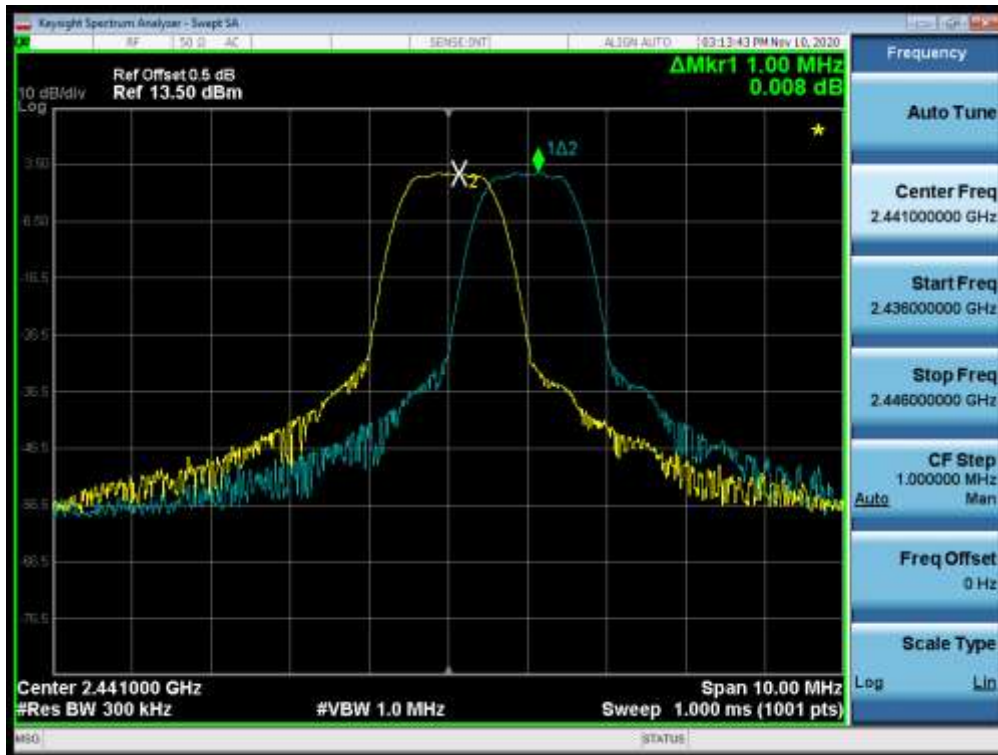
Mode 1 CH78(2480MHz)



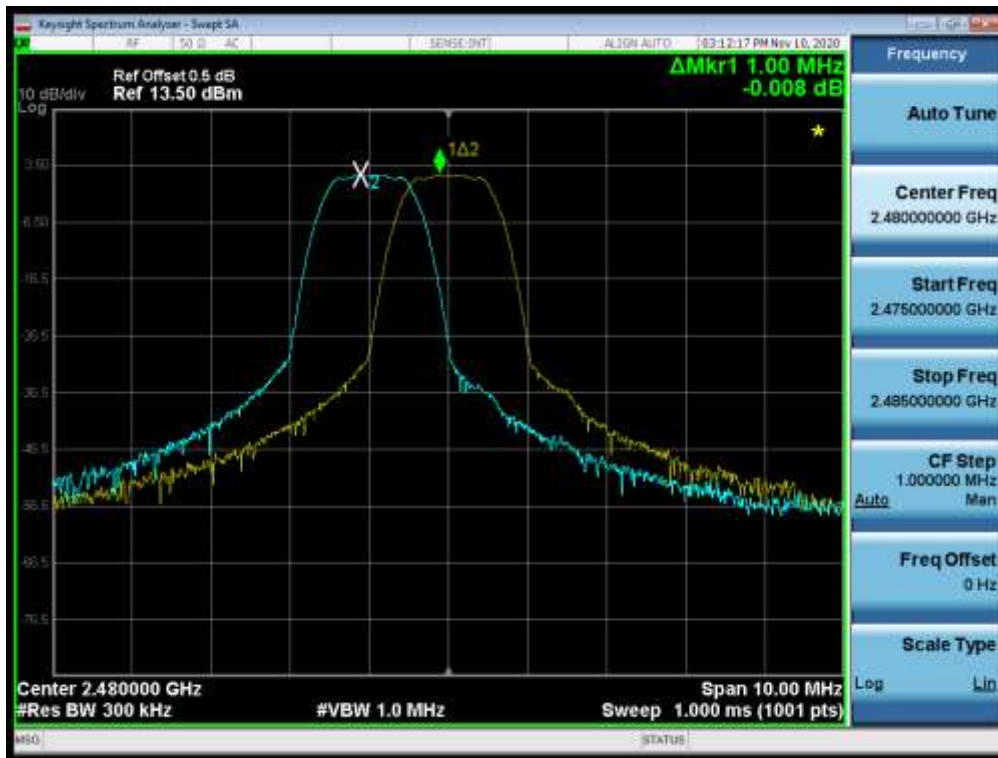
Mode 2 CH00(2402MHz)



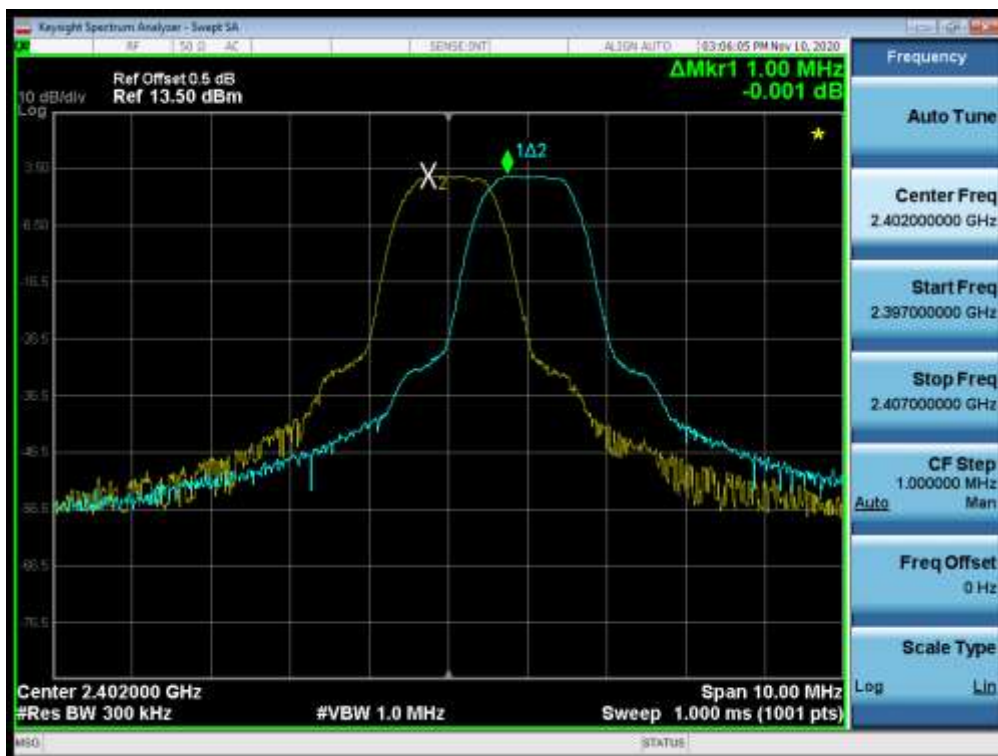
Mode 2 CH39(2441MHz)



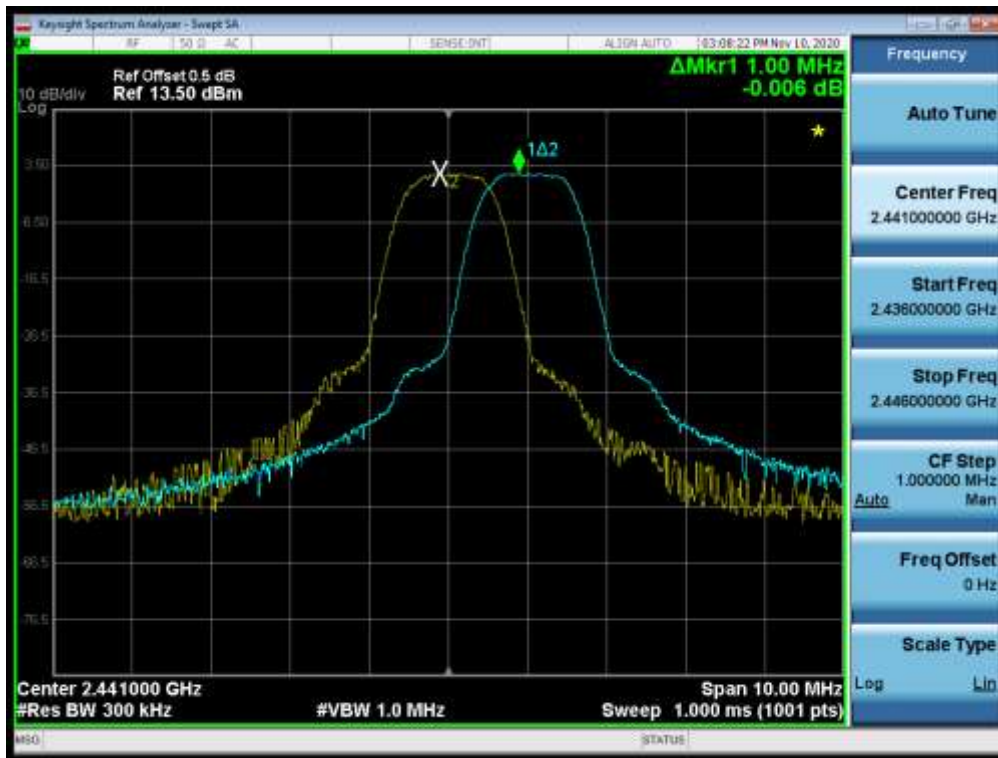
Mode 2 CH78(2480MHz)



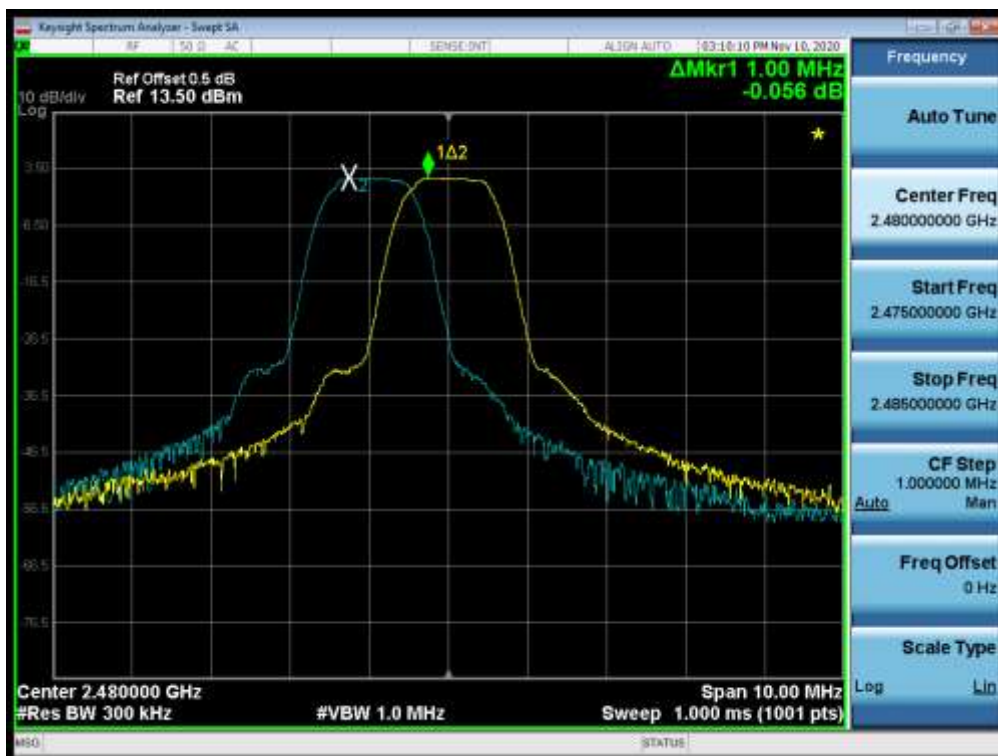
Mode 3 CH00(2402MHz)



Mode 3 CH39(2441MHz)



Mode 3 CH78(2480MHz)



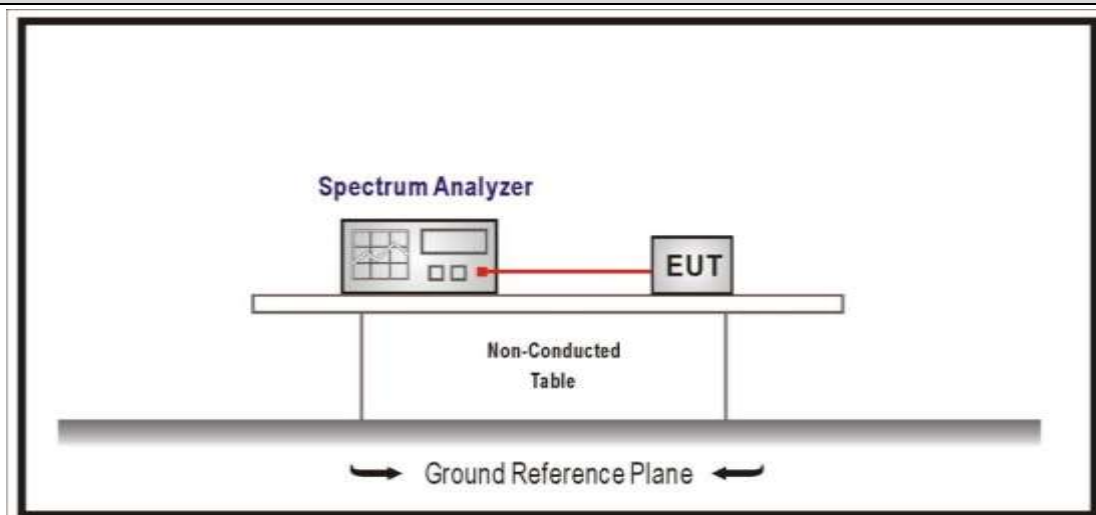
4.5 Number of hopping Frequencies

VERDICT: PASS

4.5.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.247(a)
☒	For frequency hopping systems operating in the 2400-2483.5 MHz band shall use at least 15 hopping frequencies.
☐	For frequency hopping systems operating in 902-928 MHz band, if the 20 dB bandwidth of the hopping channel is less than 250 kHz, shall use at least 50 hopping frequencies.
☐	For frequency hopping systems operating in 902-928 MHz band, if the 20 dB bandwidth of the hopping channel is higher than 250 kHz, shall use at least 25 hopping frequencies.
☐	For frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies.

4.5.2 Test Setup



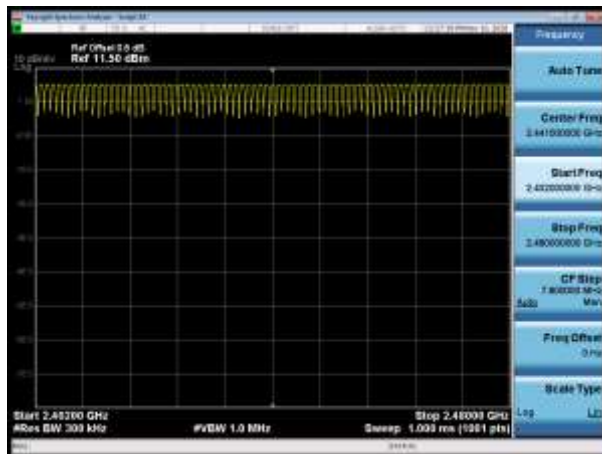
4.5.3 Test Procedure

References Rule	Chapter	Description
☒ ANSI C63.10	7.8.	Evaluation of frequency-hopping device parameters
☒ ANSI C63.10	7.8.3	Number of Hopping Frequencies

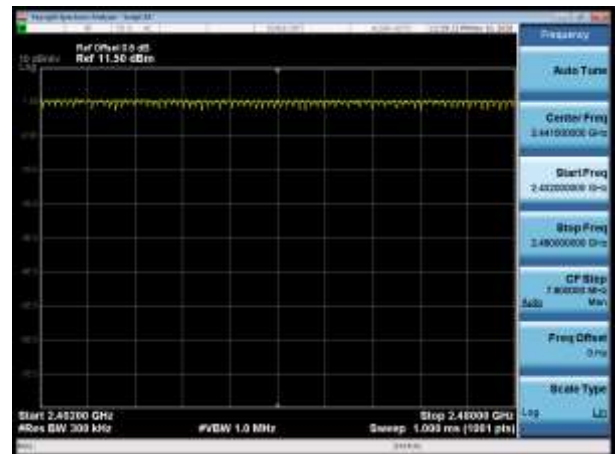
4.5.4 Test Data

Mode	Number of Hopping Frequencies	Limit	Result
4	79	>15	Pass
5	79	>15	Pass
6	79	>15	Pass

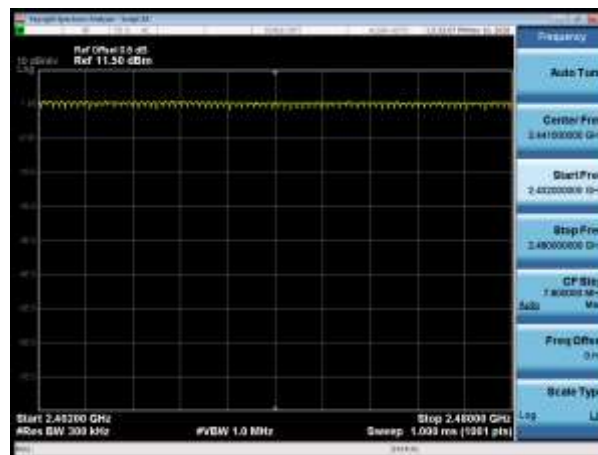
Mode 1



Mode 2

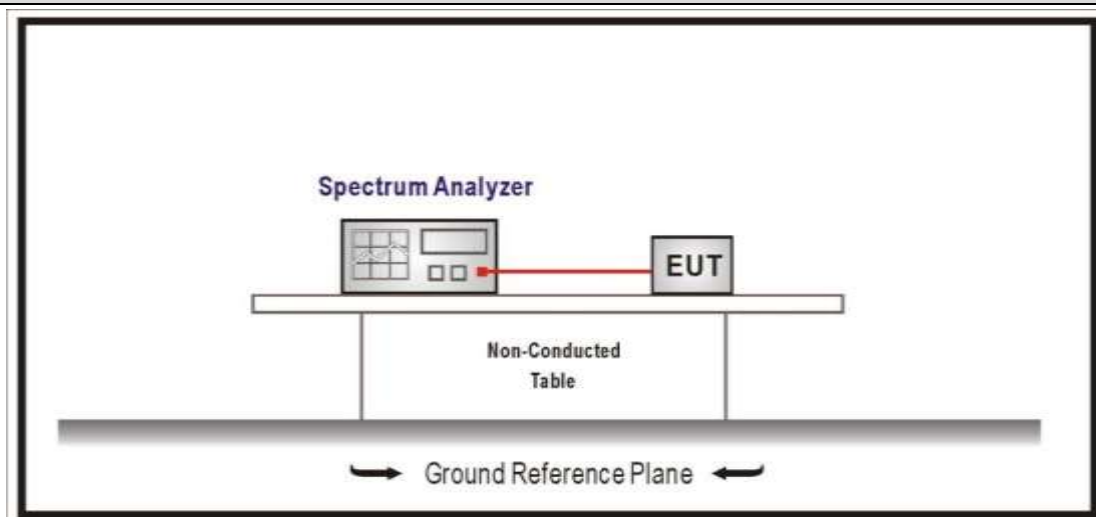


Mode 3



4.6 Time of Occupancy(Dwell Time)**VERDICT: PASS****4.6.1 Limit**

Standard	FCC Part 15 Subpart C Paragraph 15.247(a)
☒	Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.
☐	For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20
☐	For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10
☐	Frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz. The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

4.6.2 Test Setup**4.6.3 Test Procedure**

References Rule	Chapter	Description
☒ ANSI C63.10	7.8	Evaluation of frequency-hopping device parameters
☒ ANSI C63.10	7.8.4	Time of occupancy (dwell time)

4.6.4 Test Data

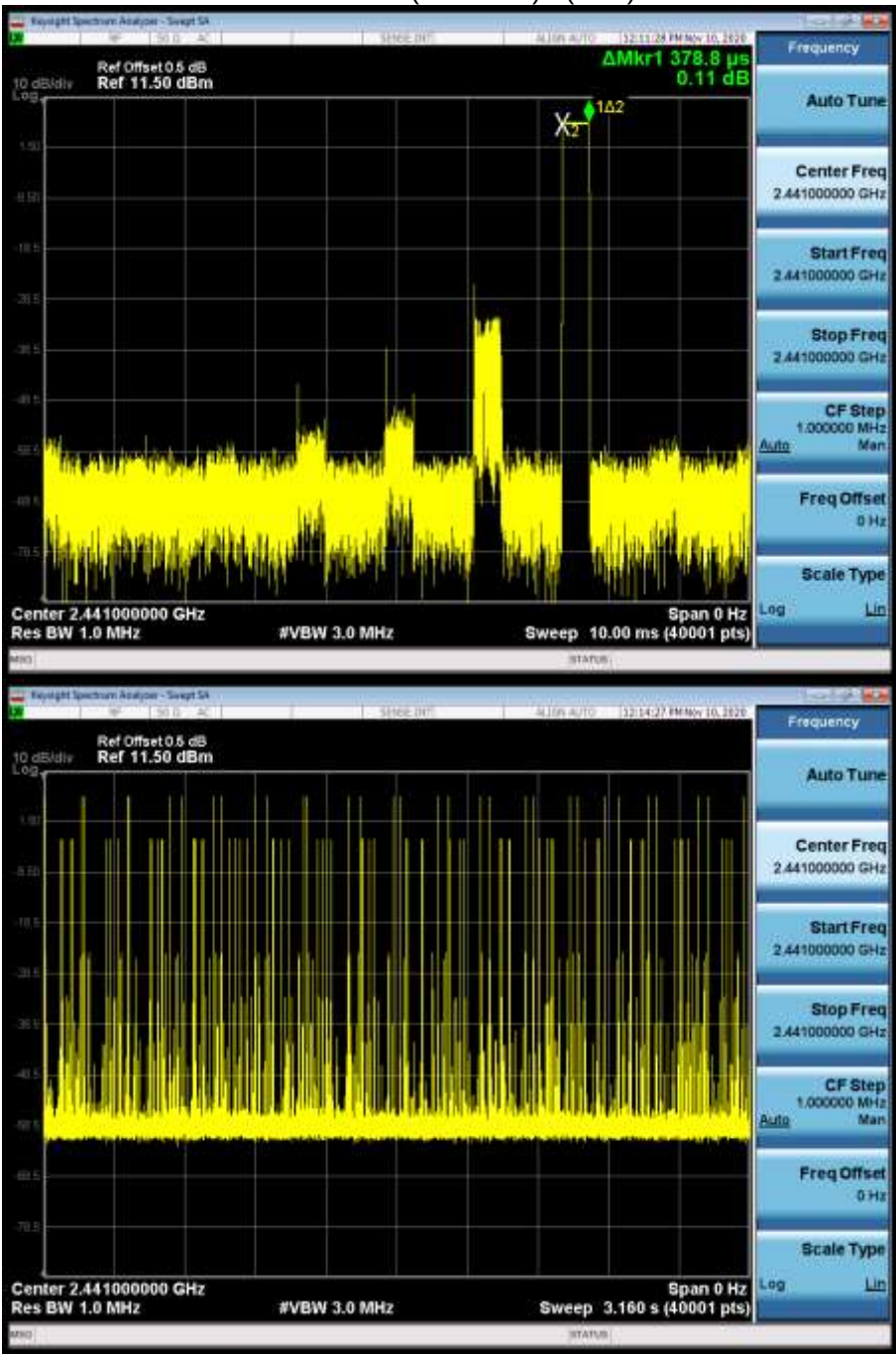
Mode	Channel	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
4	39	2441	117.49	< 400	Pass

Note1: Test Time Period: $0.4 \times 79 = 31.6 \text{sec}$

Note2: Time of Occupancy = $0.379 \times 31 \times 31.6 / 3.16 = 122.56 \text{ms}$

Note3: We have evaluated different packet type, shown in the report is the worst data.

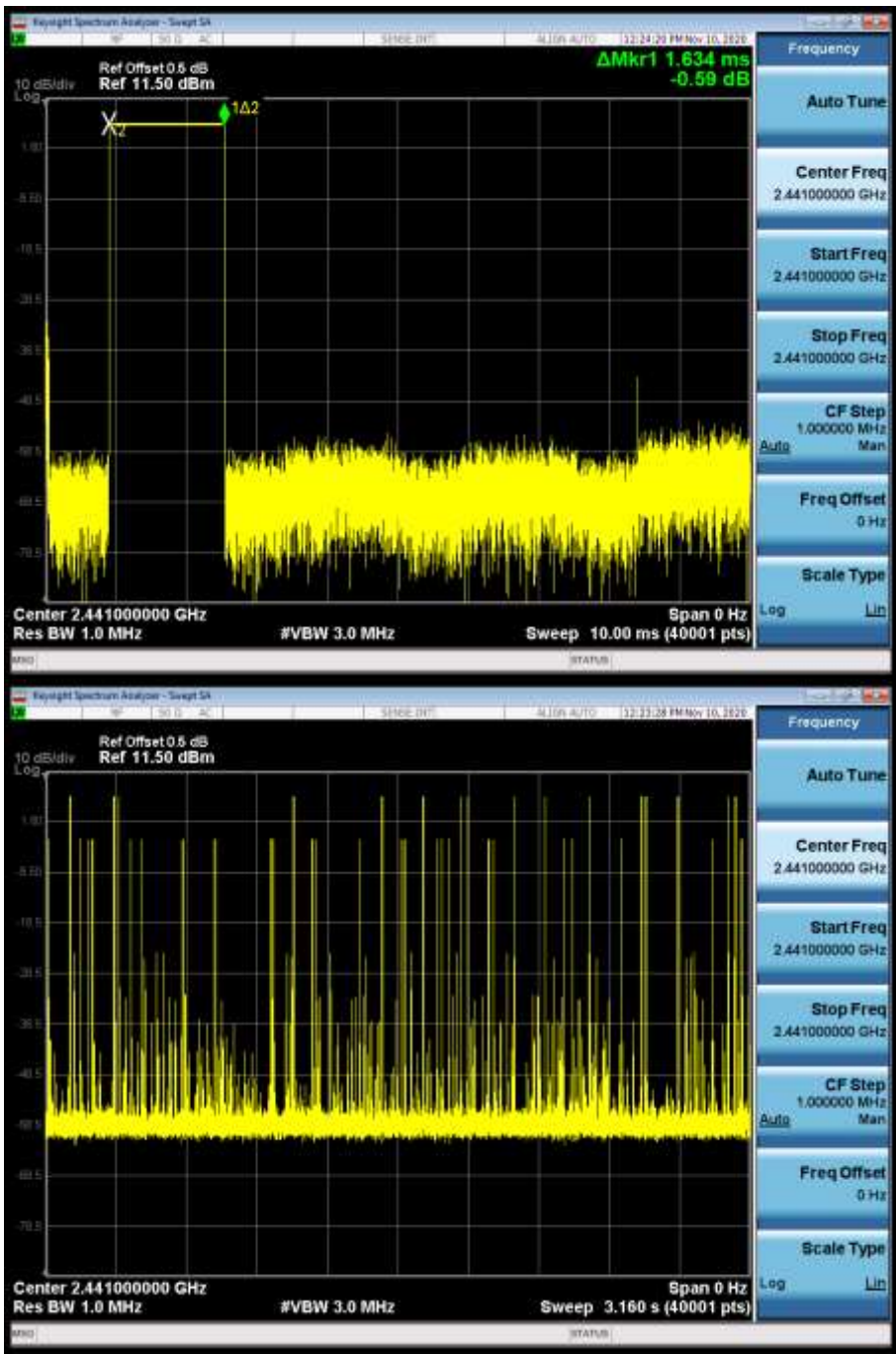
Channel 39 (2441MHz) - (DH1)



Mode	Channel	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
1	39	2441	261.44	< 400	Pass

Note1: Test Time Period: 0.4*79=31.6sec
Note2: Time of Occupancy=1.634*16*31.6/3.16=218.29ms
Note3: We have evaluated different packet type, shown in the report is the worst data.

Channel 39 (2441MHz) - (DH3)



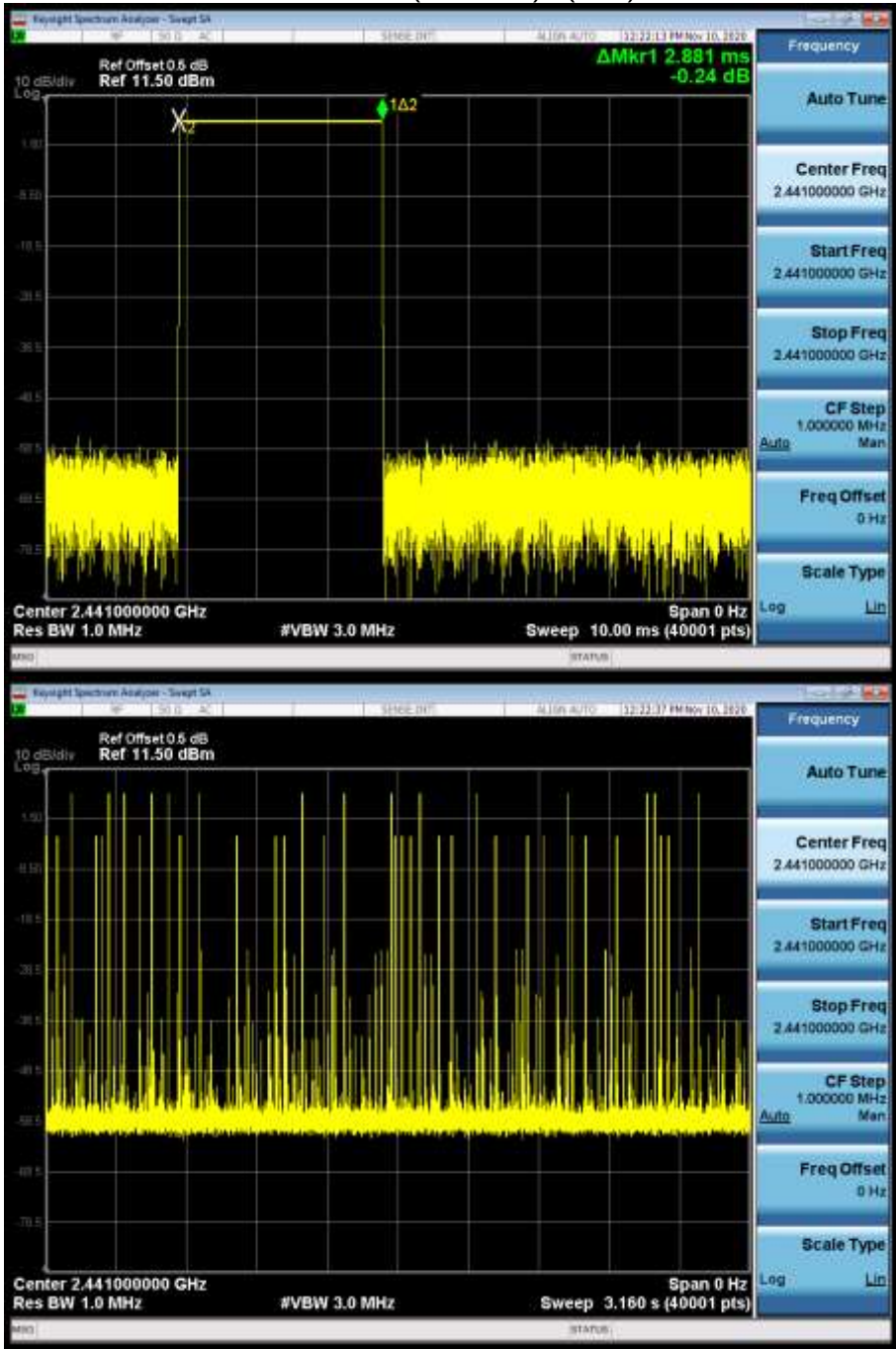
Mode	Channel	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
1	39	2441	201.60	< 400	Pass

Note1: Test Time Period: 0.4*79=31.6sec

Note2: Time of Occupancy=2.881*15*31.6/3.16=201.60ms

Note3: We have evaluated different packet type, shown in the report is the worst data.

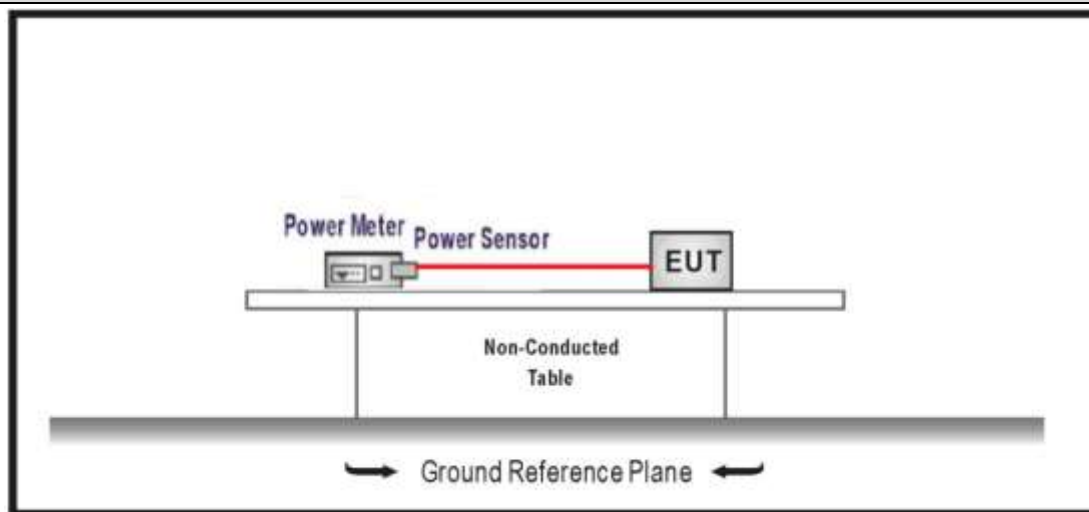
Channel 39 (2441MHz) - (DH5)



Note: The packet time of AFH mode is same as normal mode, due to the packet time of AFH mode multiply with lesser factor is dwell time of 0.4X20=8S, the dwell time of AFH mode comply with the limit.

4.7 Peak Output Power**VERDICT: PASS****4.7.1 Limit**

Standard		FCC Part 15 Subpart C Paragraph 15.247 (a)(1)
☐	Frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.	
☒	Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.	
☐	For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels	

4.7.2 Test Setup

4.7.3 Test Procedure

	References Rule		Chapter	Description
☒	ANSI C63.10		7.8	Evaluation of frequency-hopping device parameters
	☒	ANSI C63.10	7.8.5	Output power test procedure for frequency-hopping spread-spectrum (FHSS) devices

4.7.4 Test Data

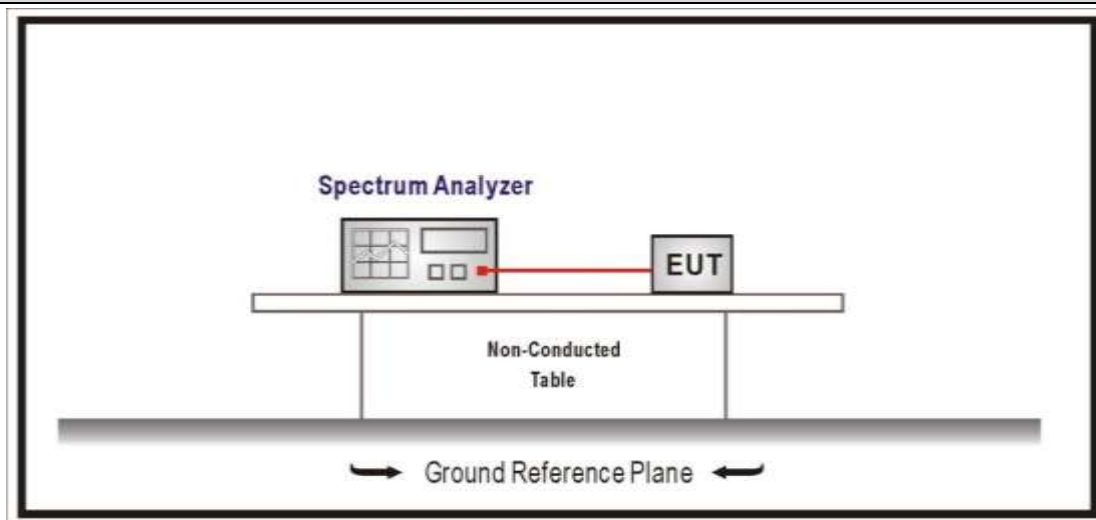
Mode	Channel	Test Frequency (MHz)	Power Output (dBm)	Limit (dBm)	Result
Mode 1	00	2402	6.78	≤ 21	Pass
	39	2441	6.35	≤ 21	Pass
	78	2480	7.18	≤ 21	Pass
Mode 2	00	2402	4.38	≤ 21	Pass
	39	2441	4.22	≤ 21	Pass
	78	2480	4.26	≤ 21	Pass
Mode 3	00	2402	4.79	≤ 21	Pass
	39	2441	4.74	≤ 21	Pass
	78	2480	4.93	≤ 21	Pass

4.8 Emissions in non-restricted frequency band**VERDICT: PASS****4.8.1 Limit**

Standard	FCC Part 15 Subpart C Paragraph 15.247(d)
RF Output power (Detection methods)	Limit(dB)
RF Output power(Average detector)	30dBc(Note1)
RF Output power(PK detector)	20dBc(Note2)

Note 1: If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).

Note 2: If the maximum peak conducted output power procedure was used, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).

4.8.2 Test Setup**4.8.3 Test Procedure**

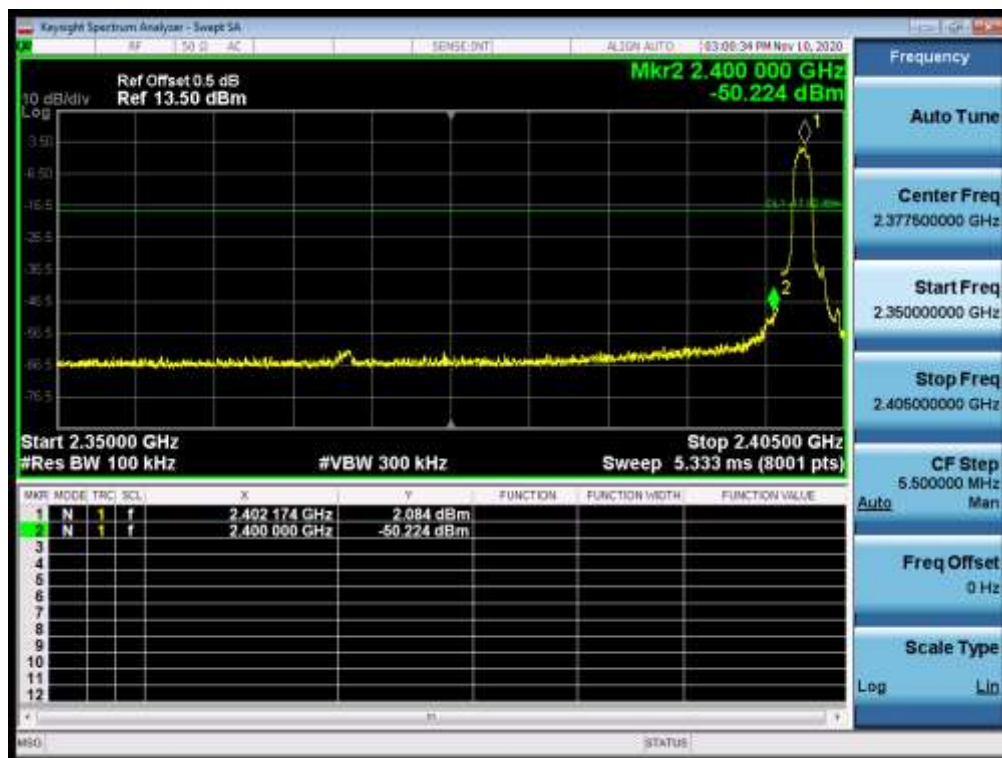
References Rule	Chapter	Description
☒ ANSI C63.10	7.8	Evaluation of frequency-hopping device parameters
☒ ANSI C63.10	7.8.6	Band-edge measurements for RF conducted emissions

4.8.4 Test Data

Mode	Channel	Test Frequency (MHz)	Maximum In-Band PSD[a] (dBm/100kHz)	Frequency (MHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
1	00	2402	6.570	2400.000	-46.758	53.328	>20	Pass
	78	2480	6.483	2500.000	-64.351	70.834	>20	Pass
2	00	2402	1.920	2400.000	-50.812	52.732	>20	Pass
	78	2480	1.268	2532.063	-62.796	64.064	>20	Pass
3	00	2402	2.084	2400.000	-50.224	52.308	>20	Pass
	78	2480	1.695	2502.734	-61.534	63.229	>20	Pass
4	00 ~ 78	Low	6.252	2399.801	-47.872	54.124	>20	Pass
		High	6.646	2530.719	-63.351	69.997	>20	Pass
5	00 ~ 78	Low	2.167	2399.498	-51.859	54.026	>20	Pass
		High	1.939	2500.000	-64.880	66.819	>20	Pass
6	00 ~ 78	Low	2.034	2399.546	-50.818	52.852	>20	Pass
		High	1.942	2500.000	-64.181	66.123	>20	Pass

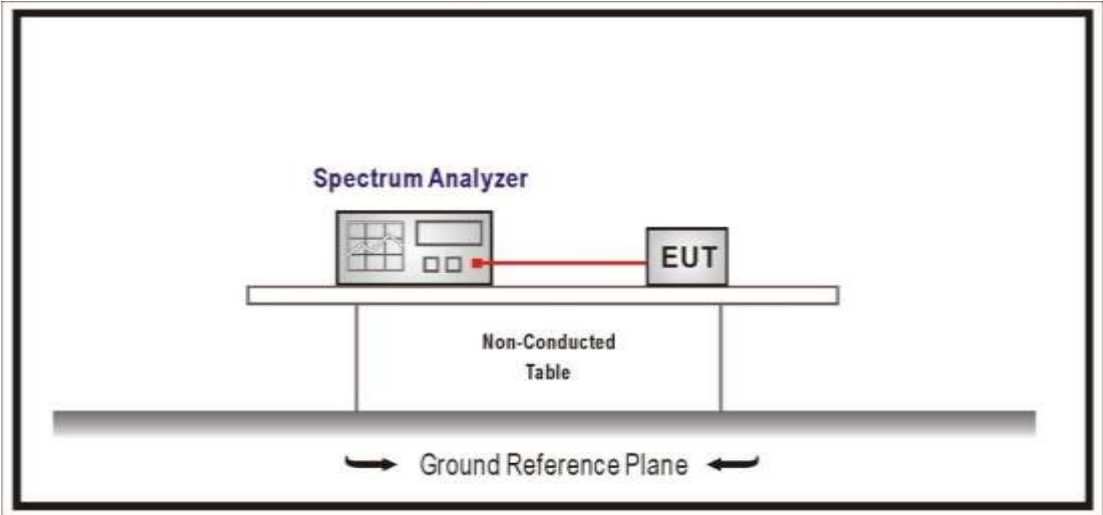
Note: The worst data as shown in below:

Mode 3 CH 00



4.9 Duty cycle	VERDICT: PASS
----------------	---------------

4.9.1 Limit
N/A

4.9.2 Test Setup


4.9.3 Test Procedure			
References Rule		Chapter	Description
☒	ANSI C63.10	11.6	Duty cycle (D), transmission duration (T), and maximum power control level

4.9.4 Test Data

Test Mode	Tx On (ms)	Tx Off (ms)	VBW (kHz)	Tx On + Tx Off (ms)	Duty Cycle
Mode 1	2.88	3.75	0.35	0.87	76.8%
Mode 2	1.53	3.75	0.65	2.22	40.8%
Mode 3	1.07	3.75	0.97	2.68	28.5%

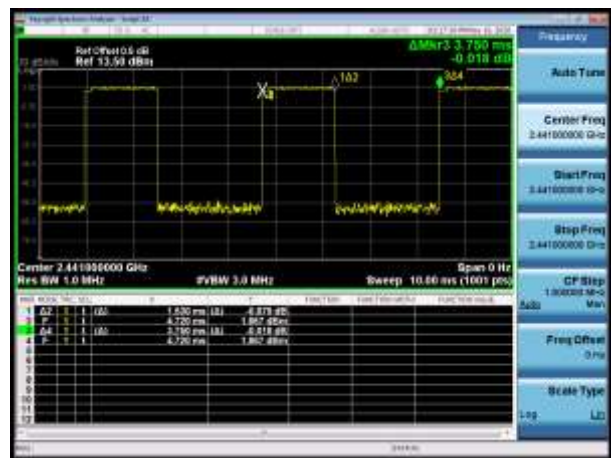
Note 1: T means the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Note 2: According to KDB 558074, when test for Radiated Emission Band Edge and Radiated Emission, for average detector set: $VBW \geq 1/T$ will be used.

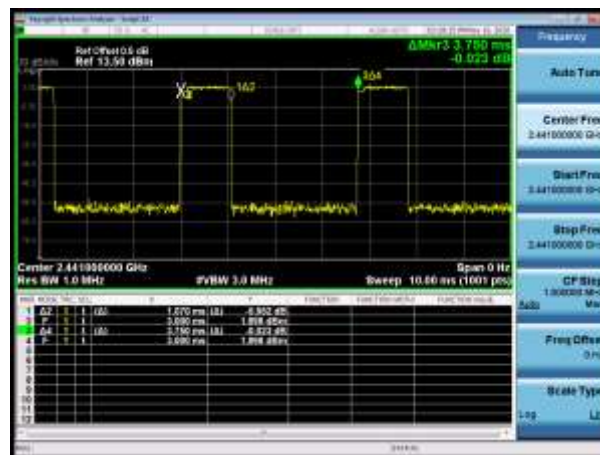
Mode 1 CH39 2441MHz



Mode 2 CH39 2441MHz



Mode 3 CH39 2441MHz



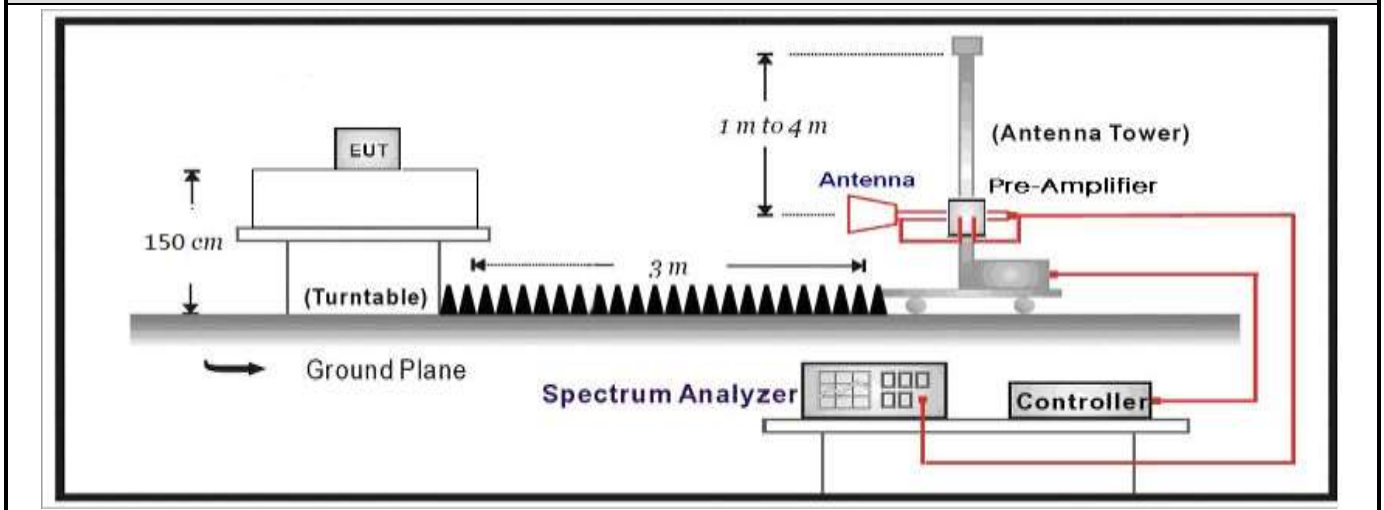
4.10 Radiated Emission Band Edge**VERDICT: PASS****4.10.1 Limit**

Standard		FCC Part 15 Subpart C Paragraph 15.247(d) , 15.209		
Frequency bands (MHz)	Detector	Limit (dB μ V/m)	RBW (MHz)	Distance (m)
2310-2390	PK	74	1	3
2483.5-2500	AV	54	1	3

Note: The field strength of emissions appearing within these frequency bands shall not exceed the limits.

4.10.2 Test Setup

Above 1GHz Test Setup:

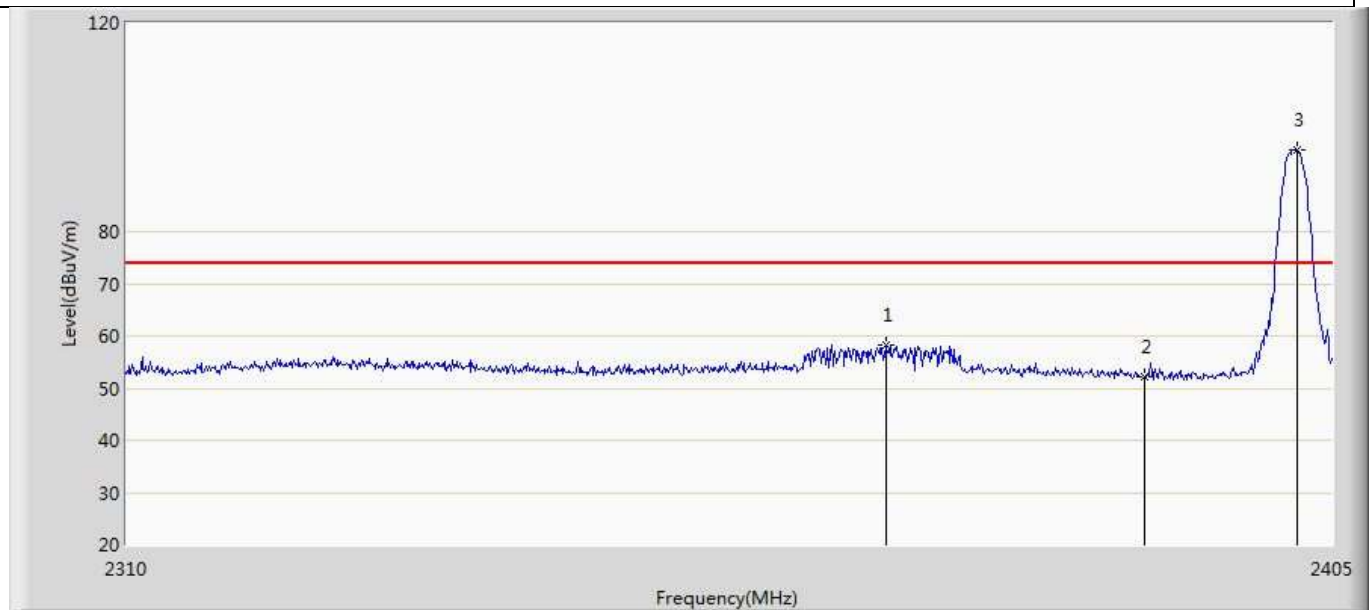
**4.10.3 Test Procedure**

Test Method

	References Rule	Chapter	Description
☐	DA 00-705	N/A	duty cycle correction factor
☒	ANSI C63.10	6.10	Band-edge testing
☒	ANSI C63.10	6.10.5	Restricted-band band-edge measurements
☐	ANSI C63.10	6.10.6	Marker-delta method
☐	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
☐	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
☒	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

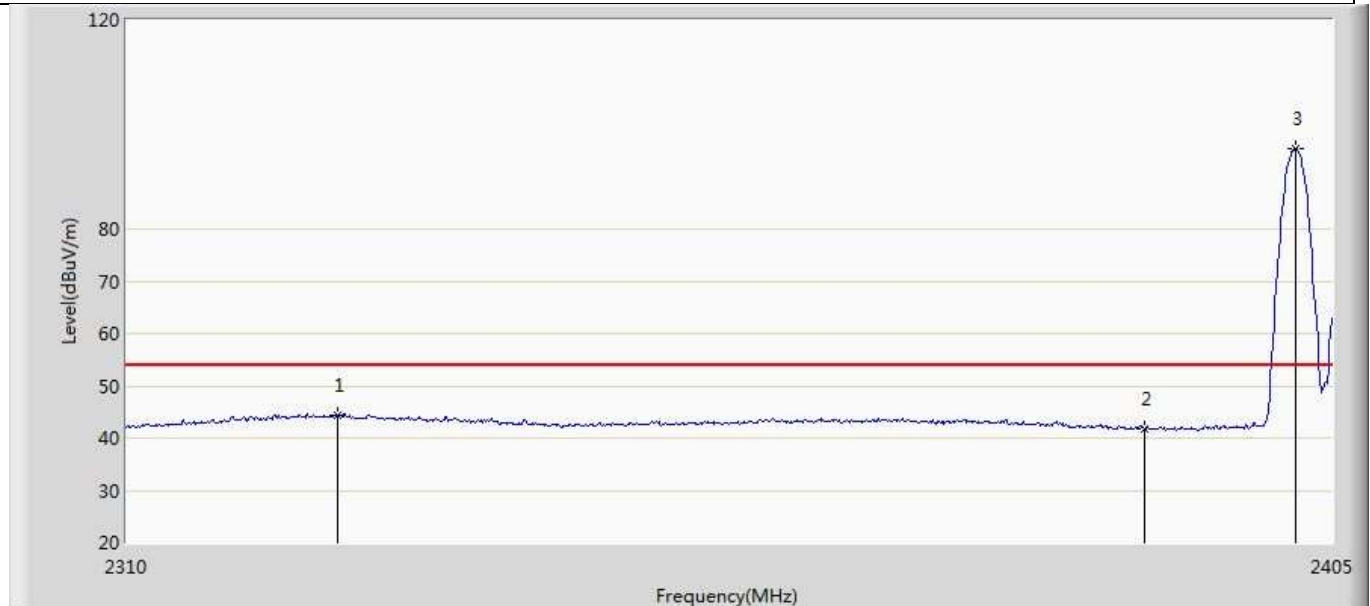
4.10.4 Test Data

Profile: 20A0891R	Page No.: 1
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 10:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Model: Transmit at 2402MHz by 1Mbps(GFSK_DH5)	



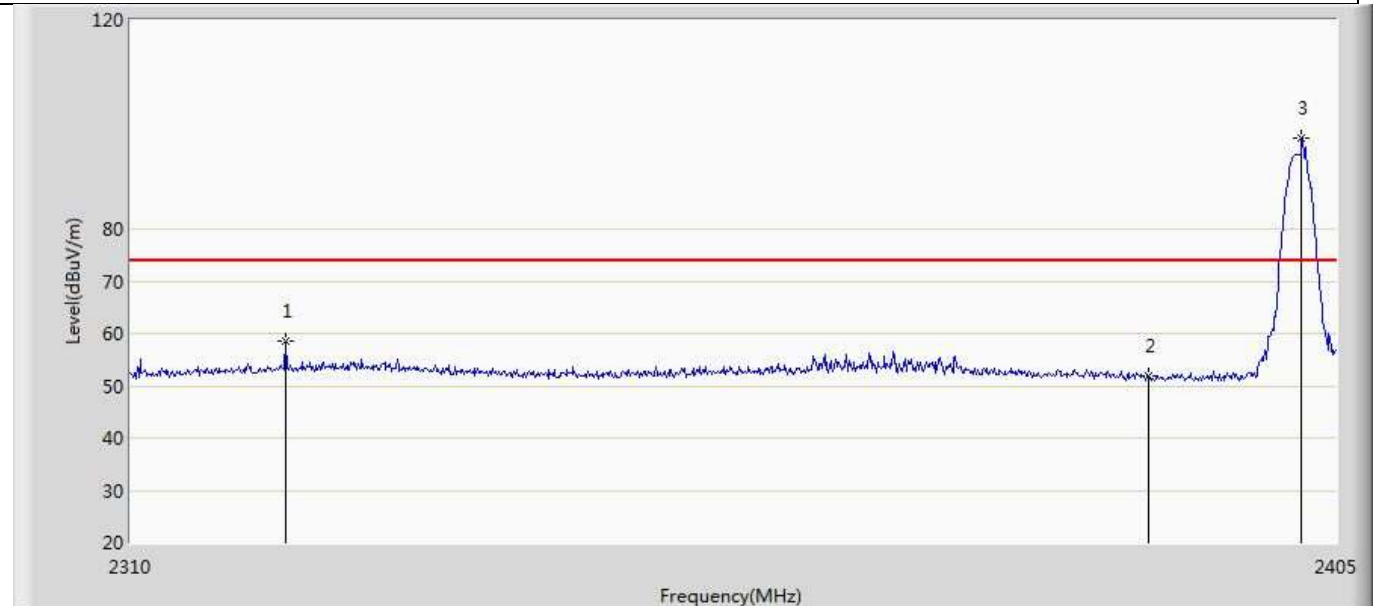
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2369.375	58.145	21.508	-15.855	74.000	36.637	PK
2		2390.000	52.250	16.506	-21.750	74.000	35.745	PK
3	*	2402.150	95.647	59.568	21.647	74.000	36.079	PK

Profile: 20A0891R	Page No.: 2
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 19:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode1:Transmit at 2402MHz by 1Mbps(GFSK_DH5)	



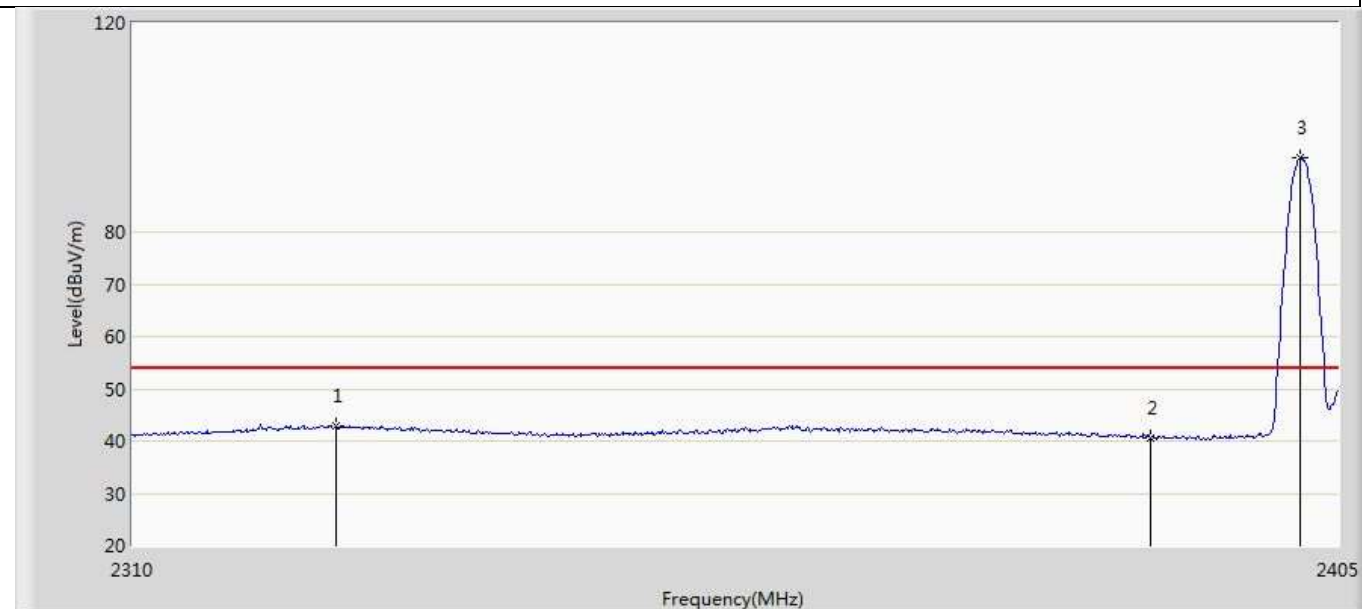
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2326.340	44.381	6.740	-9.619	54.000	37.641	AV
2		2390.000	41.732	5.988	-12.268	54.000	35.745	AV
3	*	2402.055	95.439	59.367	41.439	54.000	36.071	AV

Profile: 20A0891R	Page No.: 3
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 19:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode1:Transmit at 2402MHz by 1Mbps(GFSK_DH5)	



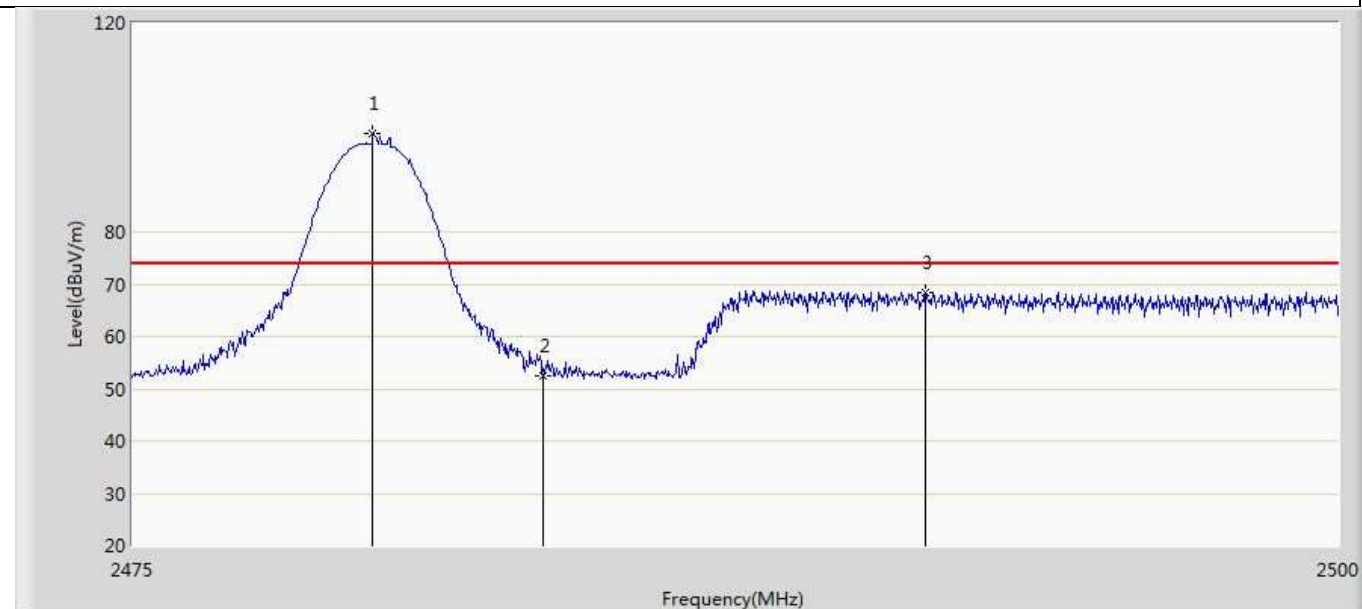
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2322.065	58.465	21.146	-15.535	74.000	37.318	PK
2		2390.000	51.810	16.066	-22.190	74.000	35.745	PK
3	*	2402.245	97.387	61.301	23.387	74.000	36.086	PK

Profile: 20A0891R	Page No.: 4
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 19:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode1:Transmit at 2402MHz by 1Mbps(GFSK_DH5)	



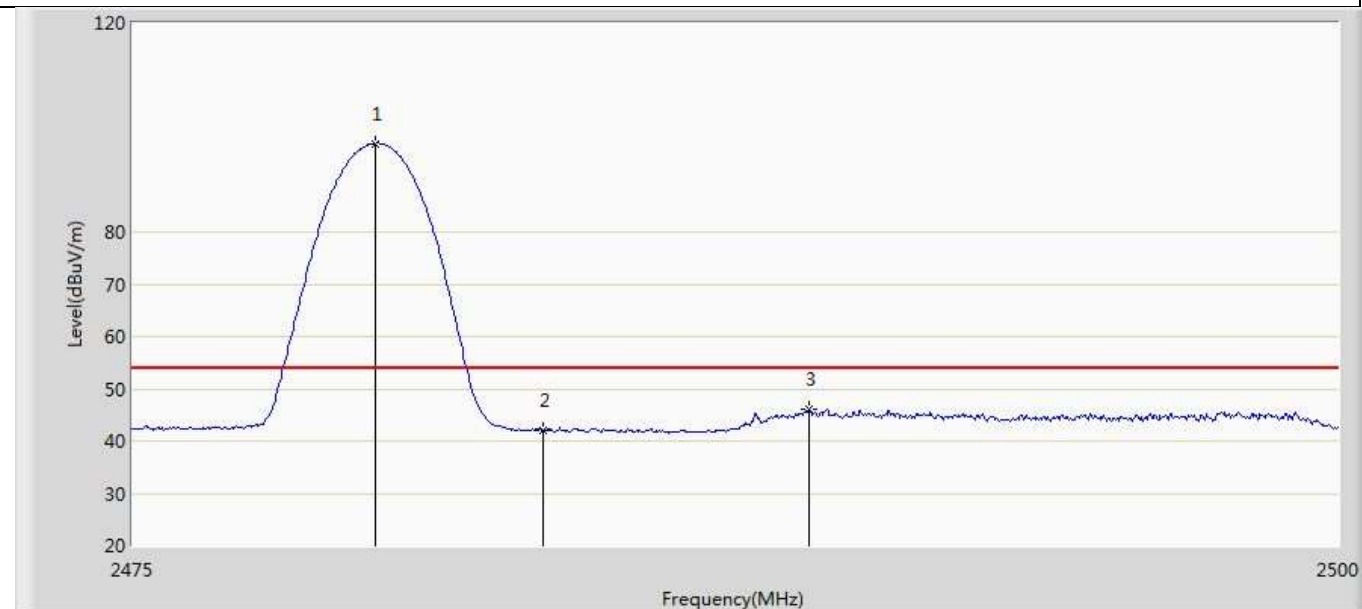
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2325.770	42.854	5.200	-11.146	54.000	37.654	AV
2		2390.000	40.707	4.963	-13.293	54.000	35.745	AV
3	*	2401.960	94.129	58.064	40.129	54.000	36.064	AV

Profile: 20A0891R	Page No.: 5
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 19:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode1:Transmit at 2480MHz by 1Mbps(GFSK_DH5)	



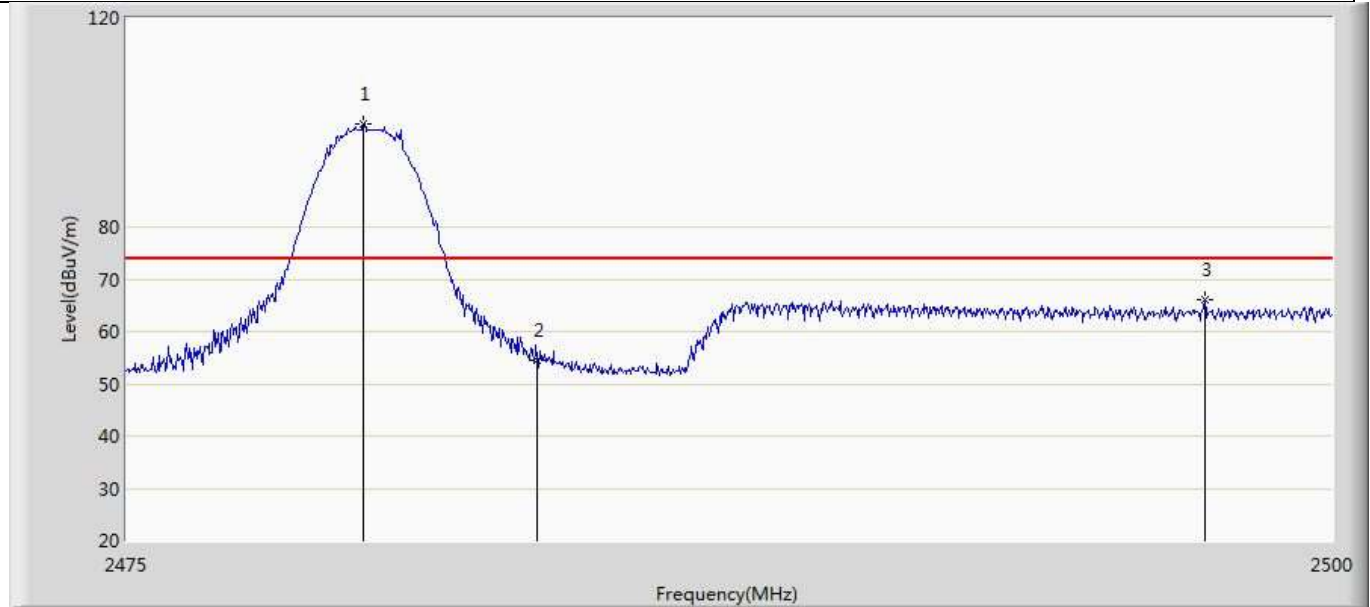
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.975	98.816	61.985	24.816	74.000	36.831	PK
2		2483.500	52.371	15.672	-21.629	74.000	36.699	PK
3		2491.425	68.352	31.948	-5.648	74.000	36.405	PK

Profile: 20A0891R	Page No.: 6
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 19:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode1:Transmit at 2480MHz by 1Mbps(GFSK_DH5)	



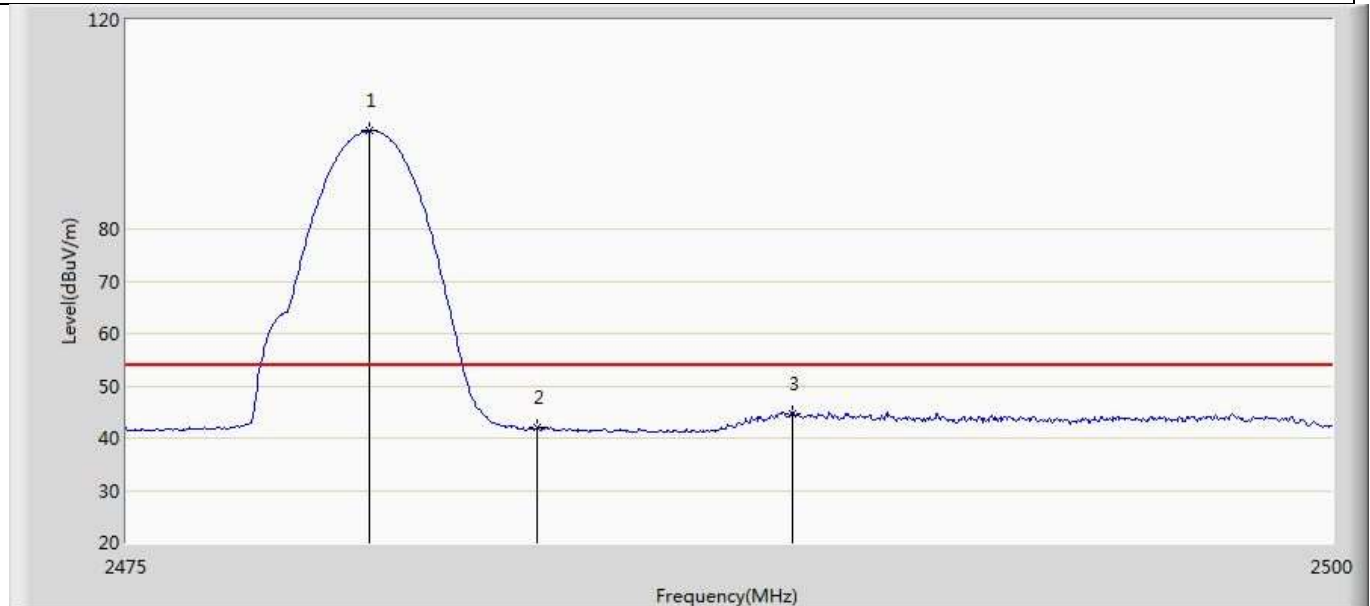
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.025	96.938	60.109	42.938	54.000	36.829	AV
2		2483.500	42.044	5.345	-11.956	54.000	36.699	AV
3		2489.000	46.118	9.623	-7.882	54.000	36.494	AV

Profile: 20A0891R	Page No.: 7
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 19:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode1:Transmit at 2480MHz by 1Mbps(GFSK_DH5)	



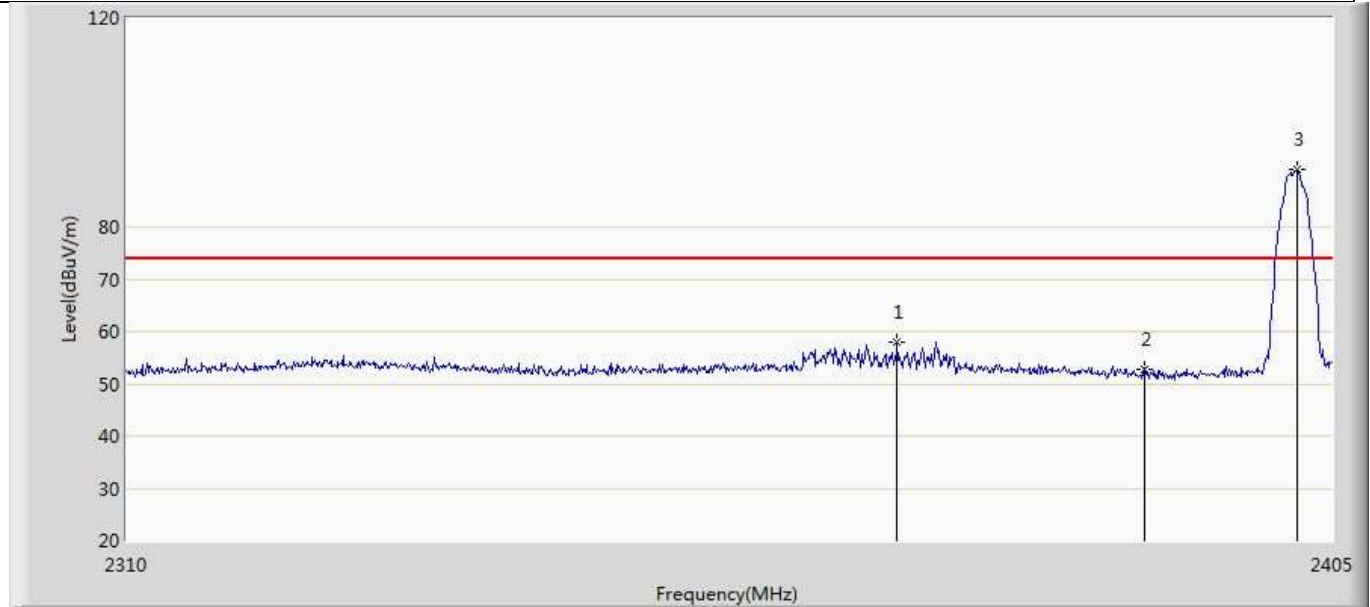
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.900	99.646	62.812	25.646	74.000	36.834	PK
2		2483.500	54.636	17.937	-19.364	74.000	36.699	PK
3		2497.350	66.141	29.873	-7.859	74.000	36.268	PK

Profile: 20A0891R	Page No.: 8
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 19:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode1:Transmit at 2480MHz by 1Mbps(GFSK_DH5)	



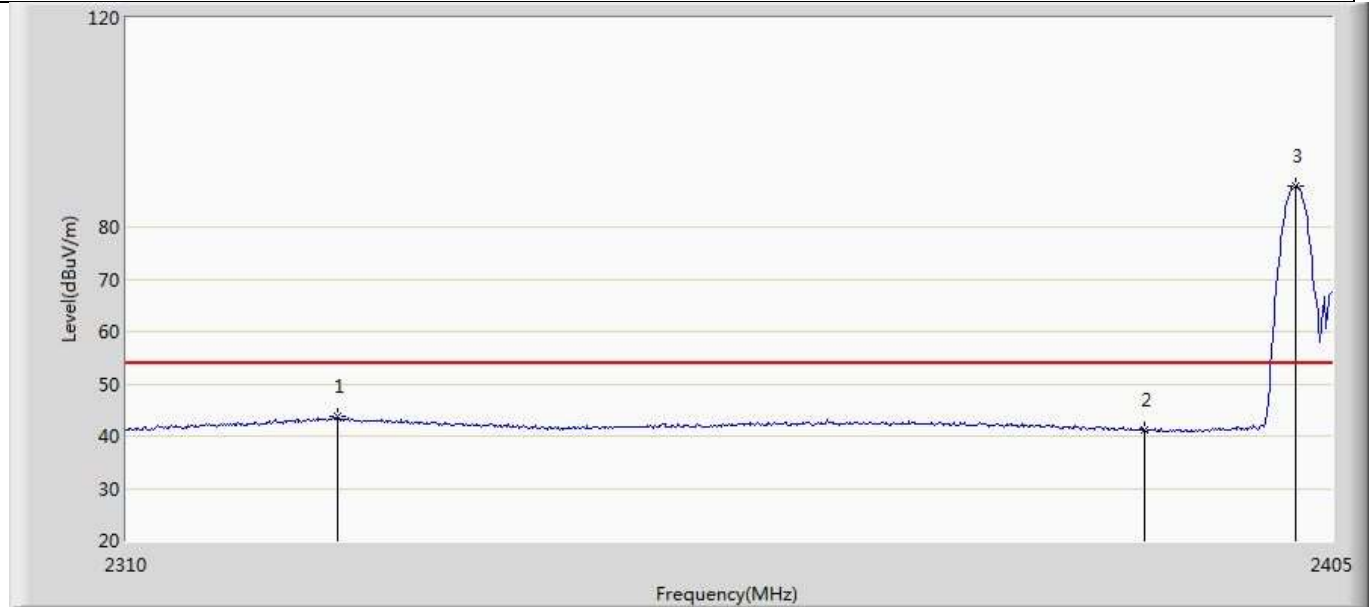
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.025	98.777	61.948	44.777	54.000	36.829	AV
2		2483.500	41.916	5.217	-12.084	54.000	36.699	AV
3		2488.800	44.735	8.233	-9.265	54.000	36.503	AV

Profile: 20A0891R	Page No.: 9
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 19:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode2:Transmit at 2402MHz by 2Mbps(Pi/4 DQPSK_DH5)	



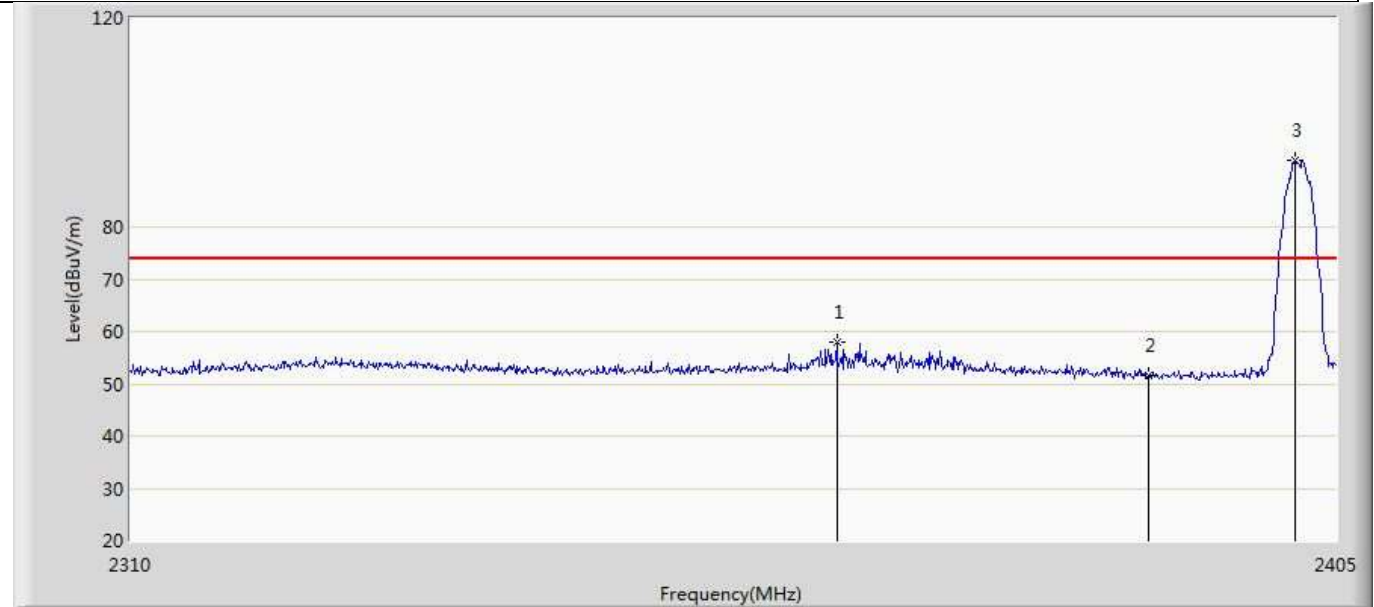
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2370.325	57.926	21.292	-16.074	74.000	36.634	PK
2		2390.000	52.827	17.083	-21.173	74.000	35.745	PK
3	*	2402.150	91.096	55.017	17.096	74.000	36.079	PK

Profile: 20A0891R	Page No.: 10
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 19:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode2:Transmit at 2402MHz by 2Mbps(Pi/4 DQPSK_DH5)	



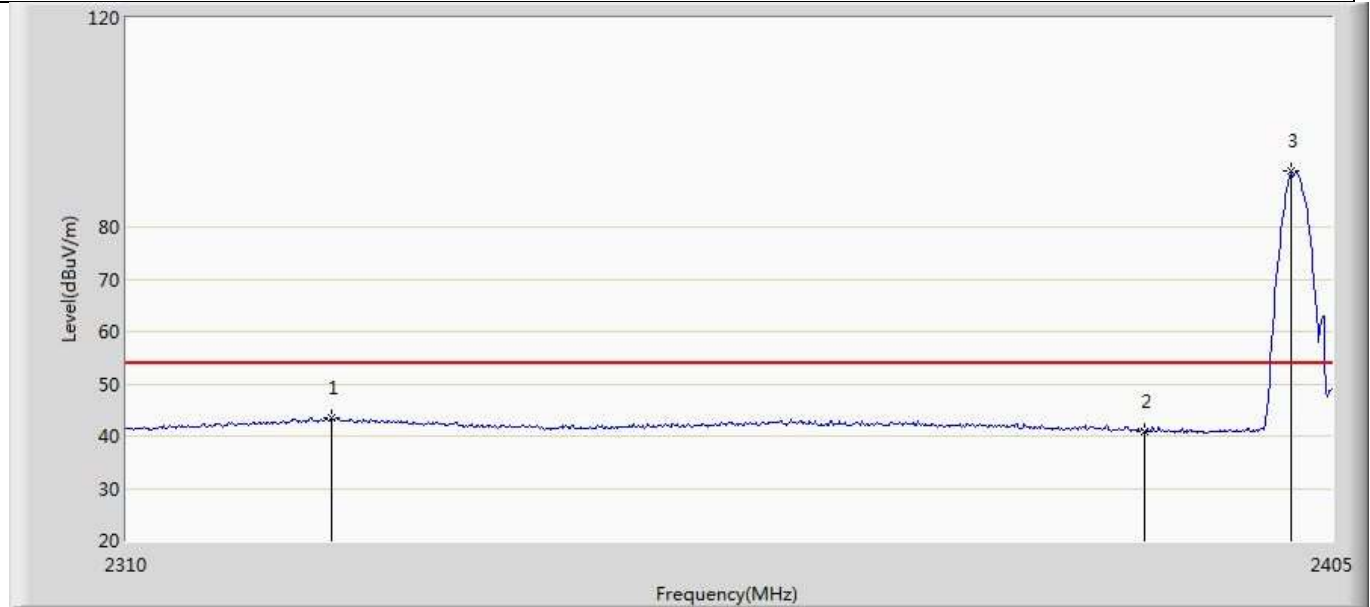
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2326.435	43.656	6.025	-10.344	54.000	37.632	AV
2		2390.000	41.155	5.411	-12.845	54.000	35.745	AV
3	*	2402.055	87.957	51.885	33.957	54.000	36.071	AV

Profile: 20A0891R	Page No.: 11
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 19:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode2:Transmit at 2402MHz by 2Mbps(Pi/4 DQPSK_DH5)	



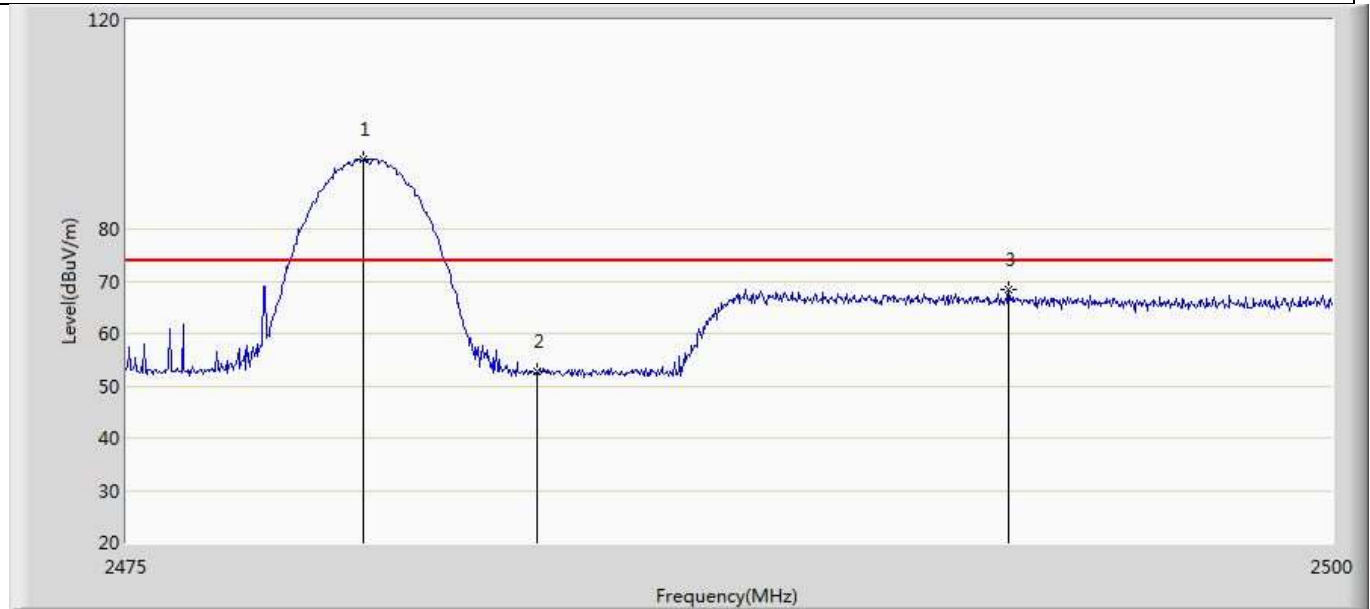
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2365.195	57.858	21.208	-16.142	74.000	36.650	PK
2		2390.000	51.670	15.926	-22.330	74.000	35.745	PK
3	*	2401.770	92.679	56.628	18.679	74.000	36.050	PK

Profile: 20A0891R	Page No.: 12
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 19:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode2:Transmit at 2402MHz by 2Mbps(Pi/4 DQPSK_DH5)	



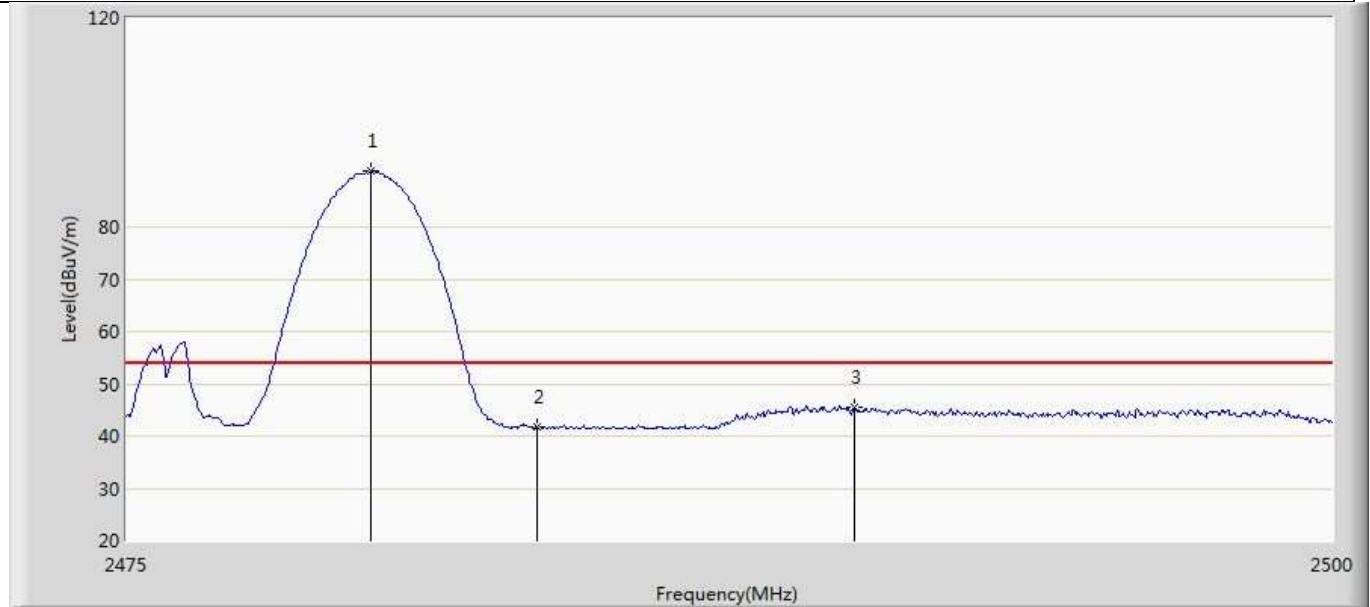
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2325.865	43.565	5.902	-10.435	54.000	37.663	AV
2		2390.000	40.982	5.238	-13.018	54.000	35.745	AV
3	*	2401.770	90.684	54.633	36.684	54.000	36.050	AV

Profile: 20A0891R	Page No.: 13
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 19:54
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode2:Transmit at 2480MHz by 2Mbps(Pi/4 DQPSK_DH5)	



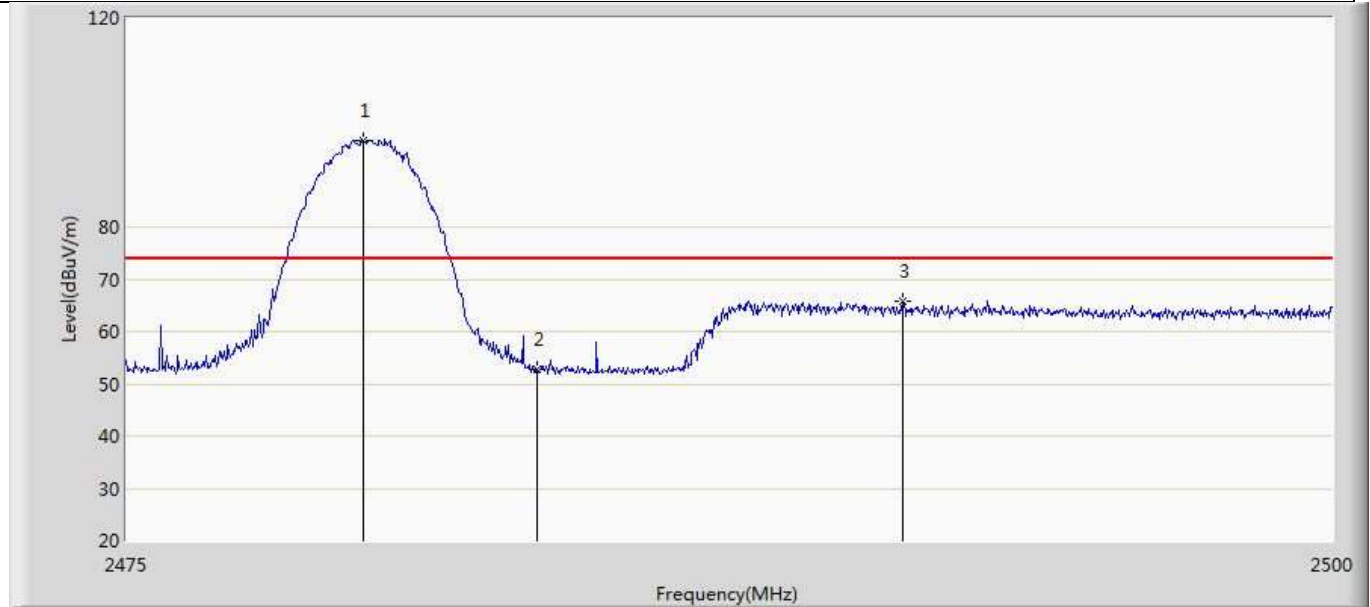
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.900	93.231	56.397	19.231	74.000	36.834	PK
2		2483.500	52.679	15.980	-21.321	74.000	36.699	PK
3		2493.275	68.501	32.166	-5.499	74.000	36.335	PK

Profile: 20A0891R	Page No.: 14
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 19:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode2:Transmit at 2480MHz by 2Mbps(Pi/4 DQPSK_DH5)	



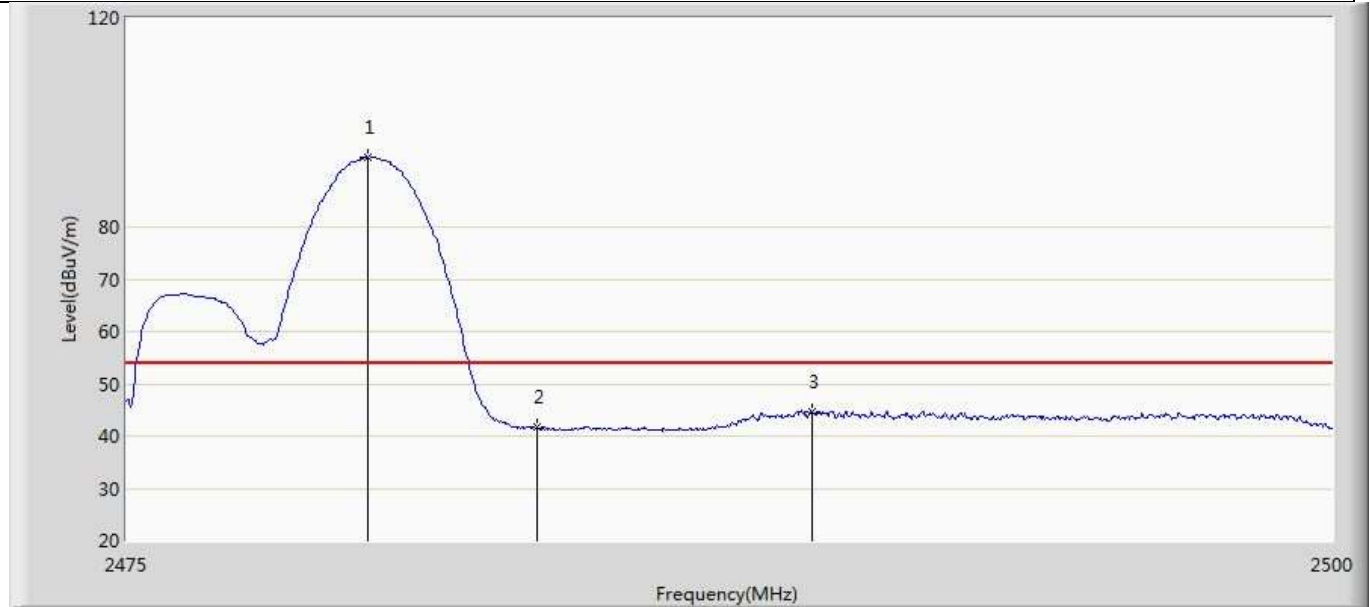
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.050	90.732	53.904	36.732	54.000	36.828	AV
2		2483.500	41.666	4.967	-12.334	54.000	36.699	AV
3		2490.075	45.628	9.173	-8.372	54.000	36.454	AV

Profile: 20A0891R	Page No.: 15
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 19:59
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode2:Transmit at 2480MHz by 2Mbps(Pi/4 DQPSK_DH5)	



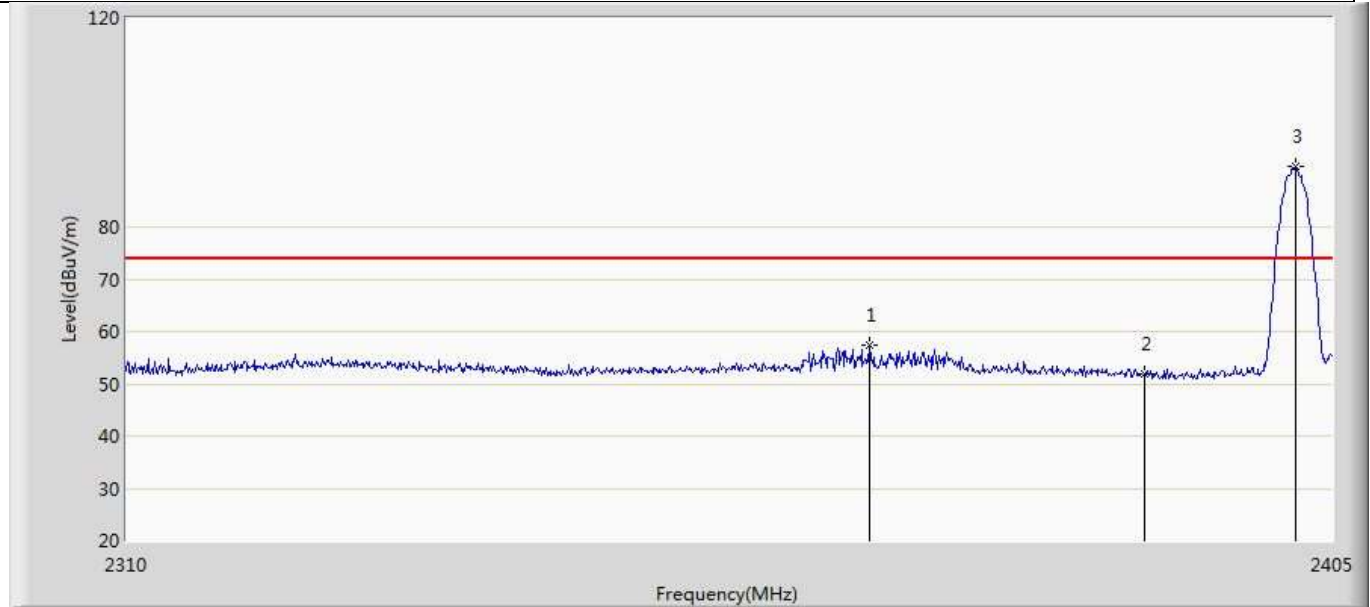
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.900	96.588	59.754	22.588	74.000	36.834	PK
2		2483.500	52.862	16.163	-21.138	74.000	36.699	PK
3		2491.075	65.933	29.516	-8.067	74.000	36.418	PK

Profile: 20A0891R	Page No.: 16
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 20:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode2:Transmit at 2480MHz by 2Mbps(Pi/4 DQPSK_DH5)	



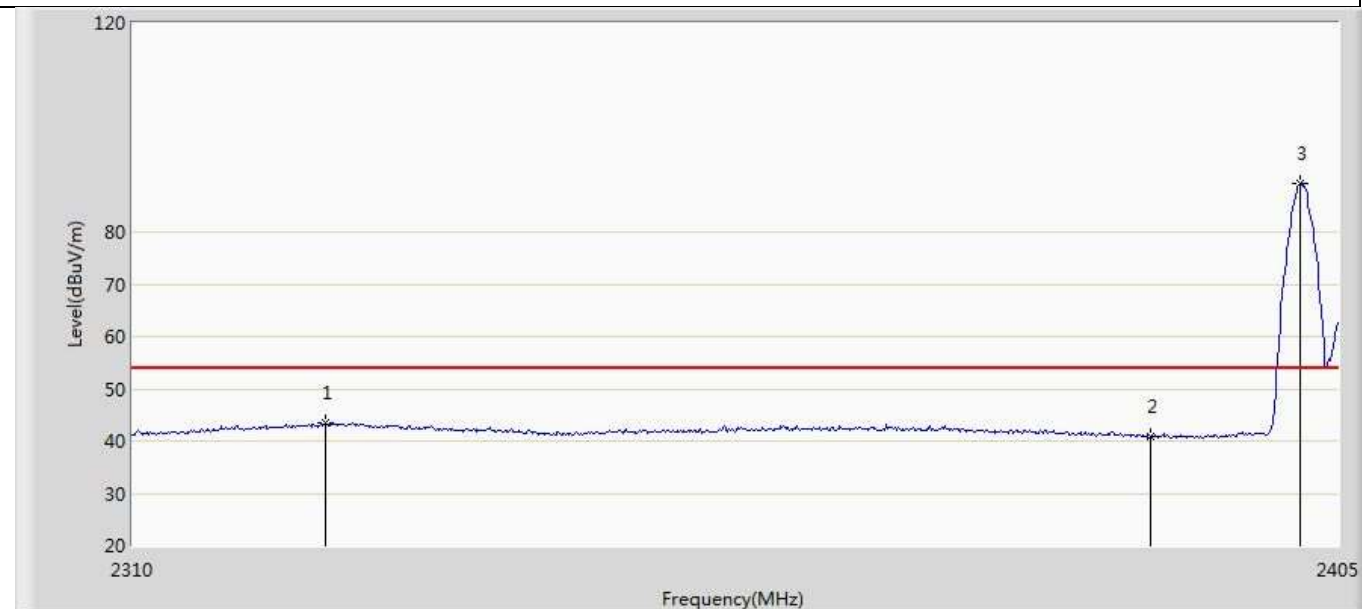
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.000	93.464	56.634	39.464	54.000	36.830	AV
2		2483.500	41.635	4.936	-12.365	54.000	36.699	AV
3		2489.200	44.762	8.275	-9.238	54.000	36.487	AV

Profile: 20A0891R	Page No.: 17
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 20:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode3:Transmit at 2402MHz by 3Mbps(8DPSK_DH5)	



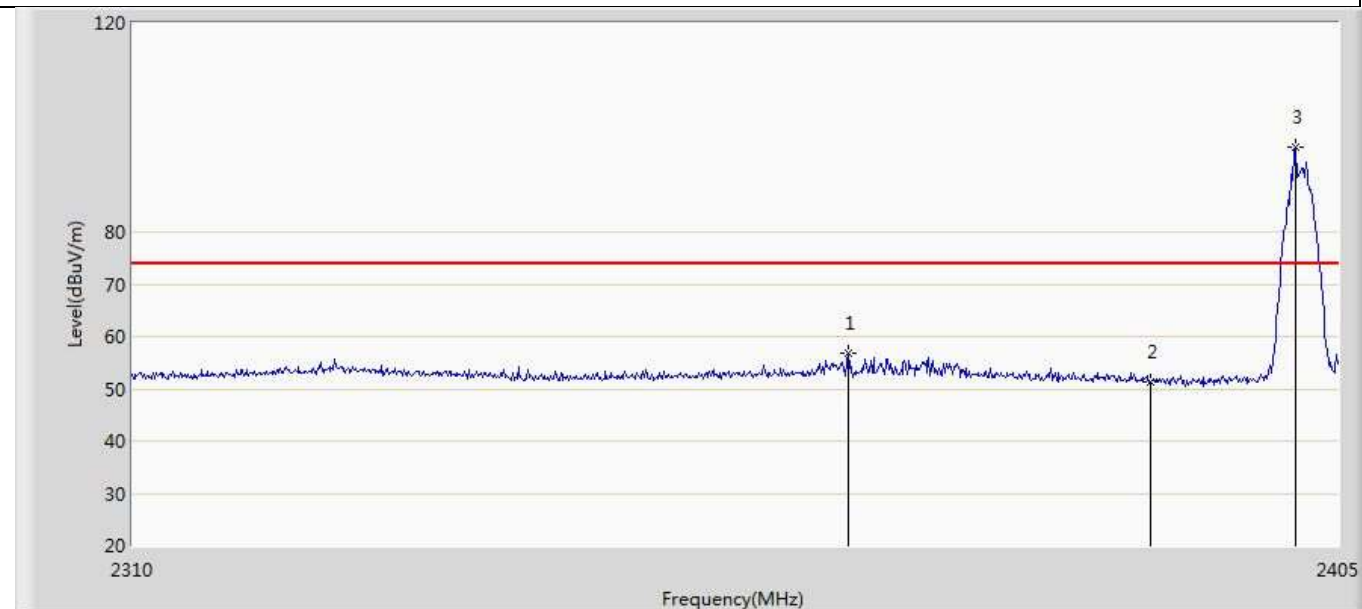
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2368.140	57.270	20.629	-16.730	74.000	36.641	PK
2		2390.000	51.862	16.118	-22.138	74.000	35.745	PK
3	*	2402.055	91.492	55.420	17.492	74.000	36.071	PK

Profile: 20A0891R	Page No.: 18
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 20:06
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode3:Transmit at 2402MHz by 3Mbps(8DPSK_DH5)	



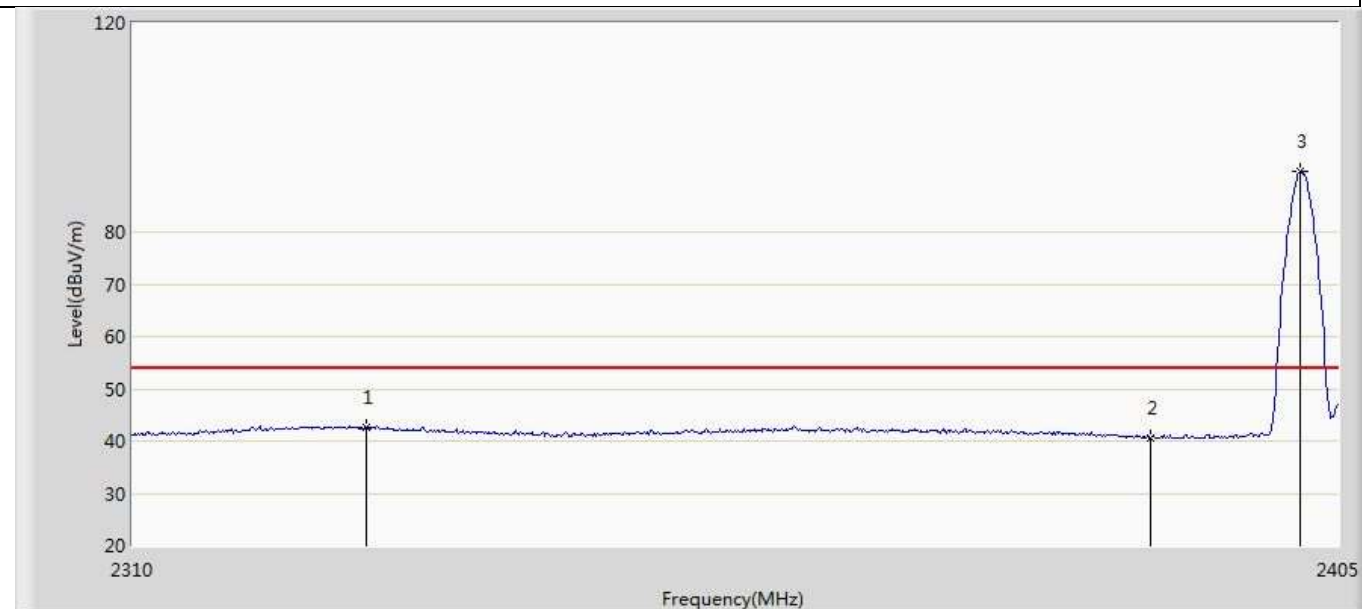
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2325.010	43.559	5.974	-10.441	54.000	37.585	AV
2		2390.000	40.825	5.081	-13.175	54.000	35.745	AV
3	*	2401.960	89.223	53.158	35.223	54.000	36.064	AV

Profile: 20A0891R	Page No.: 19
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 20:08
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode3:Transmit at 2402MHz by 3Mbps(8DPSK_DH5)	



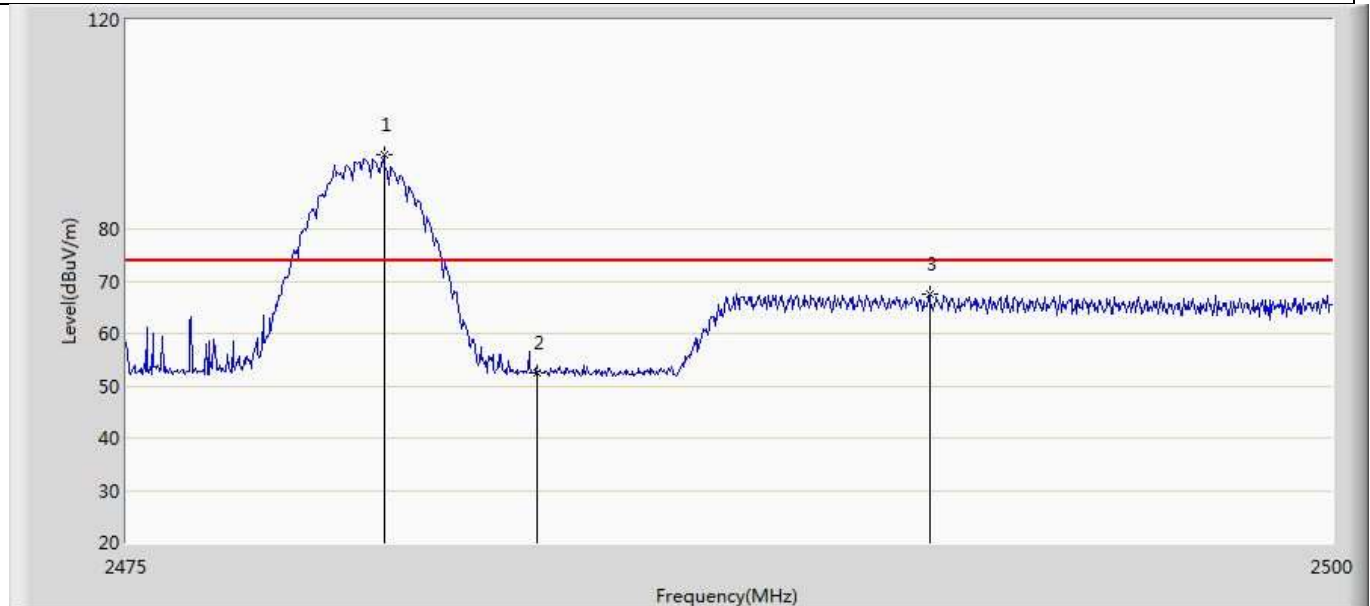
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2365.955	56.781	20.134	-17.219	74.000	36.648	PK
2		2390.000	51.335	15.591	-22.665	74.000	35.745	PK
3	*	2401.580	96.202	60.165	22.202	74.000	36.036	PK

Profile: 20A0891R	Page No.: 20
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 20:11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode3:Transmit at 2402MHz by 3Mbps(8DPSK_DH5)	



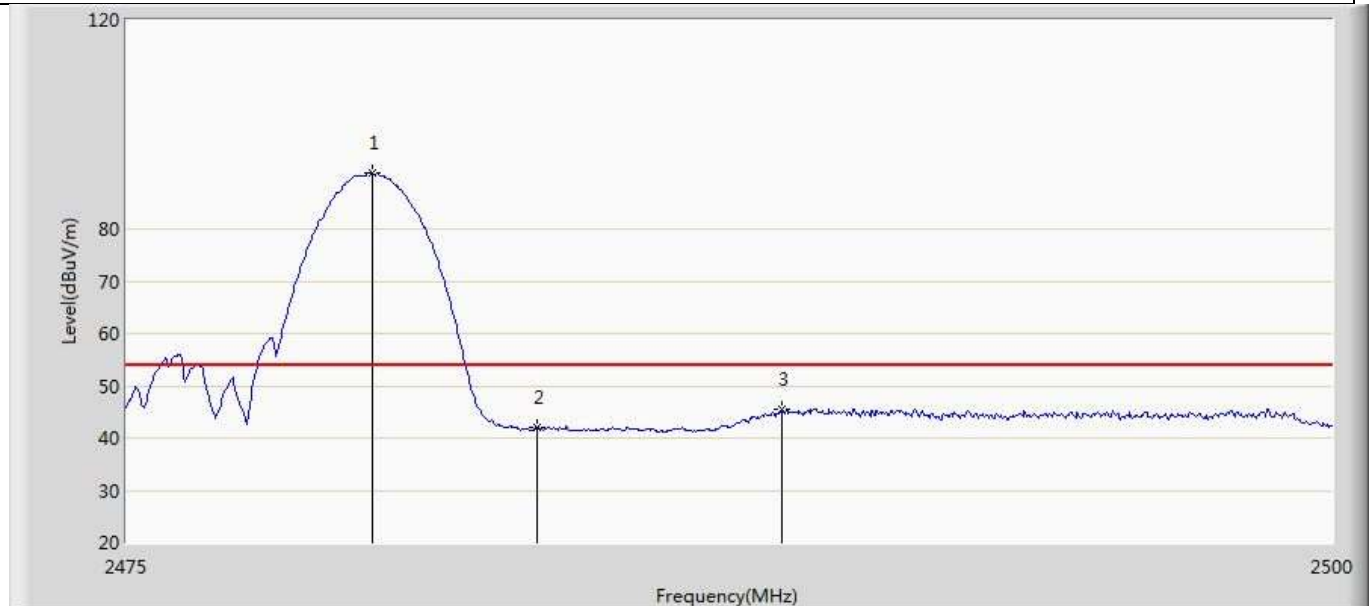
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2328.145	42.568	5.109	-11.432	54.000	37.459	AV
2		2390.000	40.703	4.959	-13.297	54.000	35.745	AV
3	*	2401.960	91.731	55.666	37.731	54.000	36.064	AV

Profile: 20A0891R	Page No.: 21
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 20:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode3:Transmit at 2480MHz by 3Mbps(8DPSK_DH5)	



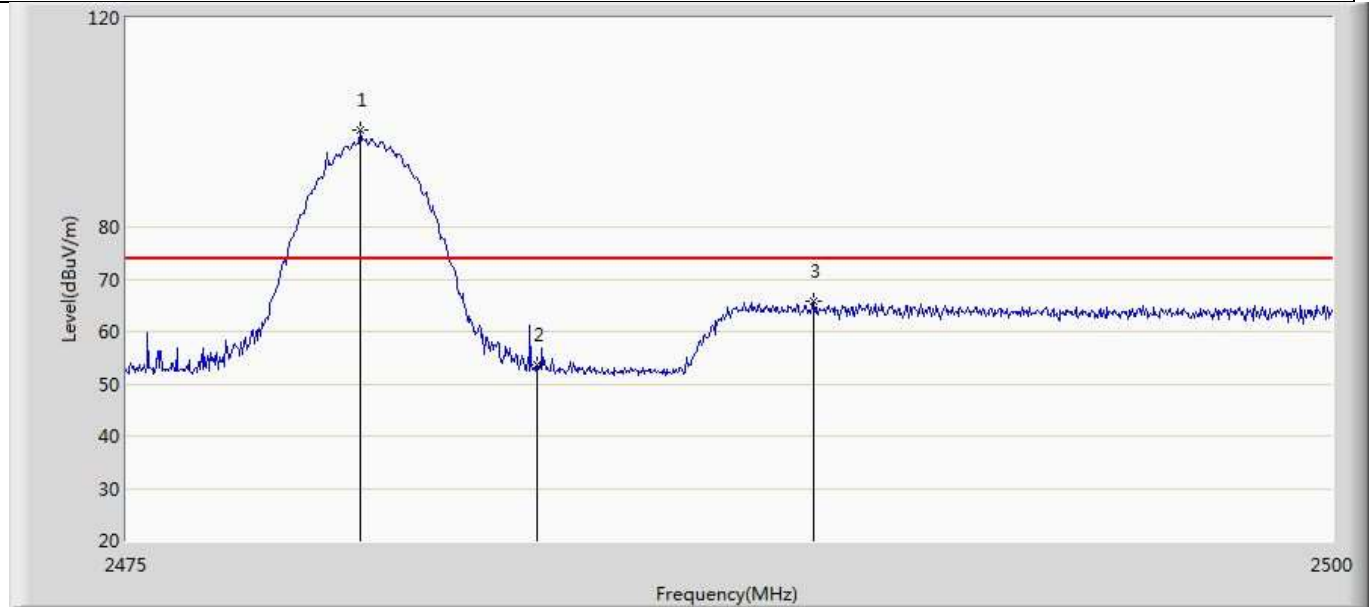
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.325	94.247	57.429	20.247	74.000	36.818	PK
2		2483.500	52.389	15.690	-21.611	74.000	36.699	PK
3		2491.625	67.477	31.080	-6.523	74.000	36.397	PK

Profile: 20A0891R	Page No.: 22
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 20:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode3:Transmit at 2480MHz by 3Mbps(8DPSK_DH5)	



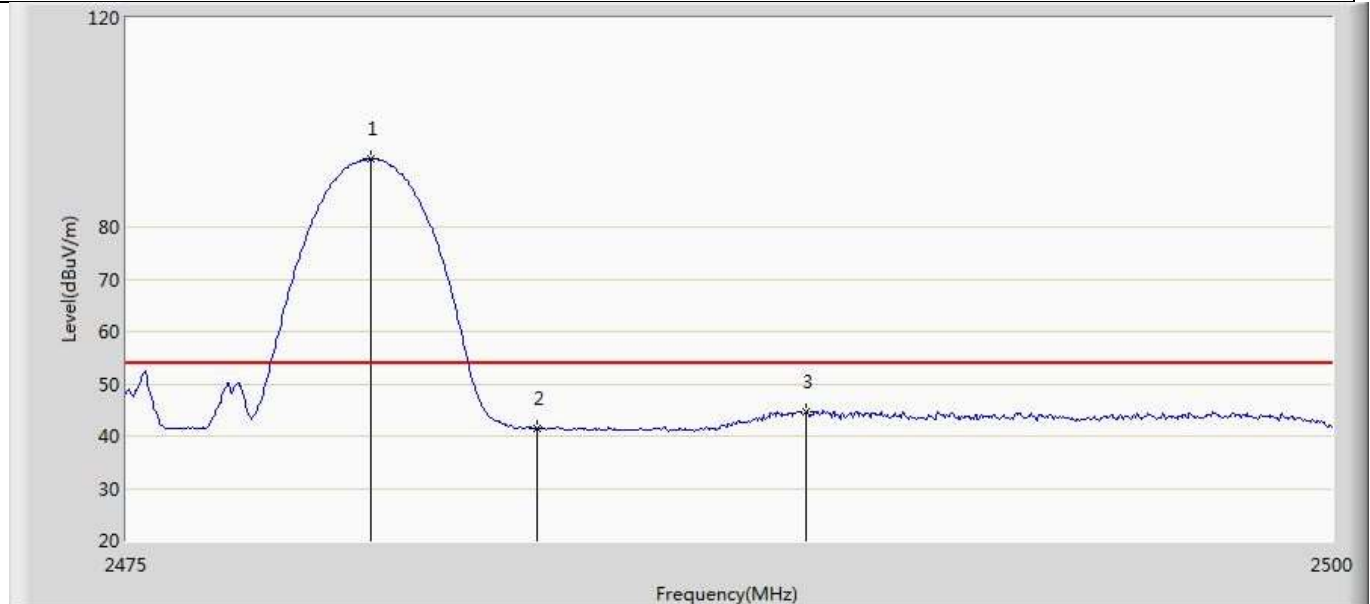
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.075	90.687	53.860	36.687	54.000	36.827	AV
2		2483.500	41.957	5.258	-12.043	54.000	36.699	AV
3		2488.575	45.647	9.137	-8.353	54.000	36.511	AV

Profile: 20A0891R	Page No.: 23
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 20:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode3:Transmit at 2480MHz by 3Mbps(8DPSK_DH5)	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.850	98.671	61.836	24.671	74.000	36.836	PK
2		2483.500	53.730	17.031	-20.270	74.000	36.699	PK
3		2489.225	65.760	29.274	-8.240	74.000	36.486	PK

Profile: 20A0891R	Page No.: 24
Engineer: Pawn	
Site: AC5	Time: 2020/11/08 - 20:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONES	Power: DC 3.7V
Note: Mode3:Transmit at 2480MHz by 3Mbps(8DPSK_DH5)	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.050	93.027	56.199	39.027	54.000	36.828	AV
2		2483.500	41.397	4.698	-12.603	54.000	36.699	AV
3		2489.075	44.761	8.269	-9.239	54.000	36.491	AV

Note:

1. Measured Level = Reading Level + Factor.
2. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.
3. As the radiated emission was performed, so conducted emission was not tested.

4.11 Antenna Requirement**VERDICT: PASS****4.11.1 Limit:****Standard**

FCC Part 15 Subpart C Paragraph 15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

4.11.2 Antenna Connector Construction:

The use of a permanently attached antenna



The antenna use of a unique coupling to the intentional radiator



The use of a nonstandard antenna jack or electrical connector

Please refer to the attached document "Internal Photograph" to show the antenna connector.

5 TEST SETUP PHOTO AND EUT PHOTO

Remark: The test setup photo and EUT Photo please see appendix.

_____ The End _____