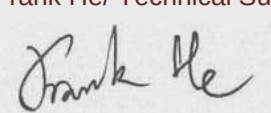
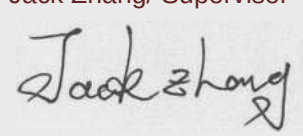


Test report No:
2040811R-RF-US-P06V02

FCC TEST REPORT & ISED TEST REPORT

Product Name	EZ-BT WICED Module
Trademark	Cypress
Model and /or type reference	CYBT-243068-02, CYBT-243069-02
FCC ID	WAP3068
IC ID	7922A-3068
Applicant's name / address	Cypress Semiconductor Technology (Shanghai) Co., Ltd. 198 Champion Ct, San Jose, California 95134, United States
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 RSS-Gen Issue 5 / RSS-247 Issue 2
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	2020-05-28
Report template No	Template_FCC 15.247-RF-V1.0

INDEX

	page
General conditions	4
Environmental conditions	4
Possible test case verdicts	5
Abbreviations.....	5
Document History.....	6
Remarks and Comments	6
Used Equipment.....	7
Uncertainty	9
1 General Information	10
1.1 General Description of the Item(s).....	10
1.2 Antenna Information	11
1.3 Channel List.....	12
2 Description of Test Setup.....	13
2.1 Operating mode(s) used for tests	13
2.2 Auxiliary equipment / Test software for the EUT	13
2.3 Test Configuration / Block diagram used for tests.....	14
2.4 Testing process	15
3 Verdict summary section.....	16
3.1 Standards	16
3.2 Deviation(s) from the Standard(s) / Test Specification(s).....	16
3.3 Overview of results	17
3.4 Test Facility.....	18
4 Test Results	19
4.1 AC Power Line Conducted Emission.....	19
4.1.1 Limit	19
4.1.2 Test Setup	19
4.1.3 Test Procedure	19
4.1.4 Test Data	20
4.2 Emissions in restricted frequency bands	22
4.2.1 Limit	22
4.2.2 Test Setup	24
4.2.3 Test Procedure	25
4.2.4 Test Data	26
4.3 Emissions in non-restricted frequency band	40

4.3.1	Limit	40
4.3.2	Test Setup	40
4.3.3	Test Procedure	40
4.3.4	Test Data	41
4.4	Duty cycle	43
4.4.1	Limit	43
4.4.2	Test Setup	43
4.4.3	Test Procedure	43
4.4.4	Test Data	44
4.5	Radiated Emission Band Edge	45
4.5.1	Limit	45
4.5.2	Test Setup	45
4.5.3	Test Procedure	45
4.5.4	Test Data	46
4.6	DTS Bandwidth	62
4.6.1	Limit	62
4.6.2	Test Setup	62
4.6.3	Test Procedure	62
4.6.4	Test Data	63
4.7	Fundamental emission output power	64
4.7.1	Limit	64
4.7.2	Test Setup	64
4.7.3	Test Procedure	65
4.7.4	Test Data	66
4.8	Power Density	67
4.8.1	Limit:	67
4.8.2	Test Setup	67
4.8.3	Test Procedure	67
4.8.4	Test Data	68
4.9	Antenna Requirement	69
4.9.1	Limit:	69
4.9.2	Antenna Connector Construction:	69
5	Test setup photo and EUT Photo	70

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)	Apr. 29, 2020
Date (start test)	May. 01, 2020
Date (finish test)	May. 25, 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
T_x	: Transmitter
R_x	: Receiver
N/A	: Not Applicable
N/M	: Not Measured

DOCUMENT HISTORY

Report No.	Version	Description	Issued Date
2040811R-RF-US-P06V02	V1.0	Initial issue of report.	2020-05-28

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, RSS-Gen Issue 5, RSS-247 Issue 2.
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, unless the specification, standard or customer have special requirements.
4. The test results presented in this report relate only to the object tested.
5. The test results relate only to the samples tested.
6. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
7. This report will not be used for social proof function in China market.

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	2019.09.02	2020.09.01
50ohm Termination	SHX	TF2	07081403	2019.09.02	2020.09.01
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-8S	TR1-TH	2019.08.21	2020.08.20
Coaxial Cable	Suhner	RG 223	TR1-C1	2019.08.25	2020.08.24
Coaxial Cable	Suhner	RG 223	TR1-C2	2019.08.25	2020.08.24
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	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Wideband Peak Power Meter	Anritsu	ML2495A	0905006	2019.07.14	2020.07.13
Power Sensor	Anritsu	MA2411B	0846014	2019.08.12	2020.08.11
Coaxial Cable	Woken	SFL402	F02-150410-044	2020.01.01	2020.12.31
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	2019.09.23	2020.09.22
Temperature/Humidity Meter	RTS	RTS-8S	AC2-TH	2019.09.02	2020.09.01
Coaxial Cable	Huber+Suhner	RG 214	AC2-C	2020.04.13	2021.04.12
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	2019.09.02	2020.09.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2020.04.13	2021.04.12
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2020.04.13	2021.04.12
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2020.04.13	2021.04.12
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%. The Uncertainties comply with standard required as below.

Test item	Uncertainty
AC Power Line Conducted Emission	9kHz~150kHz: 2.80dB 150kHz~30MHz: 2.40dB
Peak Power Output	± 1.27 dB
Radiated Emission(30MHz~1GHz)	Horizontal: 30MHz~200MHz: 3.50 dB 300MHz~1GHz: 3.60 dB Vertical: 30MHz~200MHz: 3.60 dB 300MHz~1GHz: 3.50 dB
Radiated Emission(1GHz~26.5GHz)	Horizontal: 1GHz~18GHz: 5.00 dB Vertical: 1GHz~18GHz: 4.80 dB
RF antenna conducted test	± 1.27 dB
Radiated Emission Band Edge	± 3.9 dB
DTS Bandwidth	± 150 Hz
Occupied Bandwidth	± 1 kHz
Power Density	± 1.27 dB

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Product Name	EZ-BT WICED Module		
Model No.	CYBT-243068-02, CYBT-243069-02		
Trademark	Cypress		
FCC ID	WAP3068		
IC	7922A-3068		
Factory	Wujiang Sigmatron Electronics Co., Ltd		
Factory Address	386 Huahong Rd, Wujiang, Suzhou, Jiangsu, China		
Model Differences.	Model CYBT-243069-02 is identical to Model CYBT-243068-02 except for whether there is a flash memory inside, this difference has no effect on RF performance, Details see table below.		
	Model No.	IC	Flash
	CYBT-243068-02	CYW20820	Y
	CYBT-243069-02	CYW20820	N

Wireless specification.....	Bluetooth 5.0				
Operating frequency range(s)	2400~2483.5MHz				
Type of Modulation.....	GFSK				
PHYs	☒	LE 1M	☒	LE 2M	☐ LE Coded S=2/8
Data Rate	☒	1Mbit/s	☒	2Mbit/s	☐ 500/125 Kbit/s
Number of channel.....	40				

Rated power supply	Voltage and Frequency	
	☐	AC: 220 – 240 V, 50/60 Hz
	☐	AC: 100 – 240 V, 50/60 Hz
	☒	DC: 2.6~3.3Vdc
	☐	Battery:
Mounting position	☐	Table top equipment
	☐	Wall/Ceiling mounted equipment
	☐	Floor standing equipment
	☐	Hand-held equipment
	☒	Other: RF module

1.2 Antenna Information

Antenna model / type number	PCB antenna		
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
			☐ Others.....
Antenna Gain	-0.5dBi		

1.3 Channel List

Bluetooth Working Frequency of Each Channel: (For v5.0)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2404 MHz	02	2406 MHz	03	2408 MHz
04	2410 MHz	05	2412 MHz	06	2414 MHz	07	2416 MHz
08	2418 MHz	09	2420 MHz	10	2422 MHz	11	2424 MHz
12	2426 MHz	13	2428 MHz	14	2430 MHz	15	2432 MHz
16	2434 MHz	17	2436 MHz	18	2438 MHz	19	2440 MHz
20	2442 MHz	21	2444 MHz	22	2446 MHz	23	2448 MHz
24	2450 MHz	25	2452 MHz	26	2454 MHz	27	2456 MHz
28	2458 MHz	29	2460 MHz	30	2462 MHz	31	2464 MHz
32	2466 MHz	33	2468 MHz	34	2470 MHz	35	2472 MHz
36	2474 MHz	37	2476 MHz	38	2478 MHz	39	2480 MHz

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: Transmit by LE_1Mbps(GFSK_LE)
	Mode 2: Transmit by LE_2Mbps(GFSK_LE)
	Mode 3: Simultaneous transmission

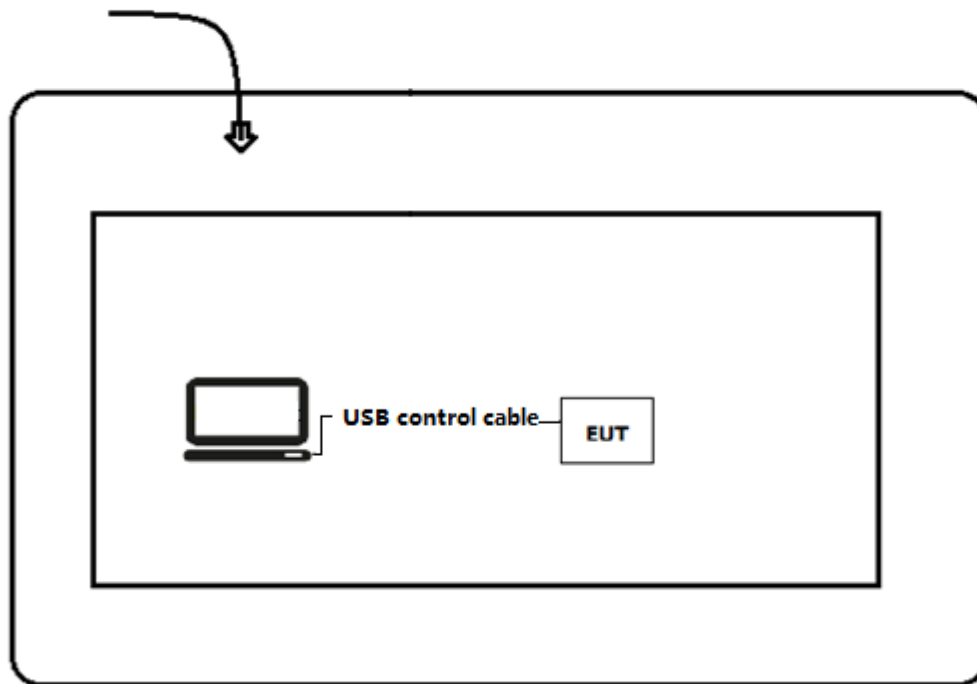
2.2 Auxiliary equipment / Test software for the EUT

Auxiliary equipment	Type / Version	Manufacturer	Supplied by
Notebook	Think pad x220	Lenovo	Adapter
software	Type / Version	Manufacturer	Supplied by
Bluetool	1.9.6.2	N/A	N/A

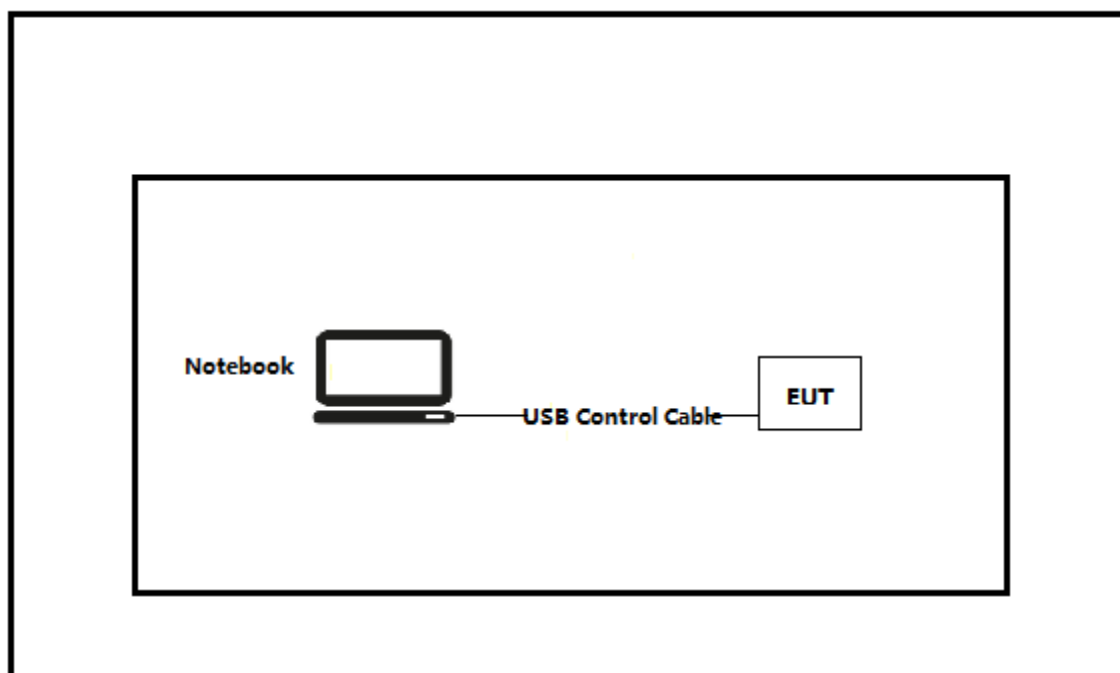
2.3 Test Configuration / Block diagram used for tests

Test setup Diagram- AC Line Conducted Emission Test

Chamber



Test setup Diagram- Conducted test



2.4 Testing process

1	Setup the EUT as shown in Section 2.3.
2	Execute the Bluetool on the notebook.
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
RSS-Gen Issue 5 Amendment 1	2019	General Requirements for Compliance of Radio Apparatus
RSS-247 Issue 2	2017	Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

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

For FCC

Requirement – Test case	Basic standard(s)	Verdict	Remark
AC Power Line Conducted Emission	FCC 15.207	PASS	---
Emissions in restricted frequency bands	FCC 15.247(b)(3)	PASS	---
Duty cycle	ANSI C63.10:2013	PASS	---
Emissions in non-restricted frequency bands	FCC 15.247(d), FCC 15.209	PASS	---
Radiated Emission Band Edge	FCC 15.247(d)	PASS	---
Fundamental emission output power	FCC 15.247(d), FCC 15.209	PASS	---
DTS Bandwidth	FCC 15.247(a)(2)	PASS	---
Power Spectral Density	FCC 15.247(e)	PASS	---
Antenna Requirement	FCC 15.203	PASS	---

For ISED

Requirement – Test case	Basic standard(s)	Verdict	Remark
AC Power Line Conducted Emission	RSS-Gen Issue 5 Section 8.8	PASS	---
Emissions in restricted frequency bands	RSS-Gen Issue 5 Section 8.9	PASS	---
Duty cycle	ANSI C63.10:2013	PASS	---
Emissions in non-restricted frequency bands	RSS-247 Issue 2 Section 5.5	PASS	---
Radiated Emission Band Edge	RSS-Gen Issue 5 Section 8.10	PASS	---
Fundamental emission output power	RSS-247 Issue 2 Section 5.4(d)	PASS	---
DTS Bandwidth	RSS-Gen Issue 5 Section 6.7	PASS	---
Power Spectral Density	RSS-247 Issue 2 Section 5.2(b)	PASS	---
Antenna Requirement	RSS-Gen Issue 5 Section 6.8	PASS	---

Remarks: We have evaluated the surprious emission of both models, and only the worst data are shown below.

3.4 Test Facility

USA	:	FCC Designation Number: CN1199
CA	:	ISED CAB identifier: CN0040

4 TEST RESULTS

4.1 AC Power Line Conducted Emission

VERDICT: PASS

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

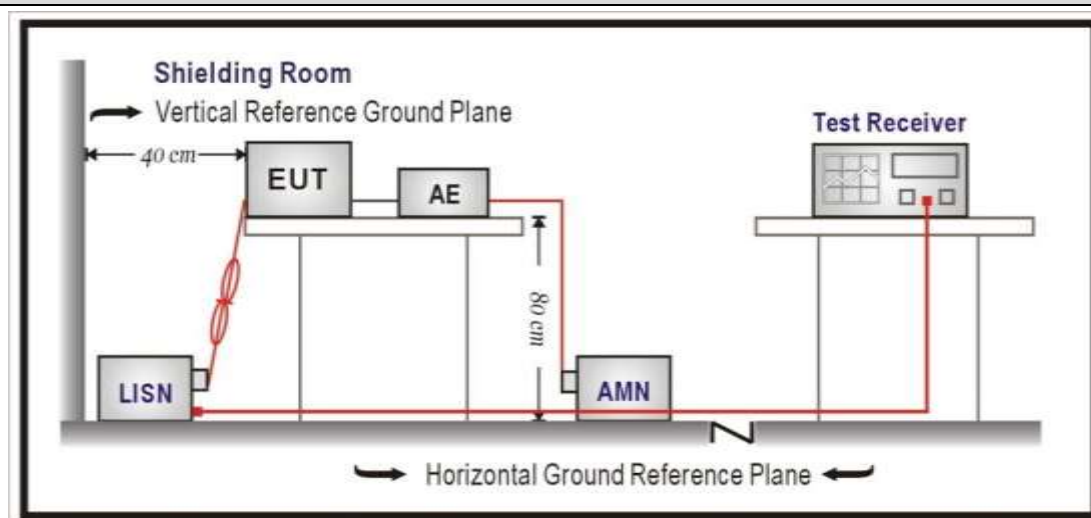
¹⁾ At the transition frequency, the lower limit applies.

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

Engineer: Canon

Site: TR1

Time: 2020/05/12

Limit: FCC_Part15.207_CE_AC Power_ClassB

Margin: 0

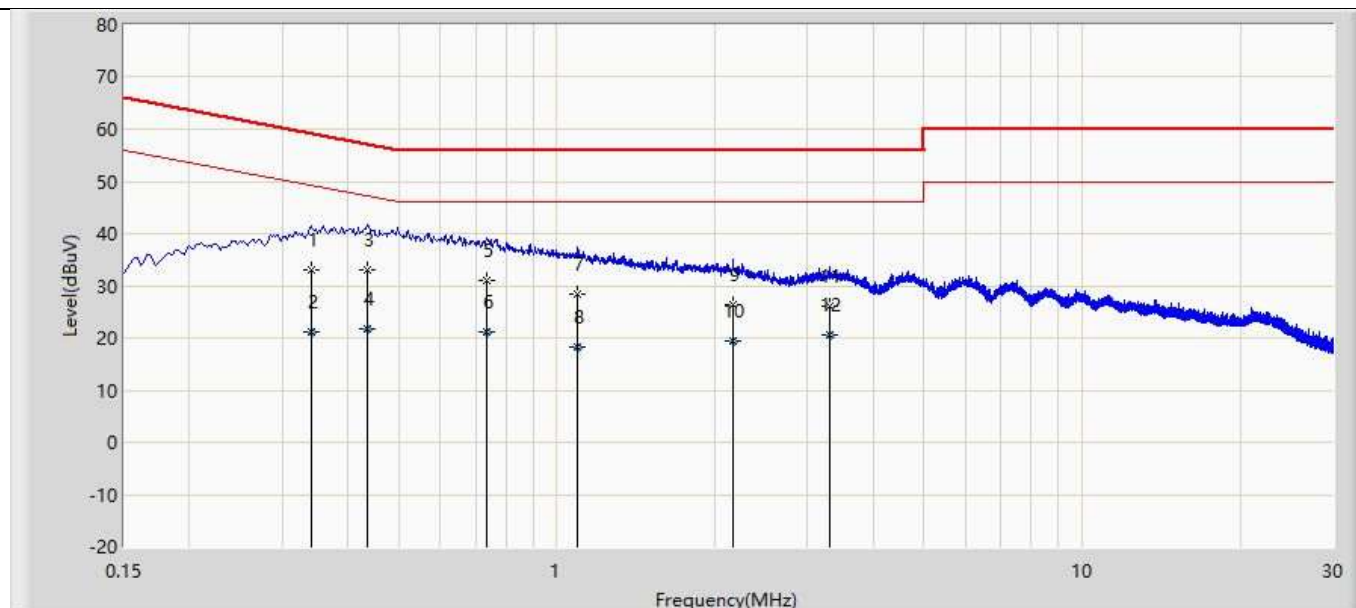
Probe: ENV216_101190(0.009-30MHz)

Polarity: Line

EUT: EZ-BT WICED Module

Power: AC 120V/60Hz

Note: Mode 1



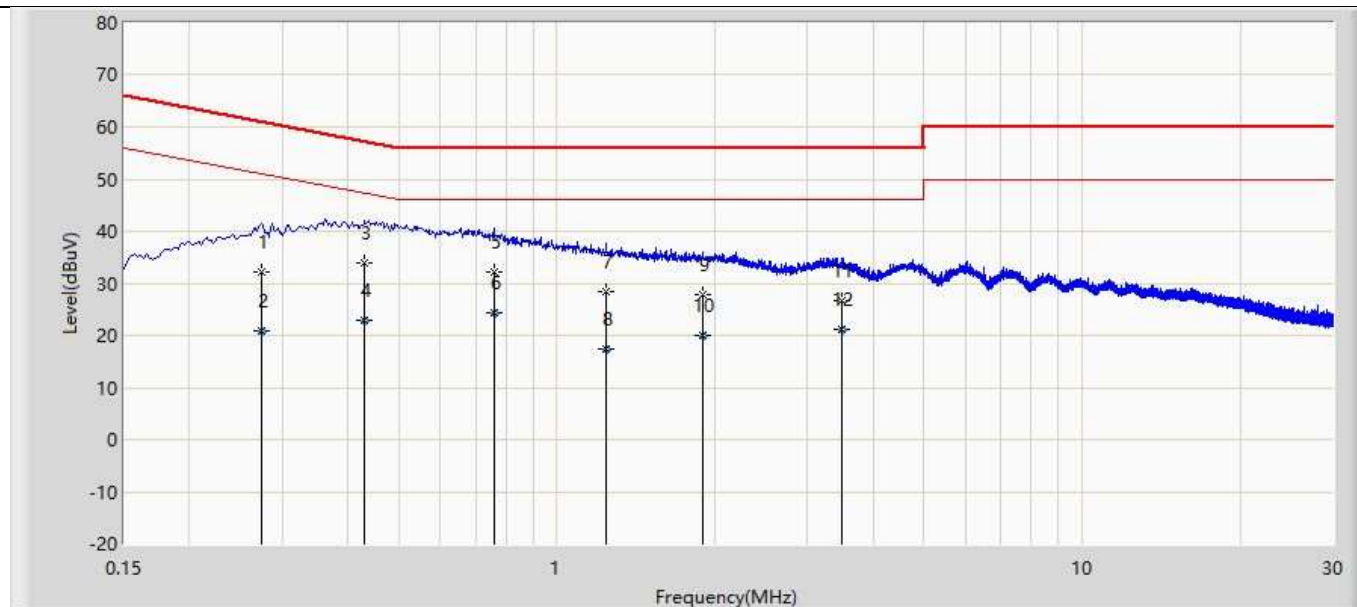
No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.341	33.144	23.510	-26.028	59.173	9.599	0.035	0.000	QP
2		0.341	21.063	11.428	-28.110	49.173	9.599	0.035	0.000	AV
3	*	0.436	33.135	23.489	-24.008	57.142	9.605	0.040	0.000	QP
4		0.436	21.661	12.015	-25.482	47.142	9.605	0.040	0.000	AV
5		0.735	30.889	21.218	-25.111	56.000	9.621	0.051	0.000	QP
6		0.735	21.212	11.540	-24.788	46.000	9.621	0.051	0.000	AV
7		1.093	28.546	18.853	-27.454	56.000	9.631	0.062	0.000	QP
8		1.093	18.199	8.506	-27.801	46.000	9.631	0.062	0.000	AV
9		2.162	26.308	16.573	-29.692	56.000	9.644	0.091	0.000	QP
10		2.162	19.366	9.631	-26.634	46.000	9.644	0.091	0.000	AV
11		3.309	25.952	16.166	-30.048	56.000	9.671	0.115	0.000	QP
12		3.309	20.506	10.720	-25.494	46.000	9.671	0.115	0.000	AV

Note:

1. " * ", means this data is the worst emission level.

2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Engineer: Canon	
Site: TR1	Time: 2020/05/12
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Neutral
EUT: EZ-BT WICED Module	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.274	32.186	22.559	-28.817	61.003	9.595	0.033	0.000	QP
2		0.274	20.786	11.158	-30.217	51.003	9.595	0.033	0.000	AV
3		0.431	33.796	24.151	-23.433	57.229	9.605	0.040	0.000	QP
4		0.431	23.043	13.398	-24.185	47.229	9.605	0.040	0.000	AV
5		0.760	32.117	22.444	-23.883	56.000	9.622	0.051	0.000	QP
6	*	0.760	24.410	14.737	-21.590	46.000	9.622	0.051	0.000	AV
7		1.239	28.547	18.851	-27.453	56.000	9.630	0.066	0.000	QP
8		1.239	17.323	7.627	-28.677	46.000	9.630	0.066	0.000	AV
9		1.898	27.747	18.032	-28.253	56.000	9.630	0.085	0.000	QP
10		1.898	20.003	10.289	-25.997	46.000	9.630	0.085	0.000	AV
11		3.485	26.709	16.921	-29.291	56.000	9.670	0.118	0.000	QP
12		3.485	21.025	11.237	-24.975	46.000	9.670	0.118	0.000	AV

Note:

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

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

Standard	FCC Part 15 Subpart C Paragraph 15.207
-----------------	--

Restricted Bands of operation

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 IC

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)

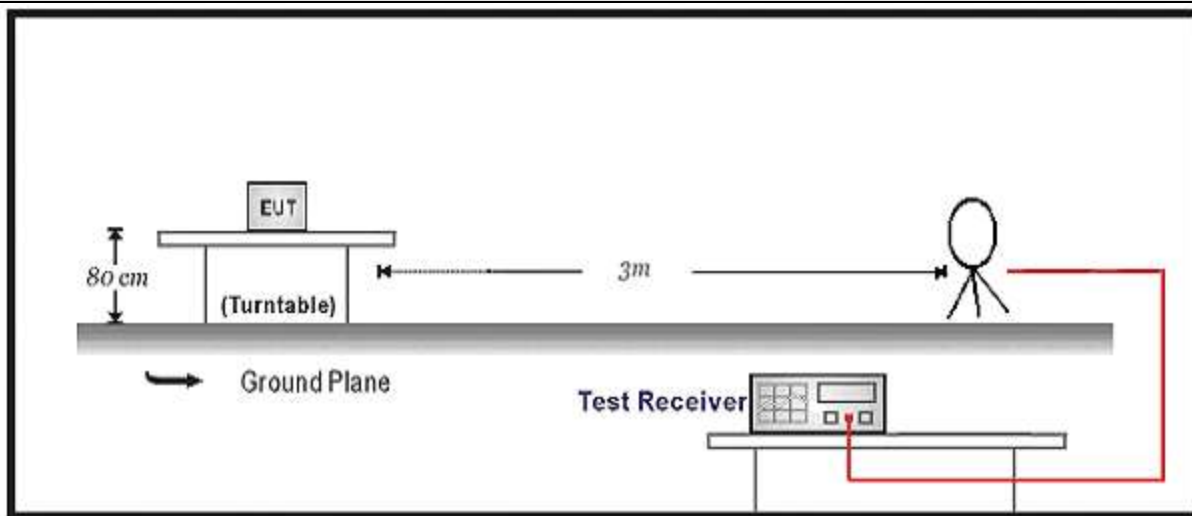
Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed 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.

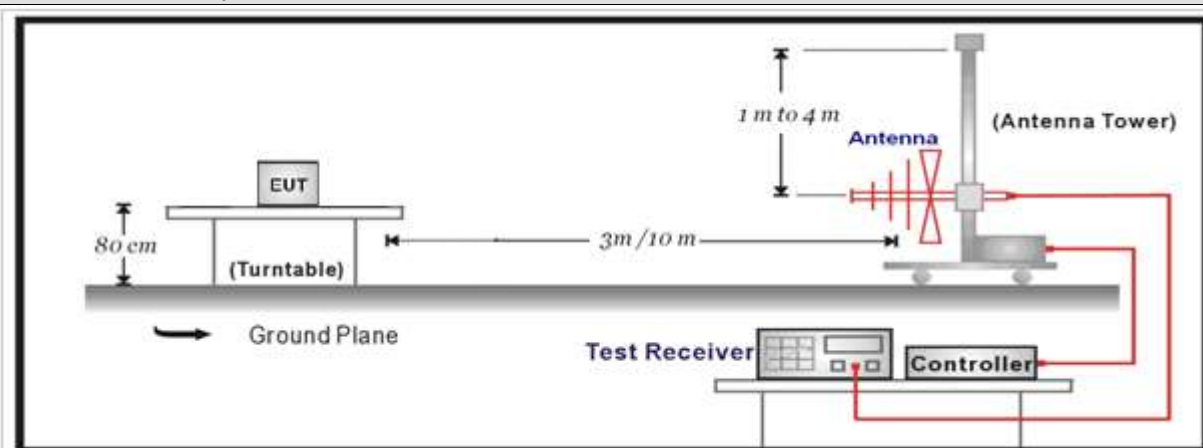
Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified 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

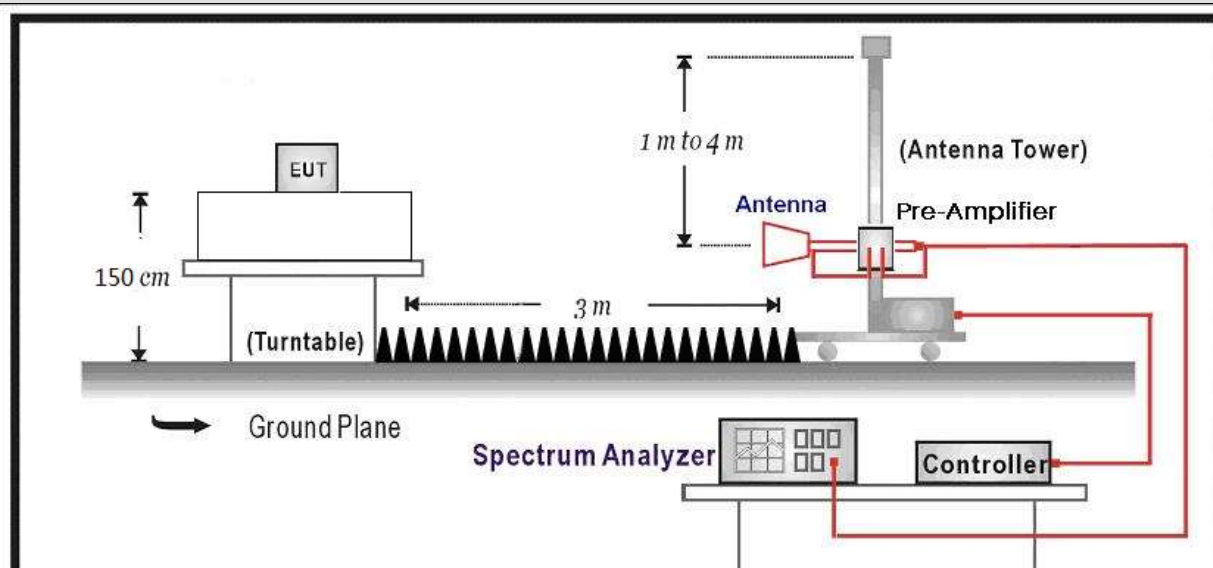
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:

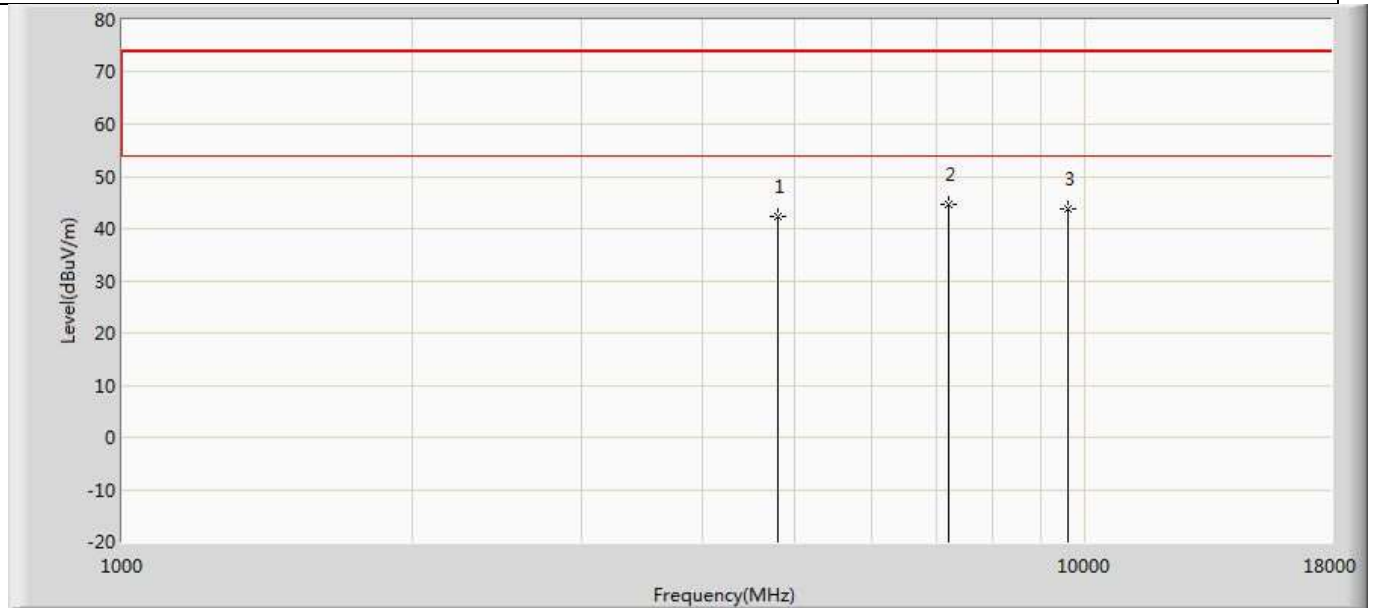


4.2.3 Test Procedure

	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

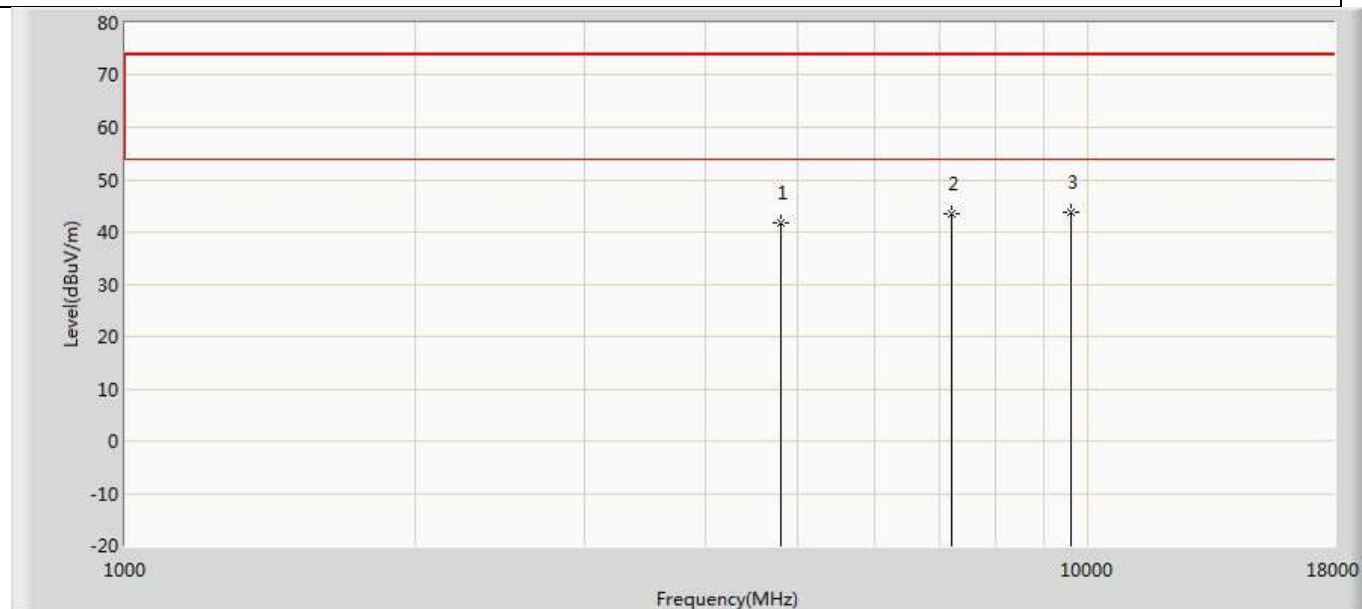
4.2.4 Test Data

Profile: 2040811R	Page No.: 89
Engineer: YULIU	
Site: AC5	Time: 2020/05/21 - 19:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2402MHz by LE_1Mbps	



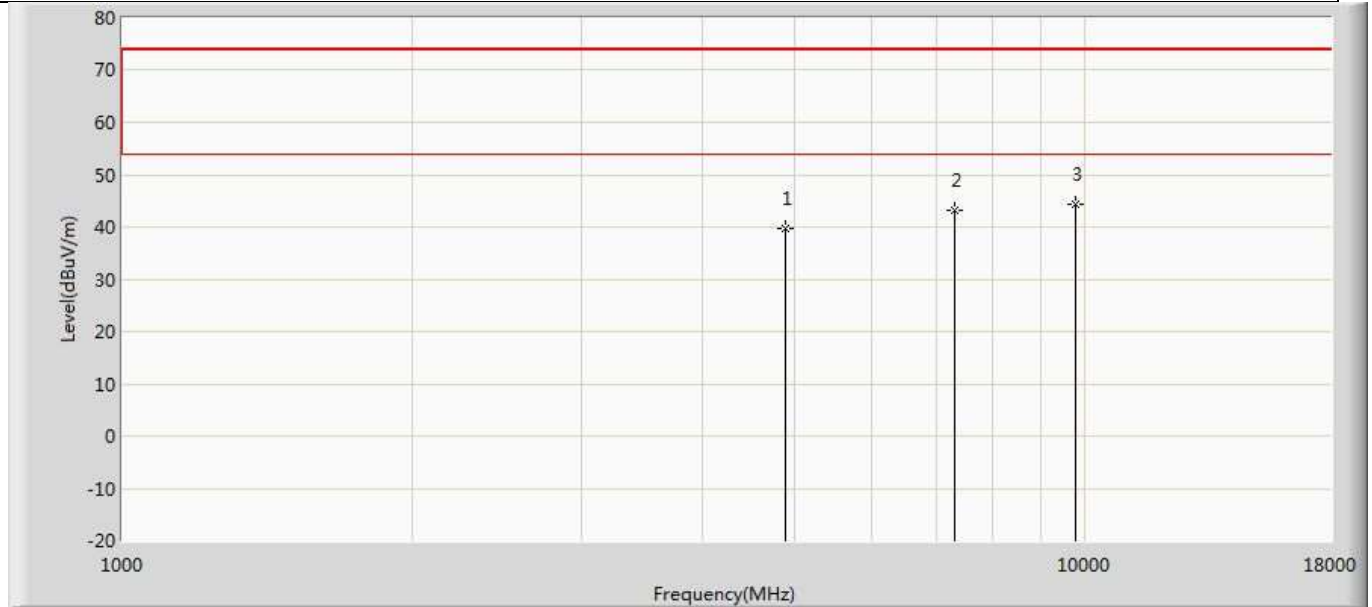
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	42.374	38.713	-31.626	74.000	3.662	PK
2	*	7206.000	44.690	38.027	-29.310	74.000	6.663	PK
3		9608.000	43.838	35.702	-30.162	74.000	8.137	PK

Profile: 2040811R	Page No.: 90
Engineer: YULIU	
Site: AC5	Time: 2020/05/21 - 19:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2402MHz by LE_1Mbps	



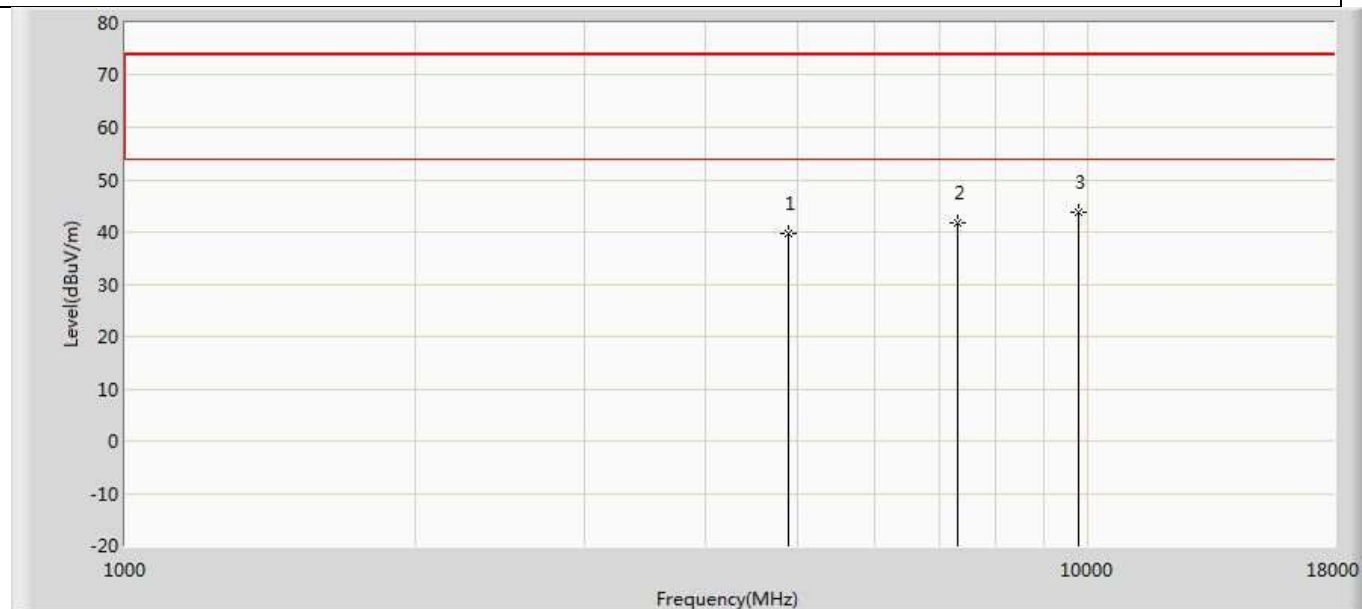
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.858	38.197	-32.142	74.000	3.662	PK
2		7206.000	43.616	36.953	-30.384	74.000	6.663	PK
3	*	9608.000	43.758	35.622	-30.242	74.000	8.137	PK

Profile: 2040811R	Page No.: 91
Engineer: YULIU	
Site: AC5	Time: 2020/05/21 - 19:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2440MHz by LE_1Mbps	



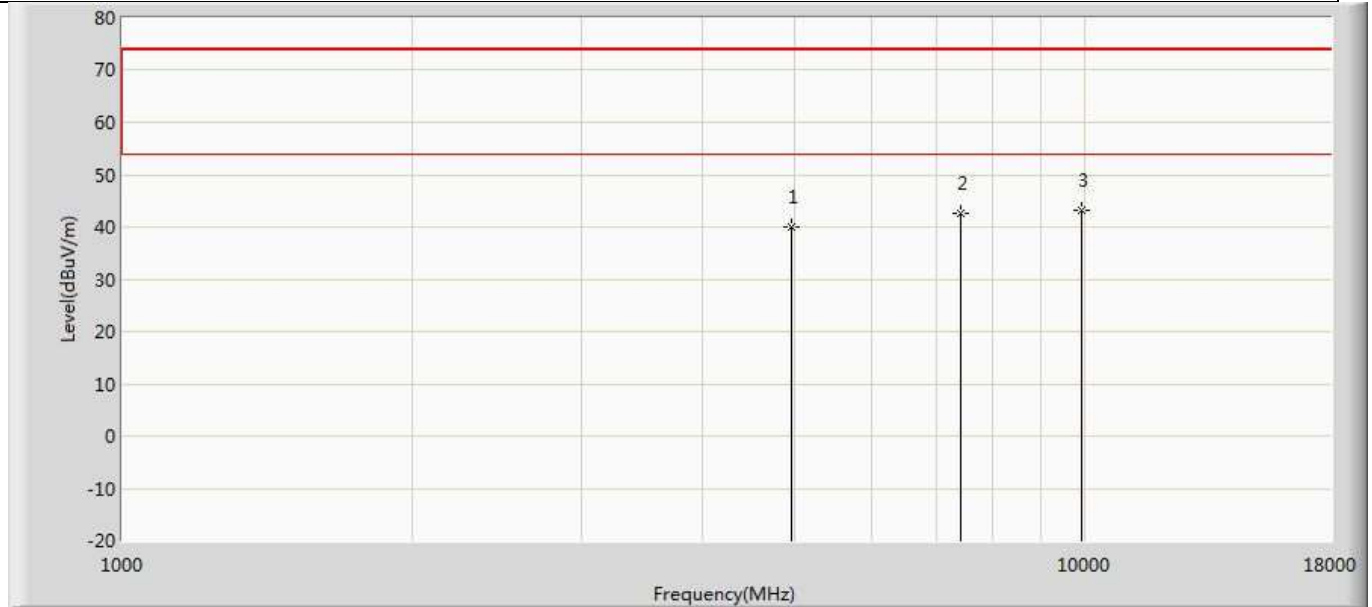
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	39.707	36.066	-34.293	74.000	3.640	PK
2		7320.000	43.328	36.643	-30.672	74.000	6.685	PK
3	*	9760.000	44.437	35.733	-29.563	74.000	8.704	PK

Profile: 2040811R	Page No.: 92
Engineer: YULIU	
Site: AC5	Time: 2020/05/21 - 19:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2440MHz by LE_1Mbps	



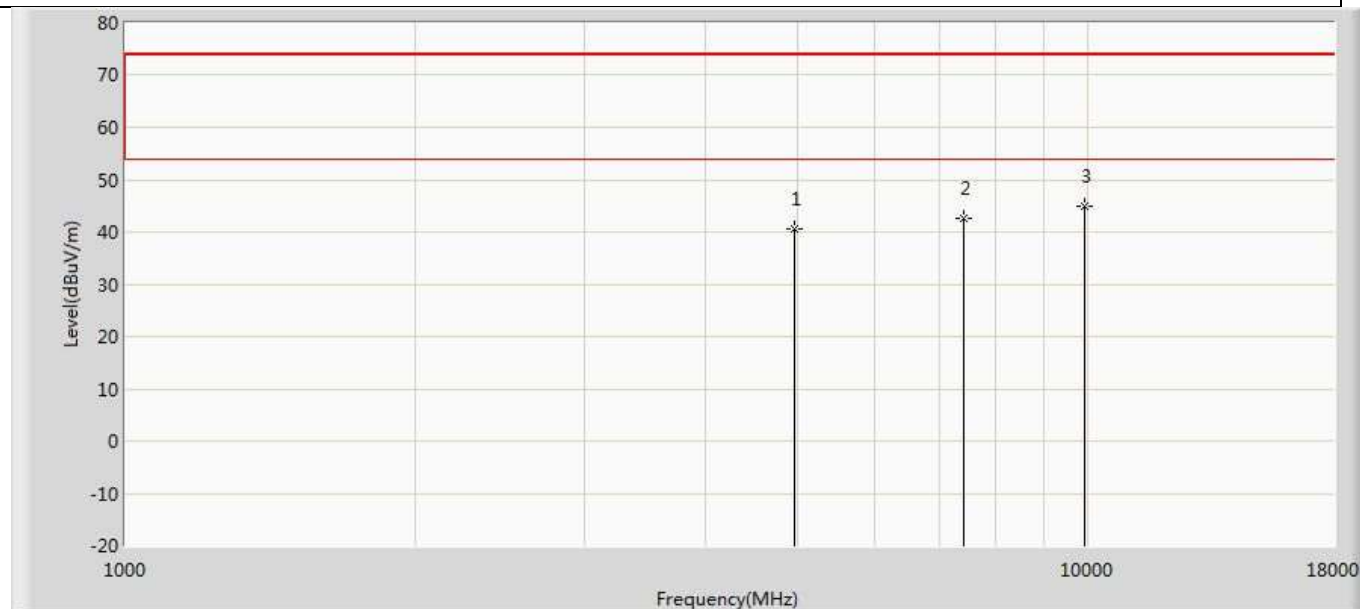
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	39.728	36.087	-34.272	74.000	3.640	PK
2		7320.000	41.851	35.166	-32.149	74.000	6.685	PK
3	*	9760.000	43.748	35.044	-30.252	74.000	8.704	PK

Profile: 2040811R	Page No.: 93
Engineer: YULIU	
Site: AC5	Time: 2020/05/21 - 19:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2480MHz by LE_1Mbps	



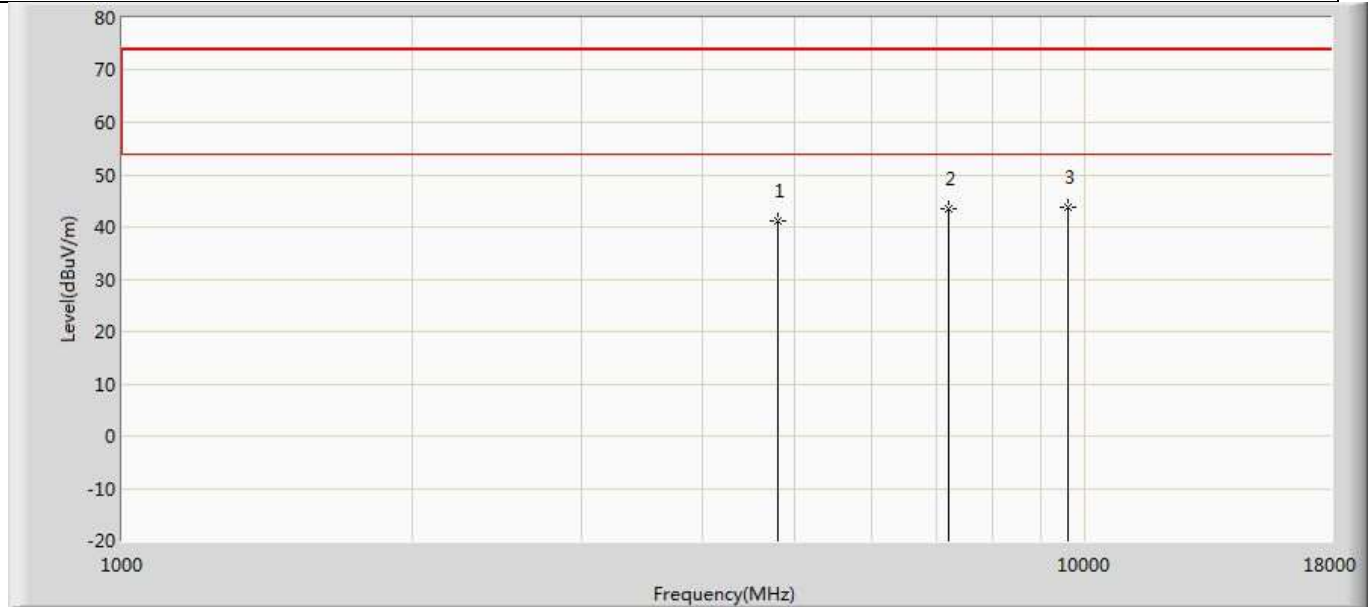
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	39.878	36.267	-34.122	74.000	3.611	PK
2		7440.000	42.559	35.974	-31.441	74.000	6.585	PK
3	*	9920.000	43.201	34.476	-30.799	74.000	8.725	PK

Profile: 2040811R	Page No.: 94
Engineer: YULIU	
Site: AC5	Time: 2020/05/21 - 19:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2480MHz by LE_1Mbps	



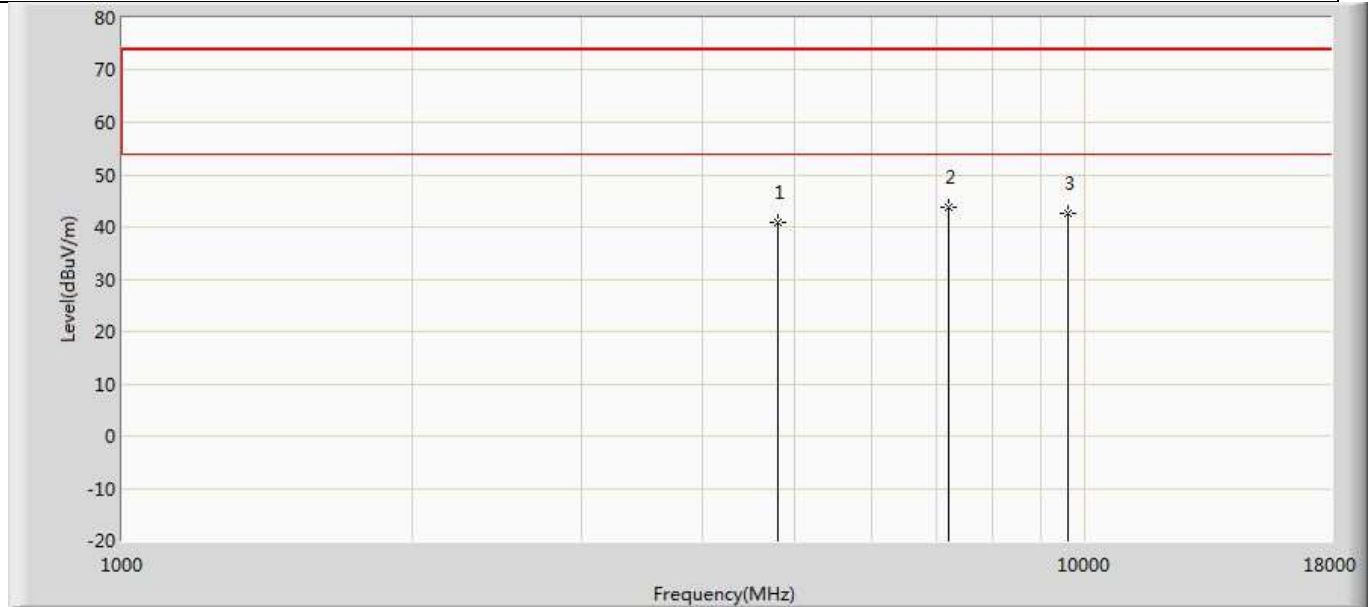
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.517	36.906	-33.483	74.000	3.611	PK
2		7440.000	42.741	36.156	-31.259	74.000	6.585	PK
3	*	9920.000	44.811	36.086	-29.189	74.000	8.725	PK

Profile: 2040811R	Page No.: 95
Engineer: YULIU	
Site: AC5	Time: 2020/05/21 - 19:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2402MHz by LE_2Mbps	



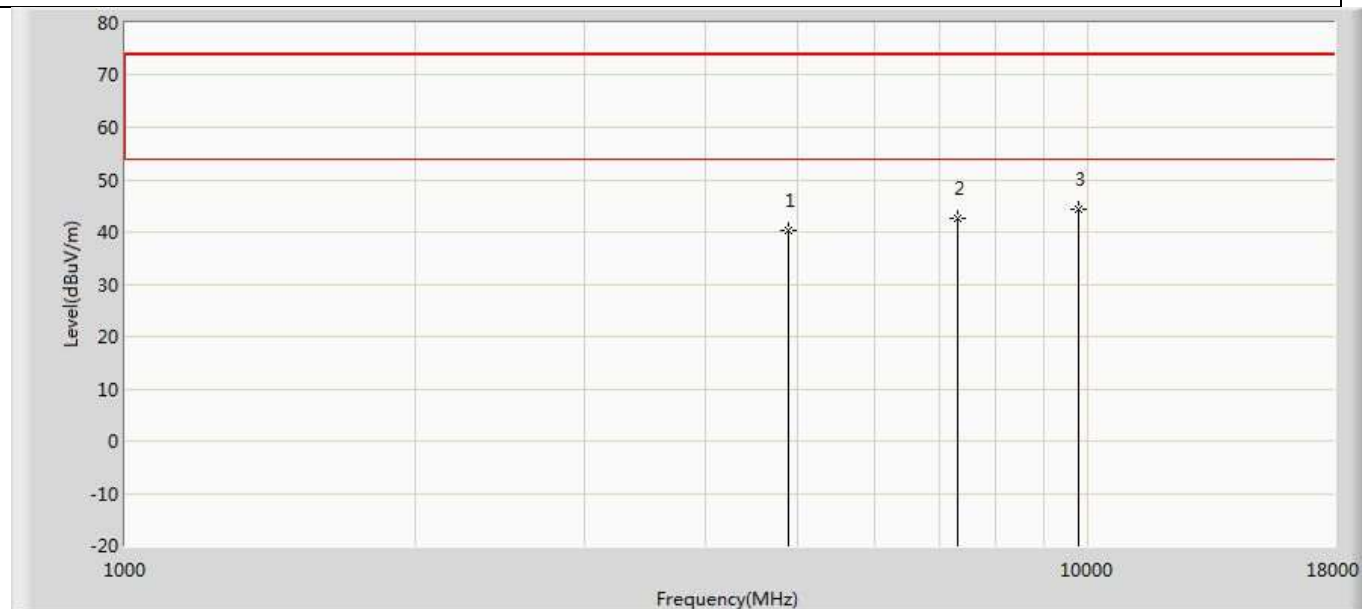
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.062	37.401	-32.938	74.000	3.662	PK
2		7206.000	43.437	36.774	-30.563	74.000	6.663	PK
3	*	9608.000	43.694	35.558	-30.306	74.000	8.137	PK

Profile: 2040811R	Page No.: 96
Engineer: YULIU	
Site: AC5	Time: 2020/05/21 - 19:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2402MHz by LE_2Mbps	



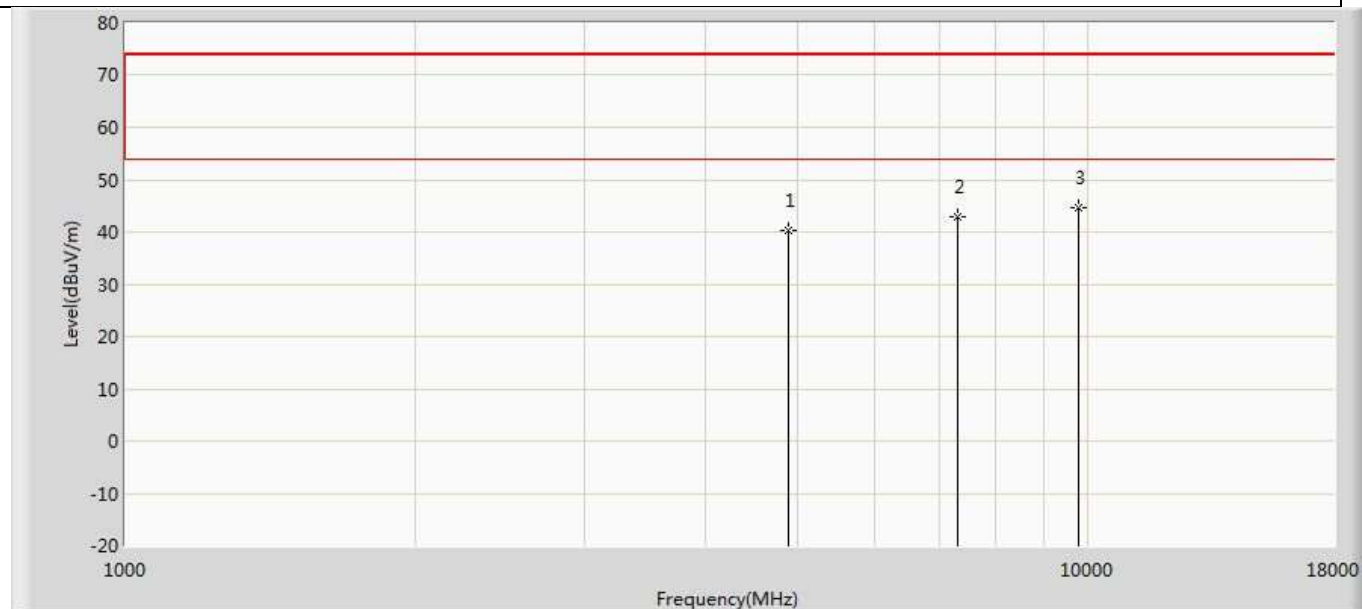
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	40.789	37.128	-33.211	74.000	3.662	PK
2	*	7206.000	43.786	37.123	-30.214	74.000	6.663	PK
3		9608.000	42.605	34.469	-31.395	74.000	8.137	PK

Profile: 2040811R	Page No.: 97
Engineer: YULIU	
Site: AC5	Time: 2020/05/21 - 19:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2440MHz by LE_2Mbps	



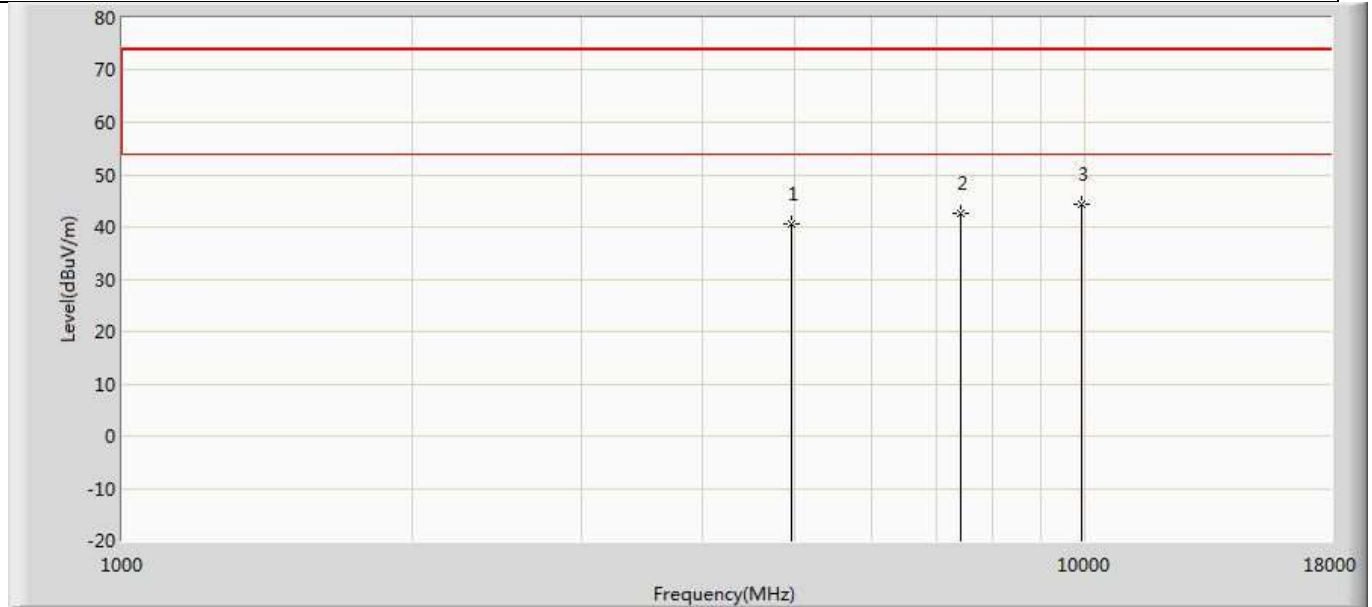
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	40.171	36.530	-33.829	74.000	3.640	PK
2		7320.000	42.619	35.934	-31.381	74.000	6.685	PK
3	*	9760.000	44.462	35.758	-29.538	74.000	8.704	PK

Profile: 2040811R	Page No.: 98
Engineer: YULIU	
Site: AC5	Time: 2020/05/21 - 19:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2440MHz by LE_2Mbps	



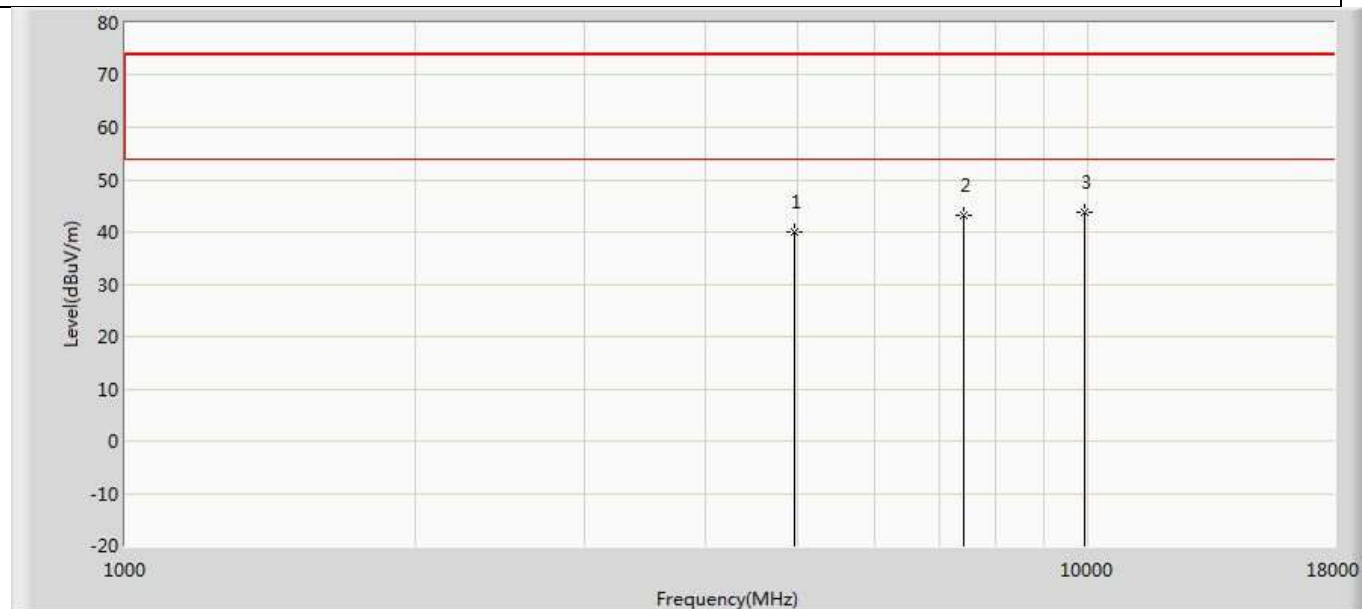
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	40.397	36.756	-33.603	74.000	3.640	PK
2		7320.000	42.803	36.118	-31.197	74.000	6.685	PK
3	*	9760.000	44.609	35.905	-29.391	74.000	8.704	PK

Profile: 2040811R	Page No.: 99
Engineer: YULIU	
Site: AC5	Time: 2020/05/21 - 19:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2480MHz by LE_2Mbps	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.605	36.994	-33.395	74.000	3.611	PK
2		7440.000	42.727	36.142	-31.273	74.000	6.585	PK
3	*	9920.000	44.225	35.500	-29.775	74.000	8.725	PK

Profile: 2040811R	Page No.: 100
Engineer: YULIU	
Site: AC5	Time: 2020/05/21 - 19:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2480MHz by LE_2Mbps	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	39.948	36.337	-34.052	74.000	3.611	PK
2		7440.000	43.303	36.718	-30.697	74.000	6.585	PK
3	*	9920.000	43.671	34.946	-30.329	74.000	8.725	PK

Note:

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

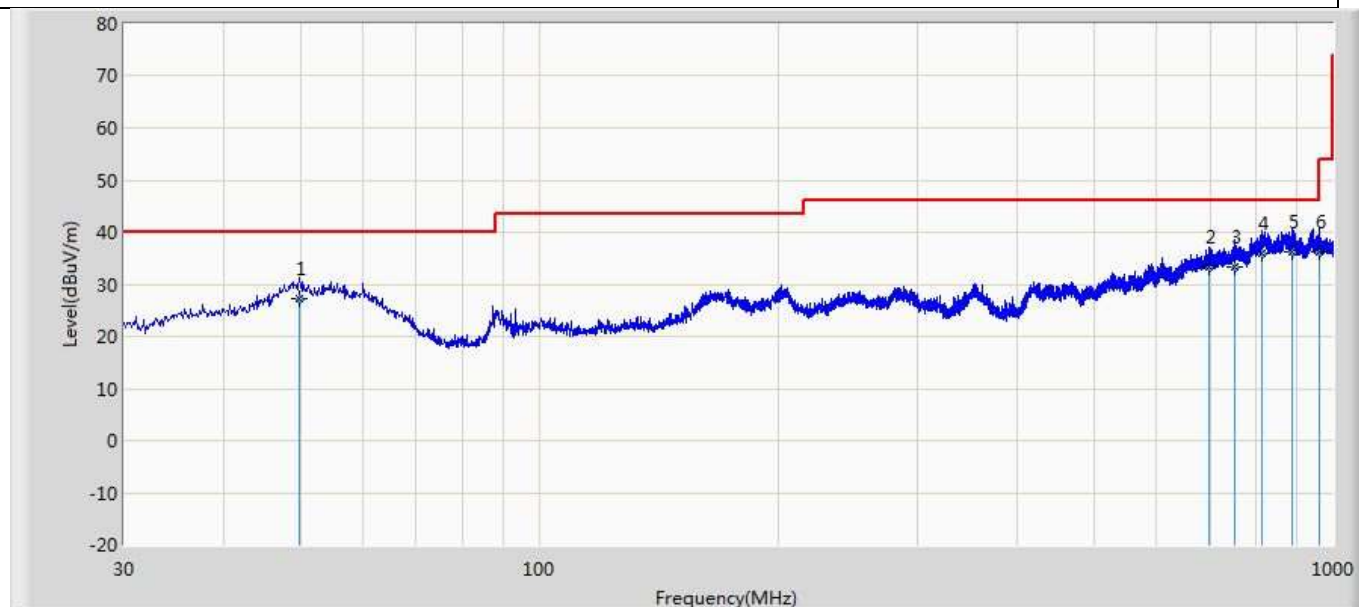
The worst case of Radiated Emission below 1GHz:

Engineer: YULIU	
Site: AC2	Time: 2020/05/11
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: SuZ-2141	Polarity: Horizontal
EUT: EZ-BT WICED Module	Power: DC 3.3V
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		36.669	23.700	1.000	-16.300	40.000	16.332	6.368	0.000	100	40	QP
2		522.760	29.813	0.400	-16.187	46.000	21.180	8.233	0.000	100	173	QP
3		617.214	31.855	0.900	-14.145	46.000	22.472	8.484	0.000	100	80	QP
4		791.208	33.787	0.600	-12.213	46.000	24.262	8.925	0.000	100	60	QP
5	*	868.565	35.906	0.600	-10.094	46.000	26.206	9.099	0.000	100	150	QP
6		951.136	35.646	1.400	-10.354	46.000	24.954	9.292	0.000	100	77	QP

Engineer: YULIU	
Site: AC2	Time: 2020/05/11
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: SuZ-2141	Polarity: Vertical
EUT: EZ-BT WICED Module	Power: DC 3.3V
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		49.885	27.217	2.000	-12.783	40.000	18.725	6.492	0.000	100	63	QP
2		698.330	33.367	1.600	-12.633	46.000	23.073	8.694	0.000	100	120	QP
3		751.922	33.302	0.500	-12.698	46.000	23.974	8.828	0.000	100	263	QP
4		814.609	35.820	0.700	-10.180	46.000	26.141	8.980	0.000	100	140	QP
5	*	889.299	36.286	0.800	-9.714	46.000	26.340	9.146	0.000	100	20	QP
6		962.170	36.272	1.100	-17.728	54.000	25.854	9.318	0.000	100	114	QP

Note:

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

4.3 Emissions in non-restricted frequency band

VERDICT: PASS

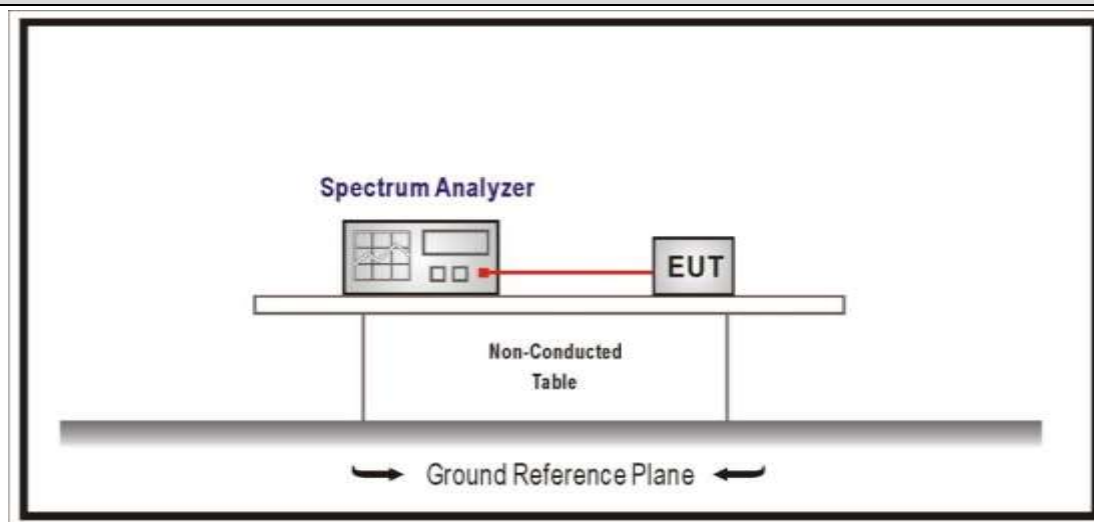
4.3.1 Limit

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).

4.3.2 Test Setup



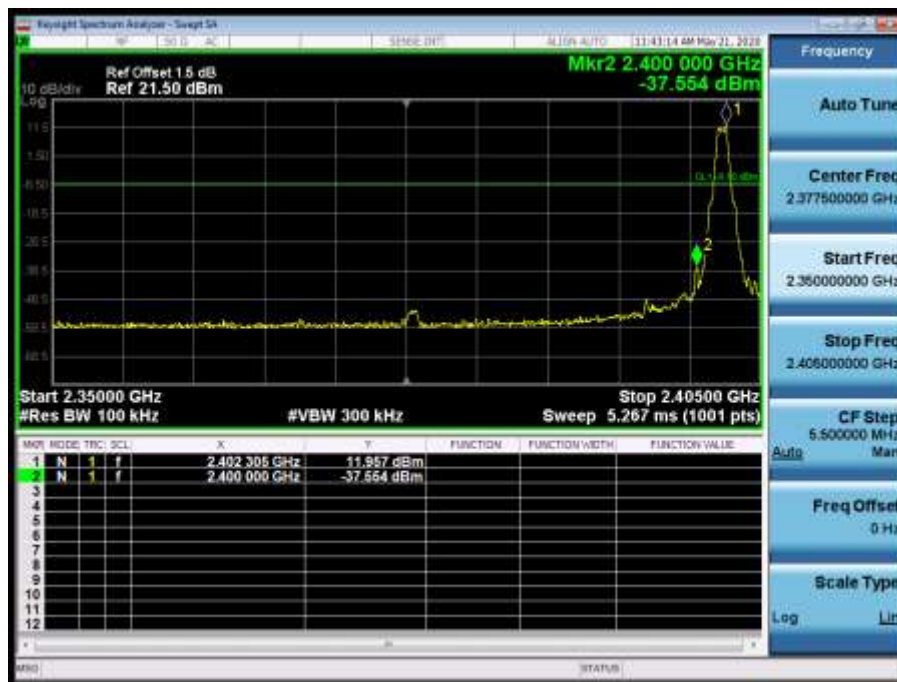
4.3.3 Test Procedure

References Rule	Chapter	Description
☒ ANSI C63.10	11.11	Emissions in non-restricted frequency bands
☒ ANSI C63.10	11.11.1	General
☒ ANSI C63.10	11.11.2	Reference level measurement
☒ ANSI C63.10	11.11.3	Emission level measurement

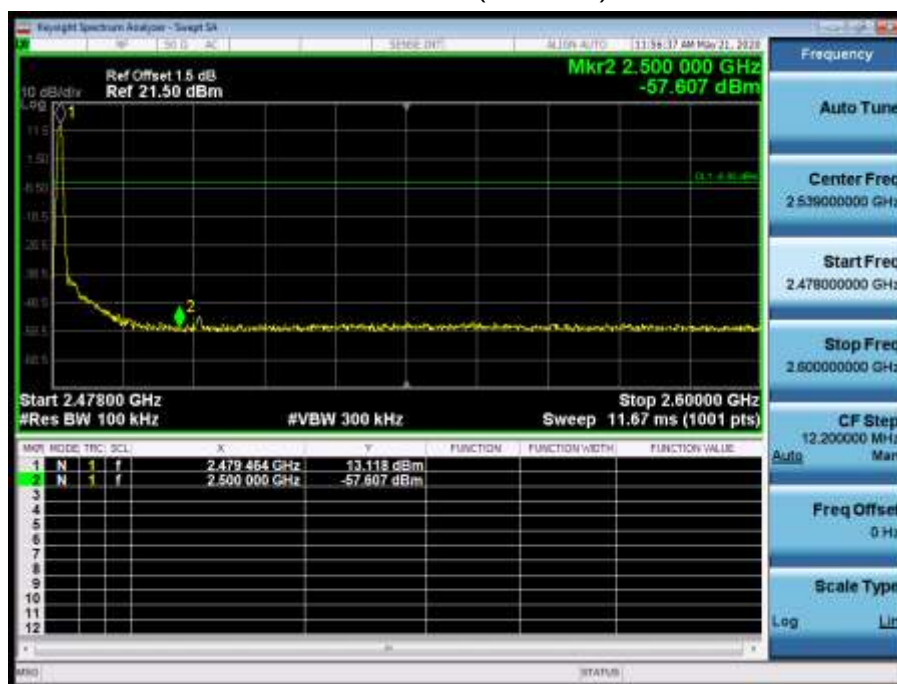
4.3.4 Test Data

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	11.957	2400	-37.554	49.511	>20	Pass
	39	2480	13.118	2500	-57.607	70.725	>20	Pass
2	00	2402	10.996	2400	-18.745	29.741	>20	Pass
	39	2480	13.294	2500	-57.695	70.989	>20	Pass

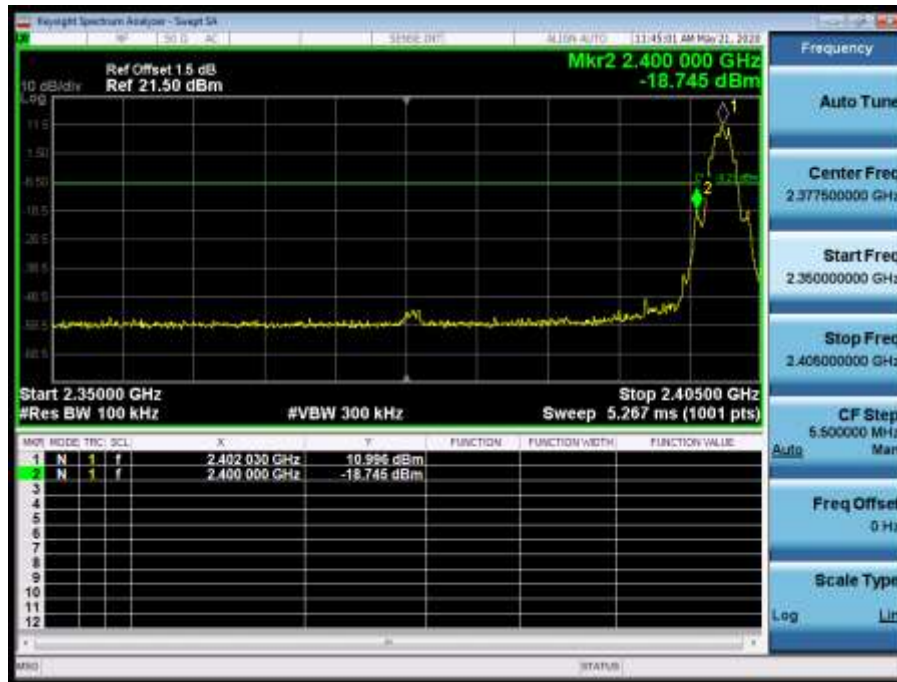
Mode 1 CH00(2402MHz)



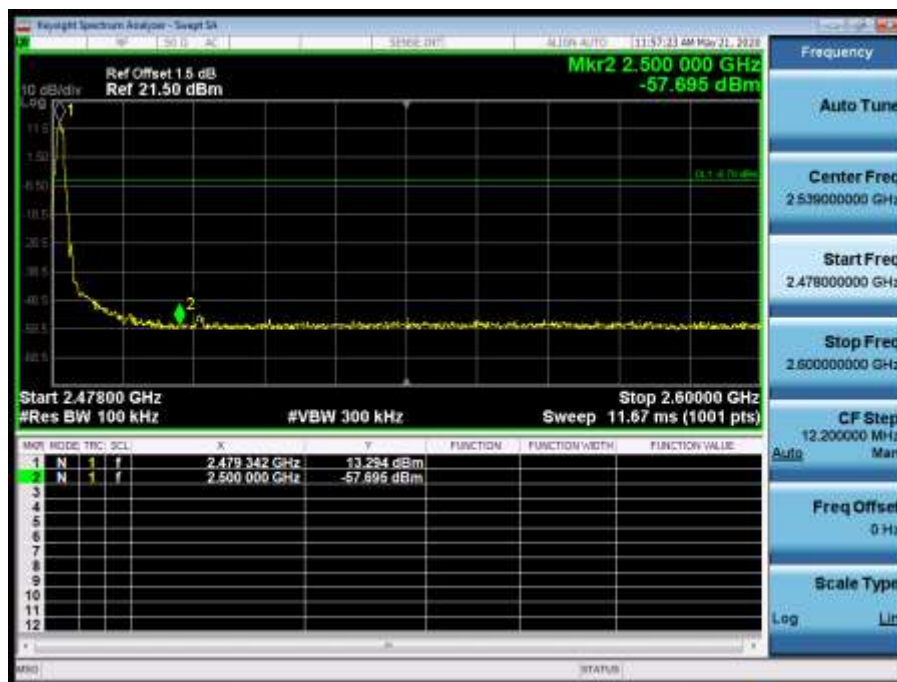
Mode 1 CH39(2480MHz)



Mode 2 CH00(2402MHz)

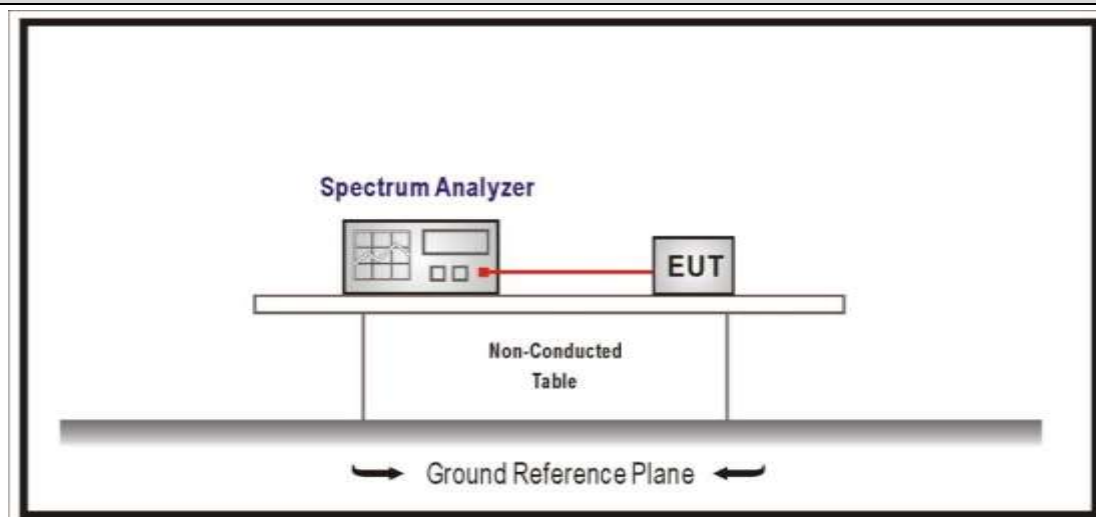


Mode 2 CH39(2480MHz)



4.4 Duty cycle**VERDICT: PASS****4.4.1 Limit**

N/A

4.4.2 Test Setup**4.4.3 Test Procedure**

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

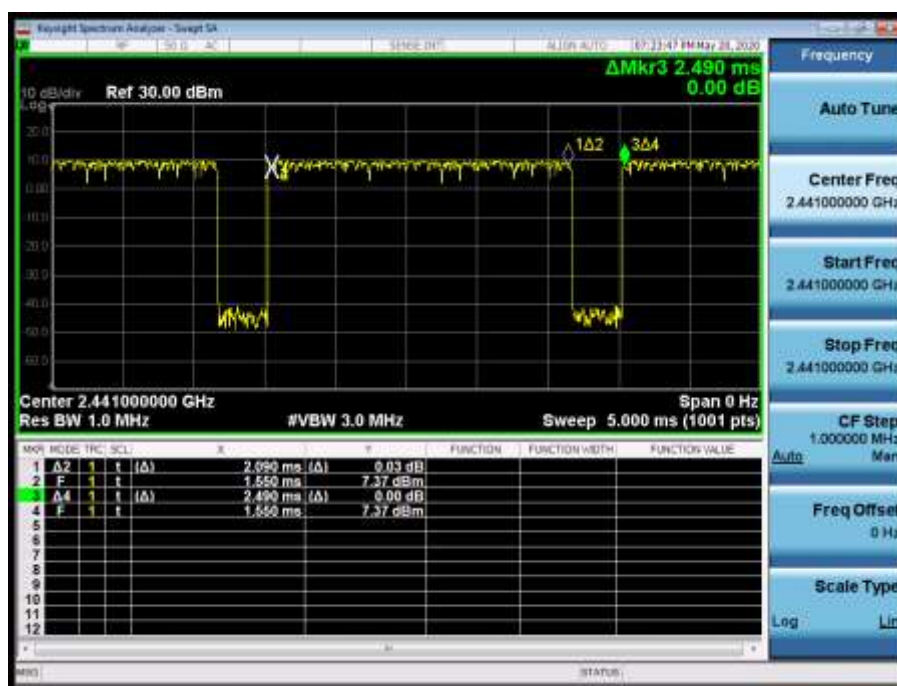
4.4.4 Test Data

Test Mode	Tx On (ms)	Tx Off (ms)	VBW	Tx On + Tx Off (ms)	Duty Cycle
Mode 1	2.090	0.400	0.478 kHz	2.490	83.94%
Mode 2	1.055	0.840	0.948 kHz	1.895	55.67%

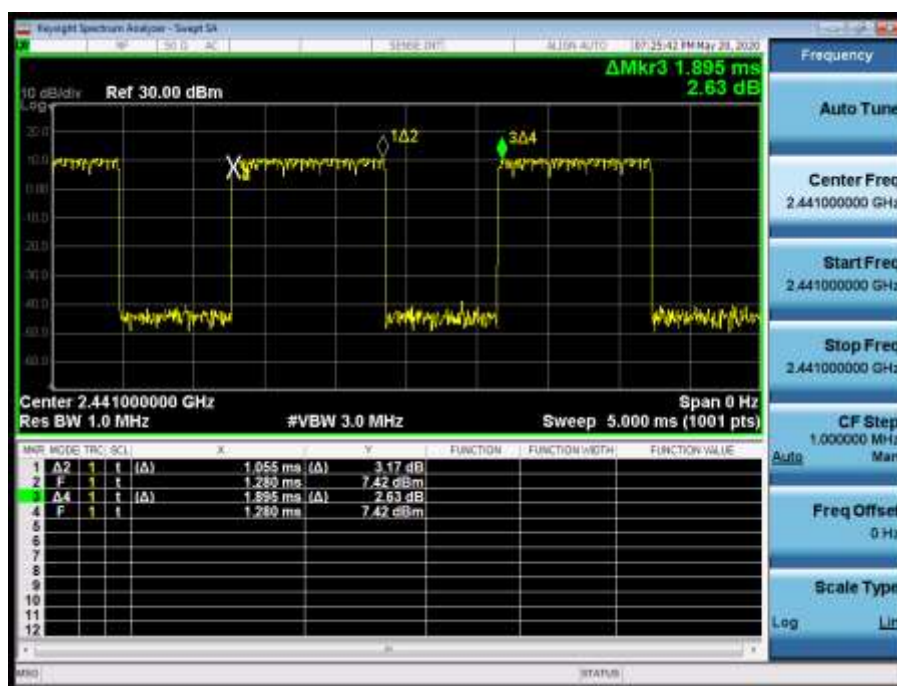
Note 1: T means the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

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 CH19 2440MHz



Mode 2 CH19 2440MHz



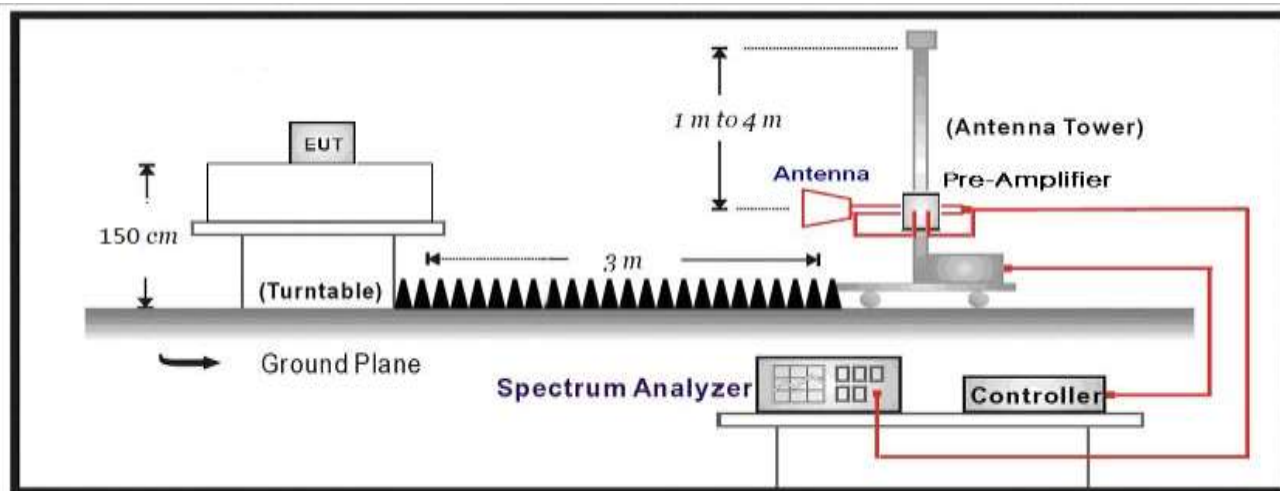
4.5 Radiated Emission Band Edge**VERDICT: PASS****4.5.1 Limit**

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.

4.5.2 Test Setup

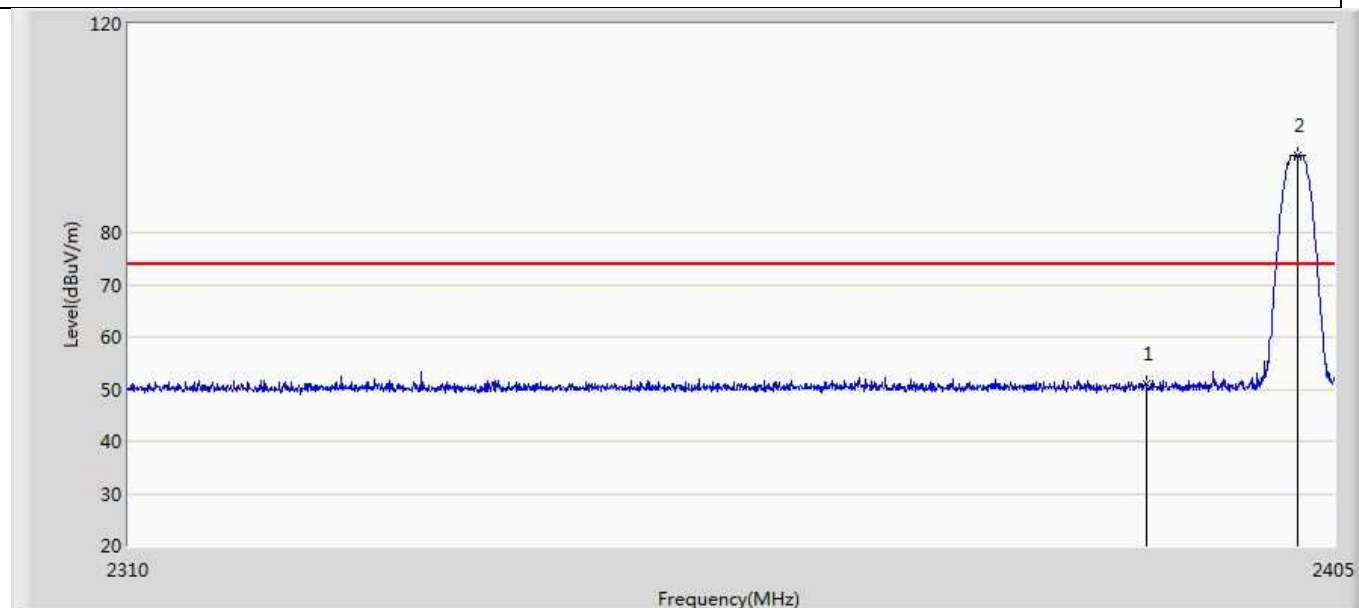
Above 1GHz Test Setup:

**4.5.3 Test Procedure**

	References Rule	Chapter	Description
☒	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	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

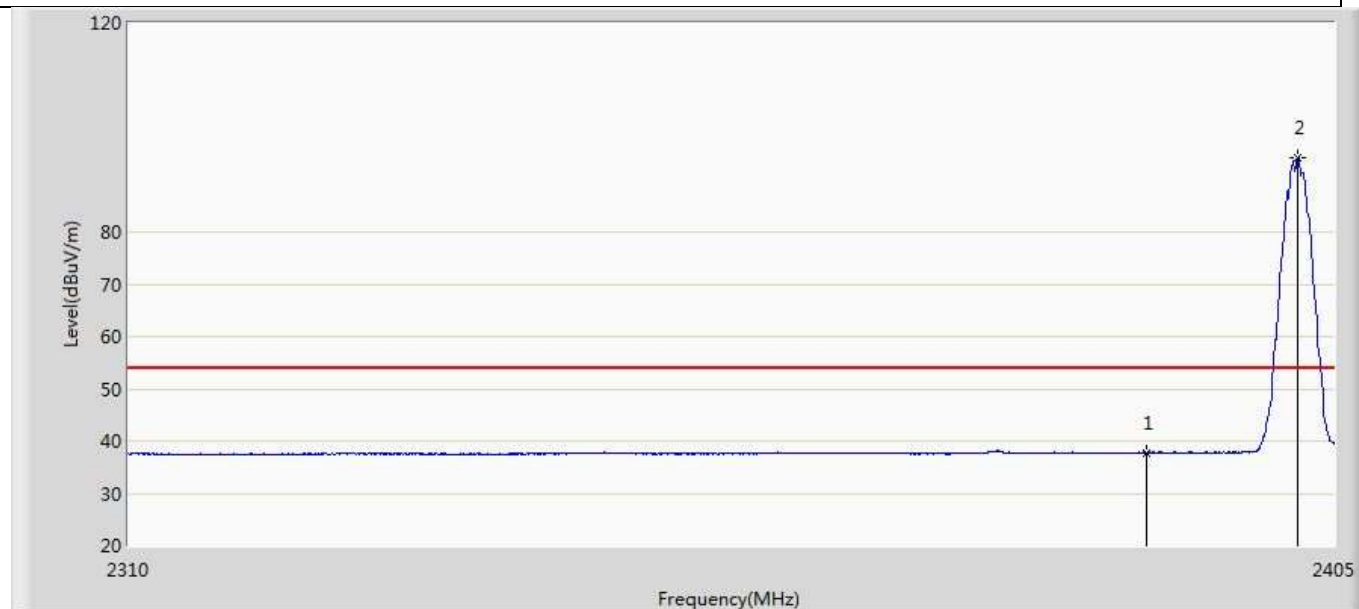
4.5.4 Test Data

Profile: 2040811R	Page No.: 25
Engineer: YULIU	
Site: AC5	Time: 2020/05/19 - 20:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2402MHz by LE_1M	



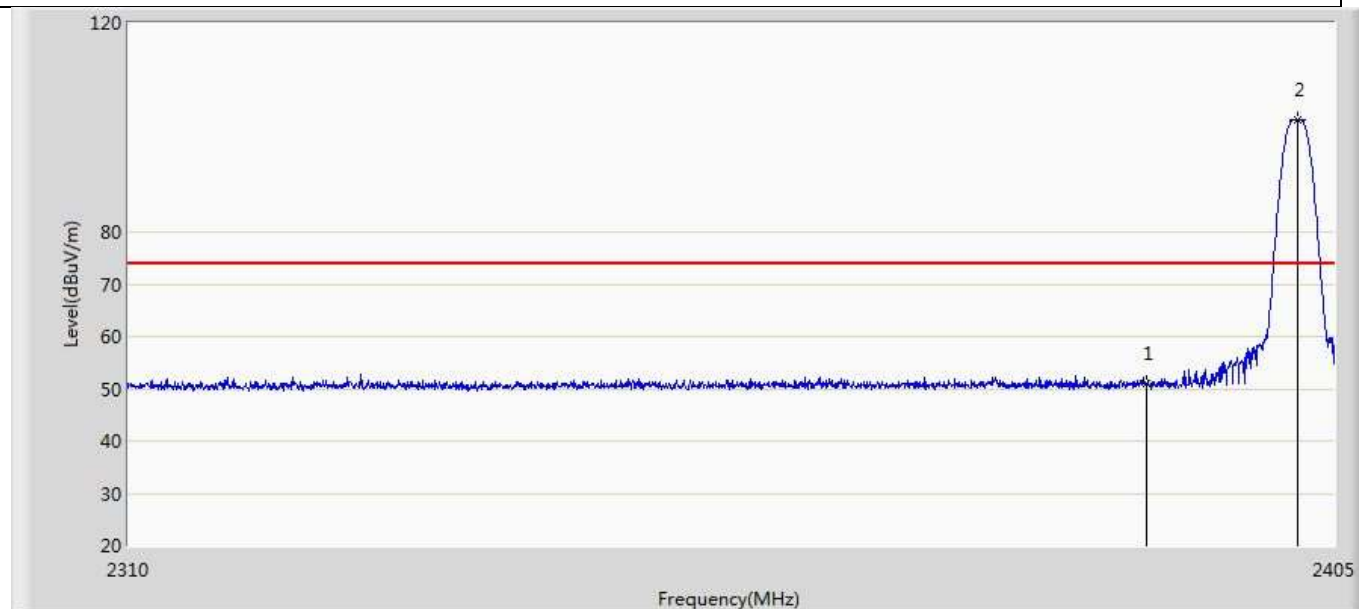
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.905	15.590	-23.095	74.000	35.315	PK
2	*	2402.055	94.780	59.468	N/A	N/A	35.312	PK

Profile: 2040811R	Page No.: 26
Engineer: YULIU	
Site: AC5	Time: 2020/05/19 - 20:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2402MHz by LE_1M	



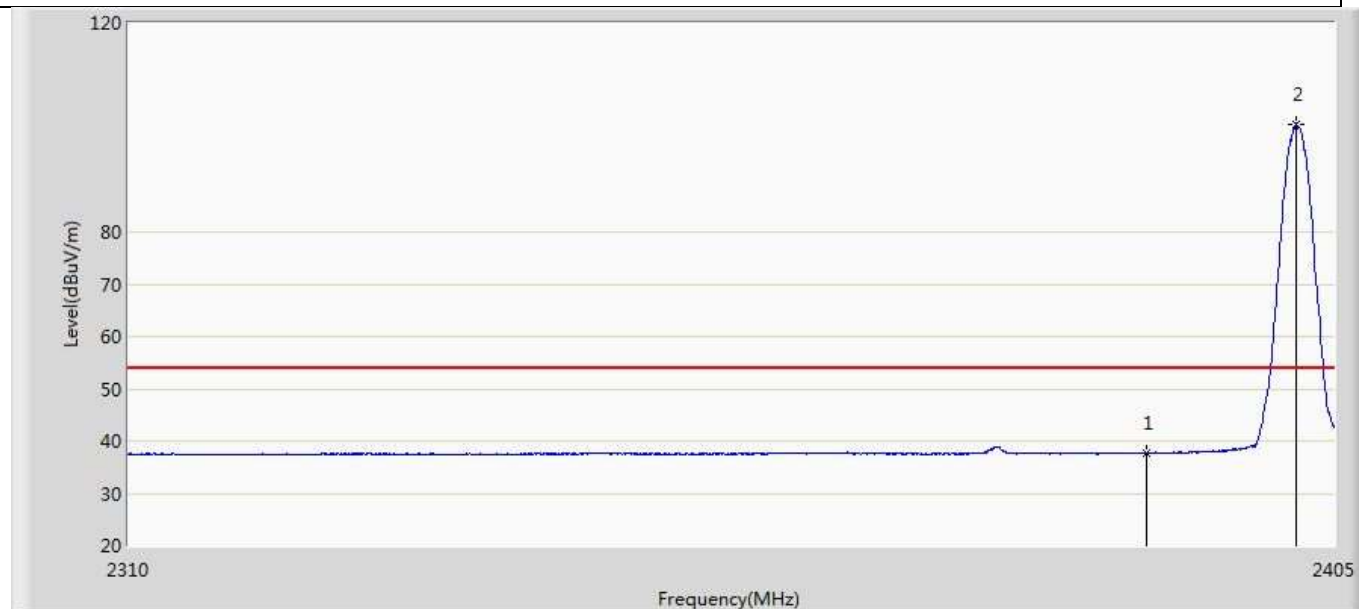
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.751	2.436	-16.249	54.000	35.315	AV
2	*	2402.055	94.279	58.967	N/A	N/A	35.312	AV

Profile: 2040811R	Page No.: 27
Engineer: YULIU	
Site: AC5	Time: 2020/05/19 - 20:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2402MHz by LE_1M	



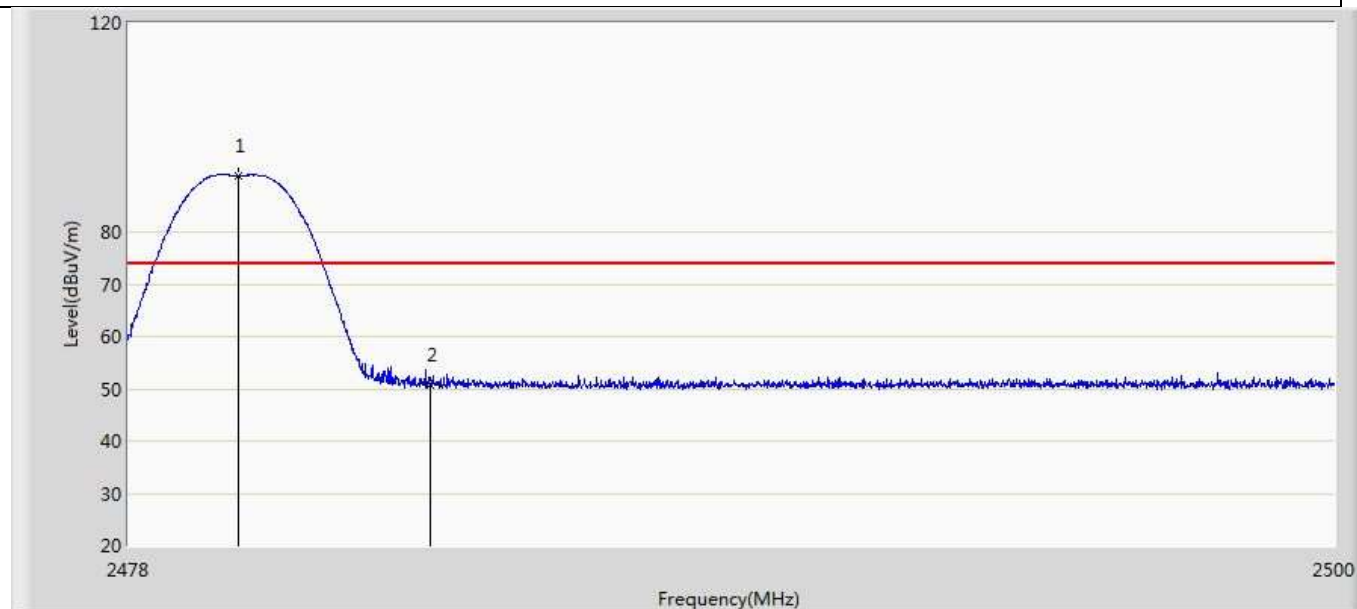
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	51.006	15.691	-22.994	74.000	35.315	PK
2	*	2402.055	101.377	66.065	N/A	N/A	35.312	PK

Profile: 2040811R	Page No.: 28
Engineer: YULIU	
Site: AC5	Time: 2020/05/19 - 20:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2402MHz by LE_1M	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.621	2.306	-16.379	54.000	35.315	AV
2	*	2401.960	100.702	65.390	N/A	N/A	35.312	AV

Profile: 2040811R	Page No.: 29
Engineer: YULIU	
Site: AC5	Time: 2020/05/19 - 20:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2480MHz by LE_1M	



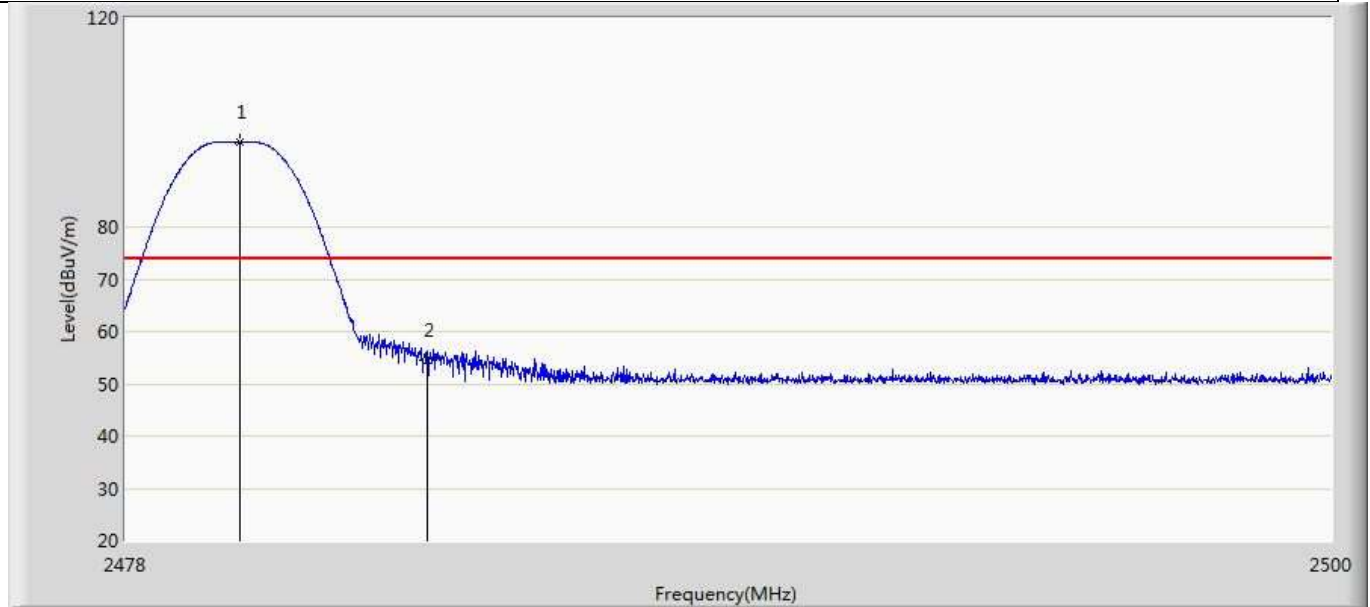
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.013	90.767	55.468	N/A	N/A	35.299	PK
2		2483.500	50.810	15.512	-23.190	74.000	35.297	PK

Profile: 2040811R	Page No.: 30
Engineer: YULIU	
Site: AC5	Time: 2020/05/19 - 20:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2480MHz by LE_1M	



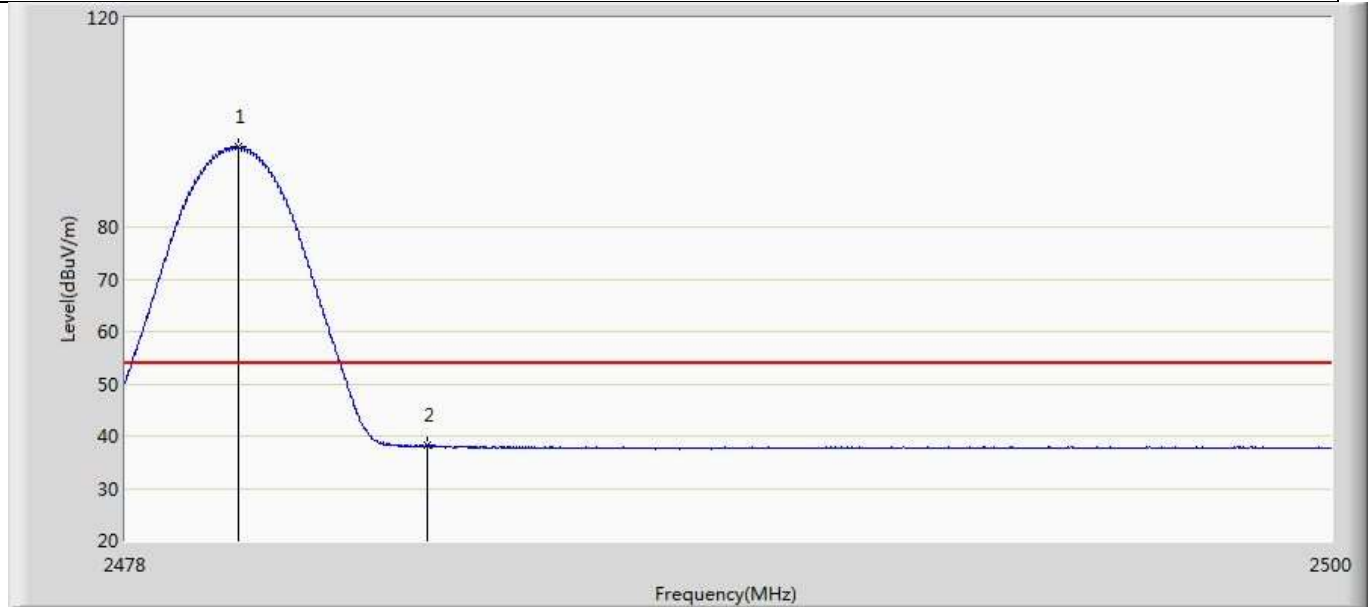
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.046	90.144	54.845	N/A	N/A	35.299	AV
2		2483.500	37.704	2.406	-16.296	54.000	35.297	AV

Profile: 2040811R	Page No.: 31
Engineer: YULIU	
Site: AC5	Time: 2020/05/19 - 20:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2480MHz by LE_1M	



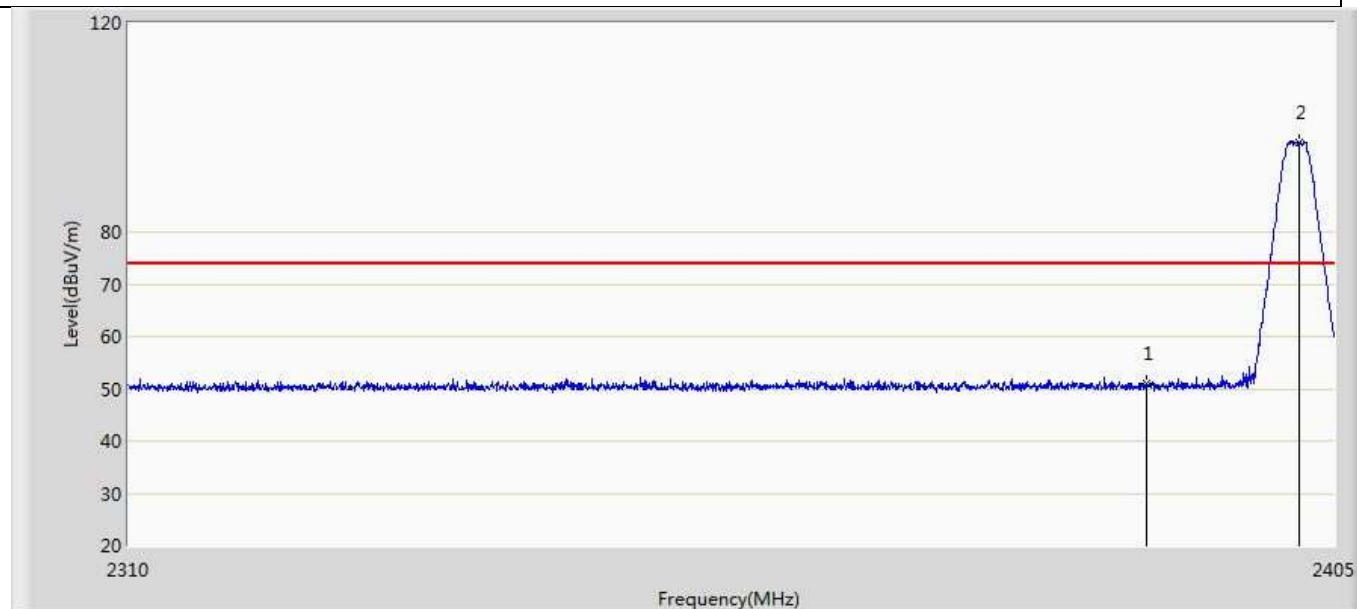
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.079	96.149	60.850	N/A	N/A	35.299	PK
2		2483.500	54.489	19.191	-19.511	74.000	35.297	PK

Profile: 2040811R	Page No.: 32
Engineer: YULIU	
Site: AC5	Time: 2020/05/19 - 20:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 4:Transmit at 2480MHz by LE_1M	



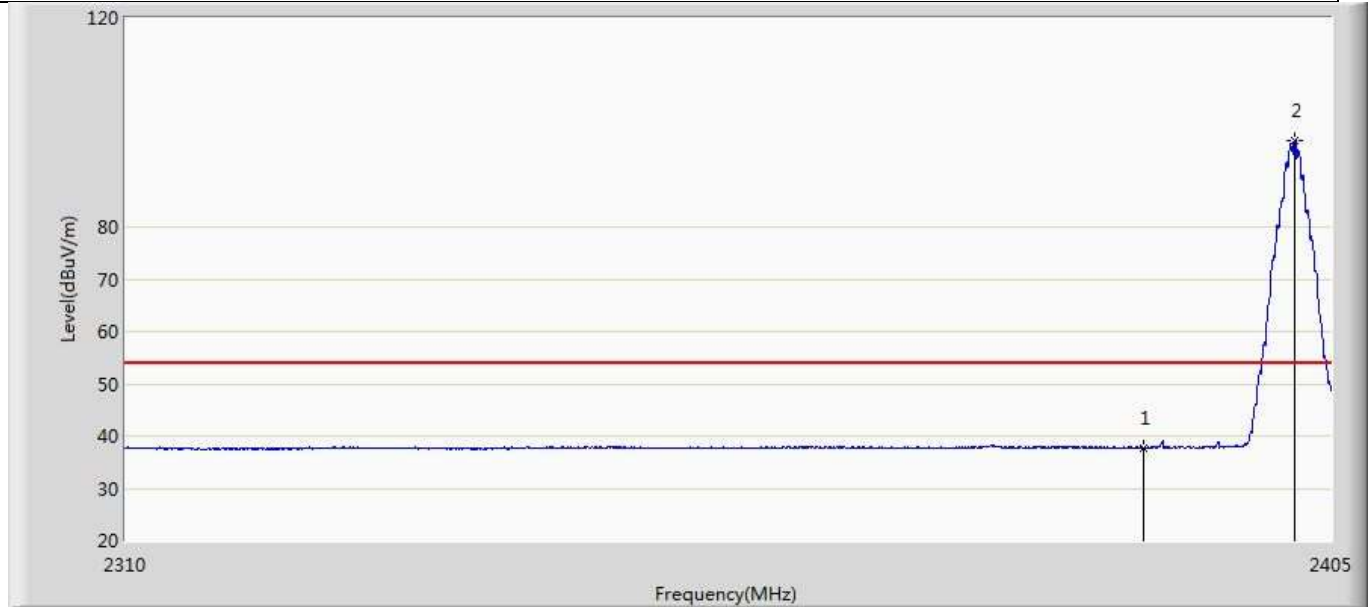
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.046	95.503	60.204	N/A	N/A	35.299	AV
2		2483.500	38.197	2.899	-15.803	54.000	35.297	AV

Profile: 2040811R	Page No.: 33
Engineer: YULIU	
Site: AC5	Time: 2020/05/19 - 20:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2402MHz by LE_2M	



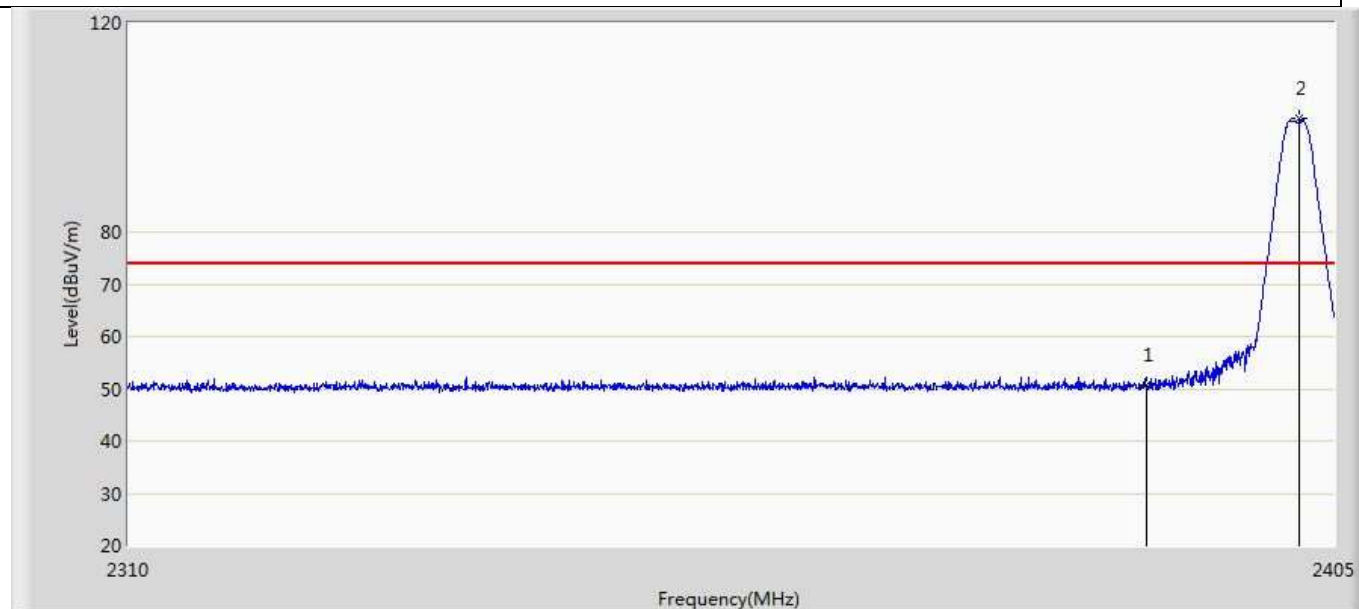
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.939	15.624	-23.061	74.000	35.315	PK
2	*	2402.198	97.176	61.864	N/A	N/A	35.312	PK

Profile: 2040811R	Page No.: 34
Engineer: YULIU	
Site: AC5	Time: 2020/05/21 - 18:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2402MHz by LE_2M	



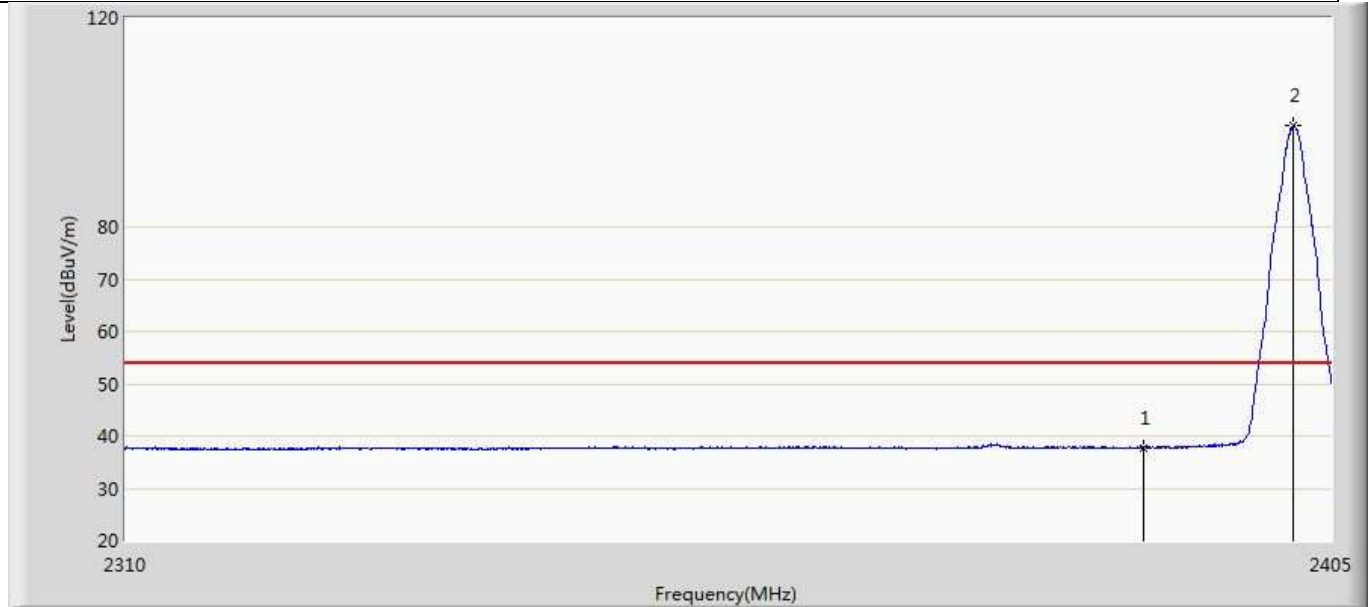
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.748	2.433	-16.252	54.000	35.315	AV
2	*	2402.055	96.554	61.242	N/A	N/A	35.312	AV

Profile: 2040811R	Page No.: 35
Engineer: YULIU	
Site: AC5	Time: 2020/05/21 - 18:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2402MHz by LE_2M	



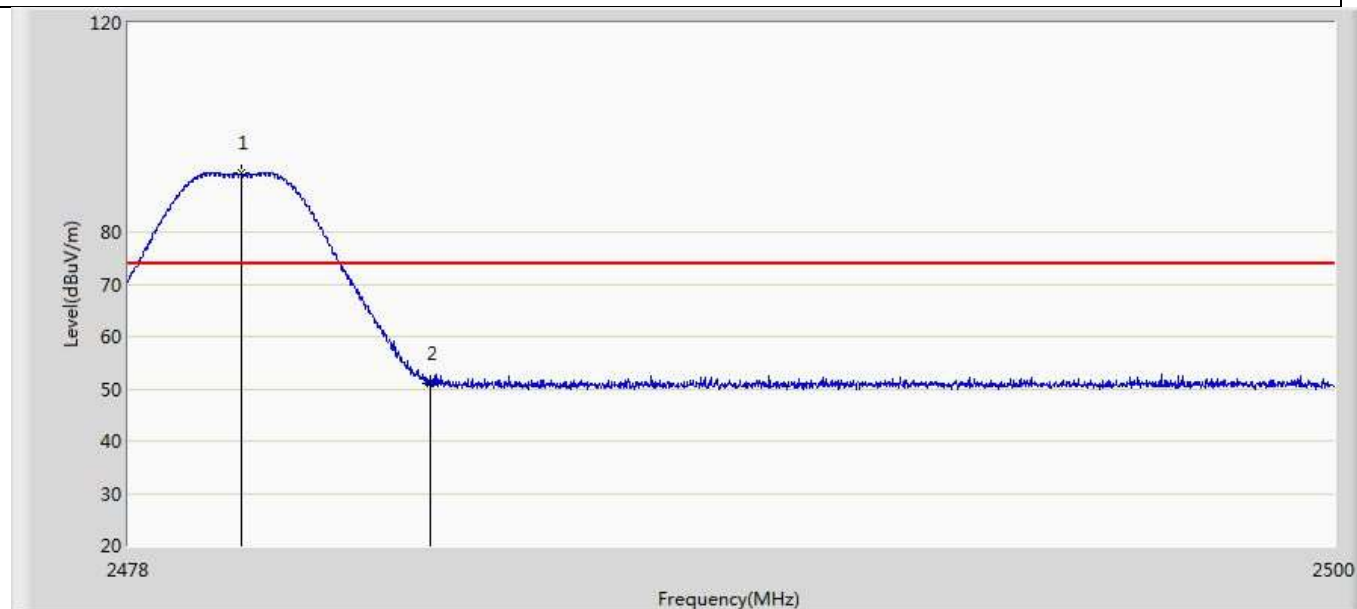
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.582	15.267	-23.418	74.000	35.315	PK
2	*	2402.198	101.717	66.405	N/A	N/A	35.312	PK

Profile: 2040811R	Page No.: 36
Engineer: YULIU	
Site: AC5	Time: 2020/05/21 - 18:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2402MHz by LE_2M	



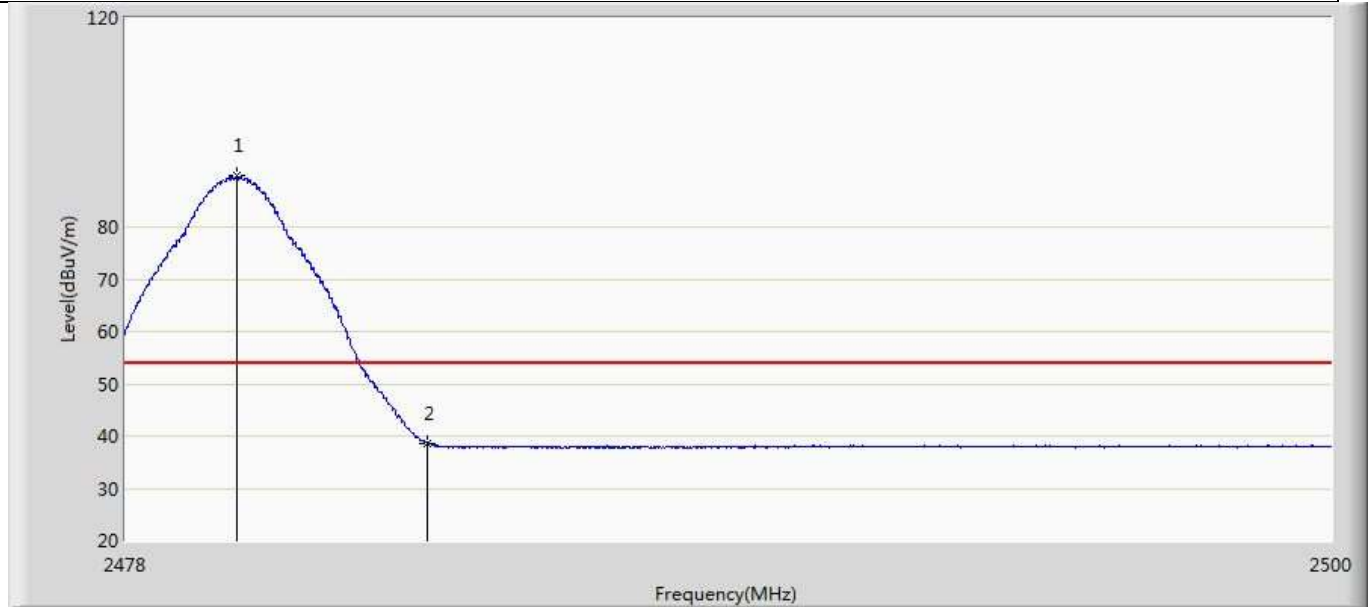
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.683	2.368	-16.317	54.000	35.315	AV
2	*	2402.008	99.425	64.113	N/A	N/A	35.312	AV

Profile: 2040811R	Page No.: 37
Engineer: YULIU	
Site: AC5	Time: 2020/05/21 - 18:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2480MHz by LE_2M	



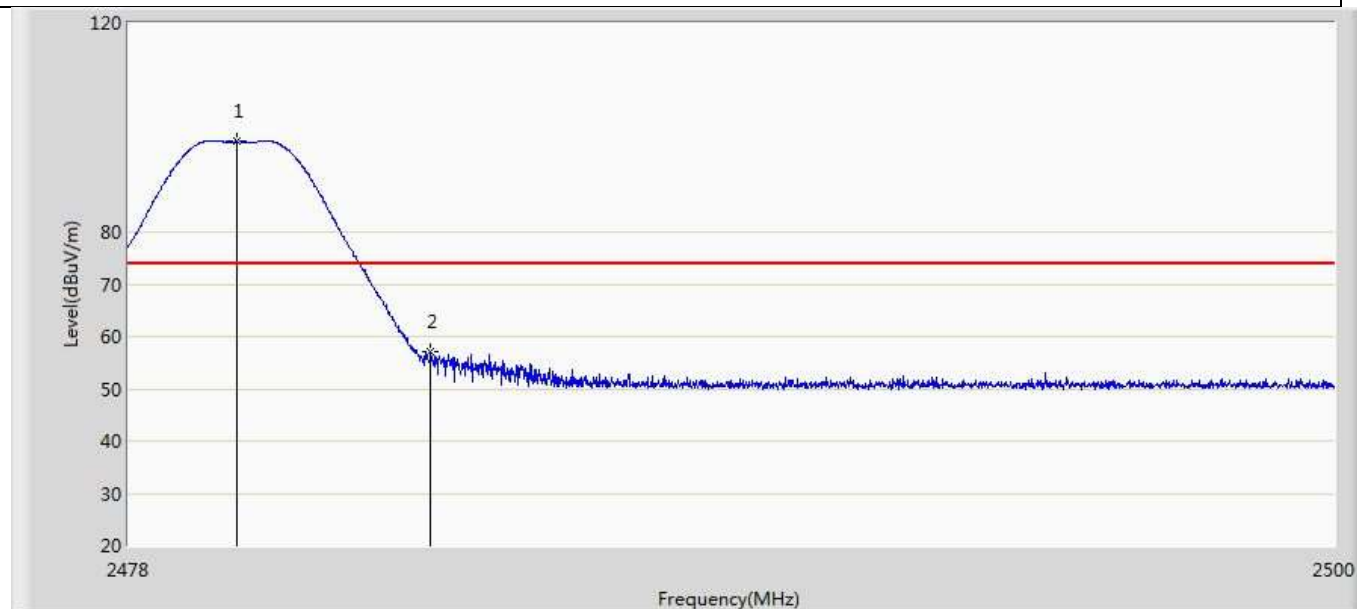
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.057	91.286	55.987	N/A	N/A	35.299	PK
2		2483.500	51.026	15.728	-22.974	74.000	35.297	PK

Profile: 2040811R	Page No.: 38
Engineer: YULIU	
Site: AC5	Time: 2020/05/21 - 18:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2480MHz by LE_2M	



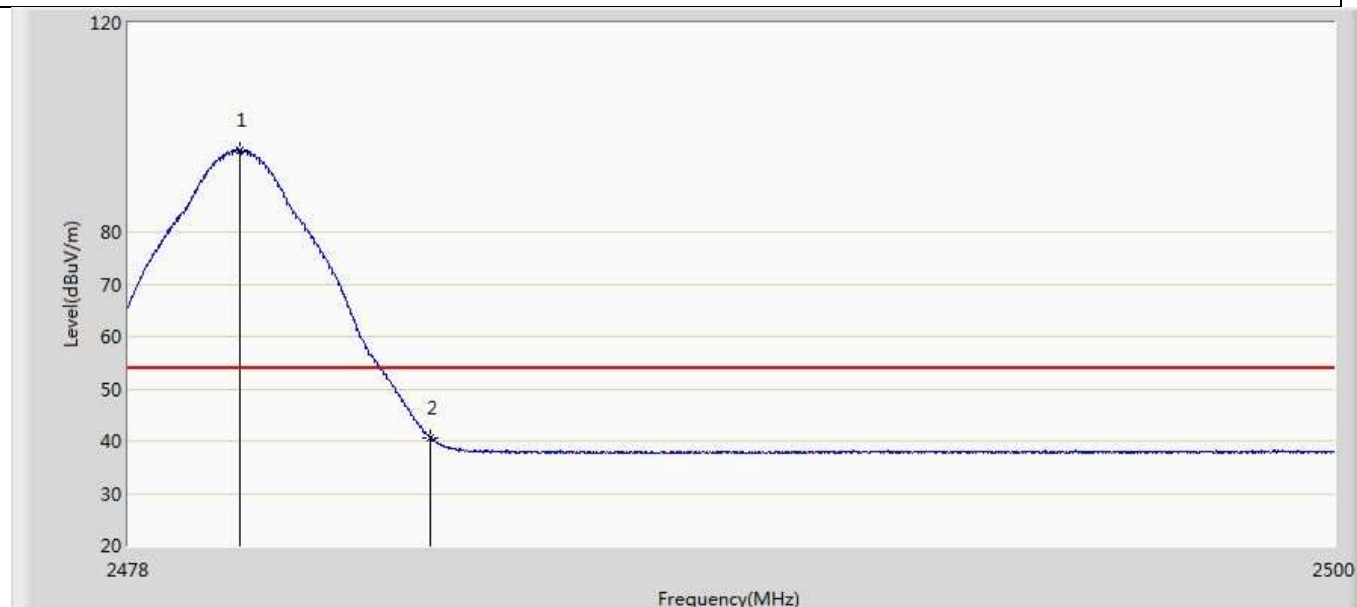
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.024	89.728	54.429	N/A	N/A	35.299	AV
2		2483.500	38.554	3.256	-15.446	54.000	35.297	AV

Profile: 2040811R	Page No.: 39
Engineer: YULIU	
Site: AC5	Time: 2020/05/21 - 18:55
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2480MHz by LE_2M	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.980	97.417	62.118	N/A	N/A	35.299	PK
2		2483.500	57.111	21.813	-16.889	74.000	35.297	PK

Profile: 2040811R	Page No.: 40
Engineer: YULIU	
Site: AC5	Time: 2020/05/21 - 18:58
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ BT WICED Module	Power: DC 3.3V
Note: Mode 5:Transmit at 2480MHz by LE_2M	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.035	95.674	60.375	N/A	N/A	35.299	AV
2		2483.500	40.476	5.178	-13.524	54.000	35.297	AV

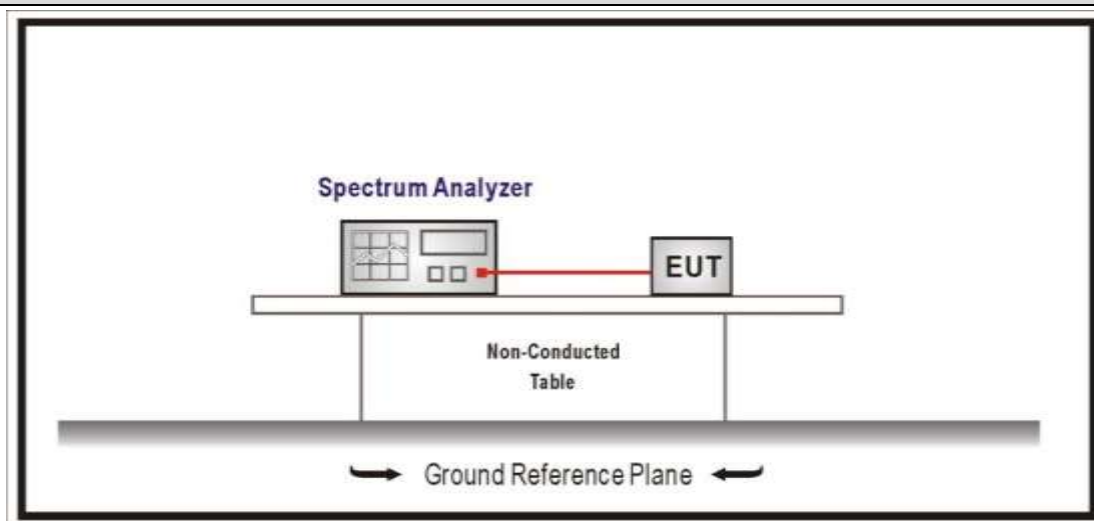
Note:

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.

4.6 DTS Bandwidth**VERDICT: PASS****4.6.1 Limit**

Standard	FCC Part 15 Subpart C Paragraph 15.247 (a)(2)
-----------------	---

Systems using digital modulation techniques operate in the 2400-2483.5 MHz. The minimum 6 dB bandwidth shall be at least 500 kHz

4.6.2 Test Setup**4.6.3 Test Procedure**

	Reference Rule	Chapter	Description
☒	ANSI C63.10	11.8	DTS bandwidth
☐	ANSI C63.10	11.8.1	Option 1
☒	ANSI C63.10	11.8.2	Option 2

4.6.4 Test Data

Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (kHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result
1	00	2402	1116.7	752.3	>500	Pass
	19	2440	1130.1	758.1	>500	Pass
	39	2480	1134.3	748.2	>500	Pass
2	00	2402	2106.4	1109.0	>500	Pass
	19	2440	2114.2	1122.0	>500	Pass
	39	2480	2117.4	1121.0	>500	Pass

Note : The worst case of Occupied Bandwidth as below:

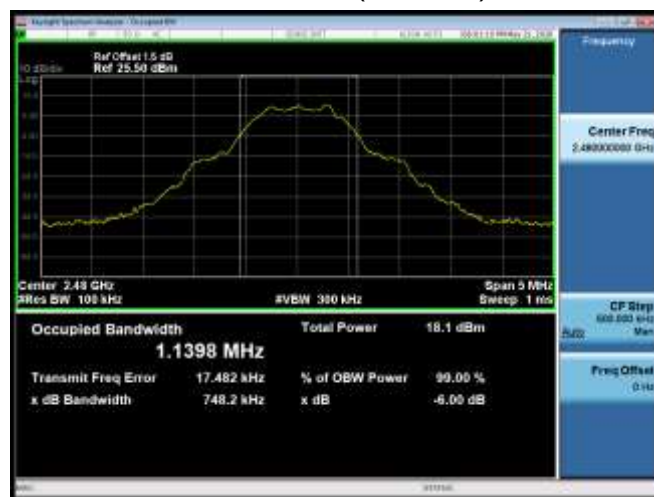
99% Occupied Bandwidth

Mode 2 CH39 (2480MHz)



6dB Occupied Bandwidth

Mode 1 CH39 (2480MHz)



4.7 Fundamental emission output power

VERDICT: PASS

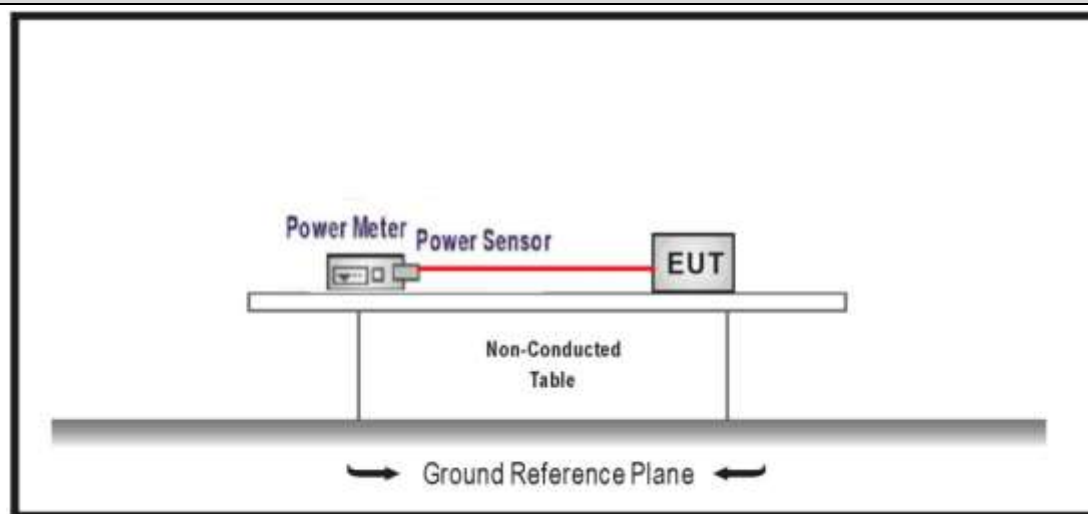
4.7.1 Limit

Standard		FCC Part 15 Subpart C Paragraph 15.247 (b)(3)
☒	GTX < 6dBi	$P_{out} \leq 30 \text{ dBm}$
☐	GTX > 6dBi	
☐	Non-Fix point-point	$P_{out} \leq 30 - (GTX - 6)$
☐	Fix point-point	$P_{out} \leq 30 - [(GTX - 6)]/3$
☐	Point-to-multipoint	$P_{out} \leq 30 - (GTX - 6)$
☐	Overlap Beams	$P_{out} \leq 30 - [(GTX - 6)]/3$
☐	Aggregate power transmitted simultaneously on all beams	$P_{out} \leq 30 - [(GTX - 6)]/3$
☐	single directional beam	$P_{out} \leq 30 - [(GTX - 6)]/3 + 8 \text{ dB}$

Note 1 : GTX directional gain of transmitting antennas.

Note 2 : Pout is maximum peak conducted output power .

4.7.2 Test Setup



4.7.3 Test Procedure

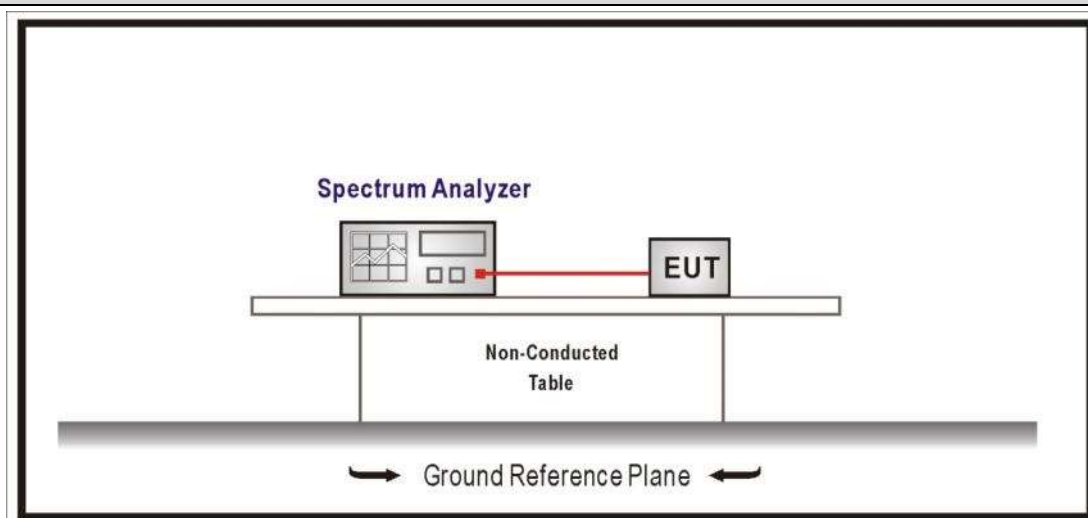
	References Rule			Chapter	Description		
☒	ANSI C63.10			11.9	Fundamental emission output power		
	☒	ANSI C63.10			11.9.1	Maximum peak conducted output power	
		☐	ANSI C63.10	11.9.1.1	RBW ≥ DTS bandwidth		
		☐	ANSI C63.10	11.9.1.2	Integrated band power method		
		☐	ANSI C63.10	11.9.1.3	PKPM1 Peak power meter method		
	☐	ANSI C63.10			11.9.2	Maximum conducted (average) output power	
		☐	ANSI C63.10			11.9.2.2	Measurement using a spectrum analyzer (SA)
			☐	ANSI C63.10	11.9.2.2.2	Method AVGSA-1(Duty cycle≥98%)	
			☐	ANSI C63.10	11.9.2.2.3	Method AVGSA-1A(Duty cycle≥98%)	
			☐	ANSI C63.10	11.9.2.2.4	Method AVGSA-2(Duty cycle≤98%)	
			☐	ANSI C63.10	11.9.2.2.5	Method AVGSA-2A(Duty cycle≤98%)	
			☐	ANSI C63.10	11.9.2.2.4	Method AVGSA-3	
			☐	ANSI C63.10	11.9.2.2.5	Method AVGSA-3A	
		☒	ANSI C63.10			11.9.2.3	Measurement using a power meter (PM)
			☒	ANSI C63.10	11.9.2.3.1	Method AVGPM	
			☐	ANSI C63.10	11.9.2.3.2	Method AVGPM-G	

4.7.4 Test Data

Mode	Channel	Test Frequency (MHz)	Power Output (dBm)	Limit (dBm)	Result
Mode 1	00	2402	10.38	≤ 30	Pass
	19	2440	10.32	≤ 30	Pass
	39	2480	10.37	≤ 30	Pass
Mode 2	00	2402	10.77	≤ 30	Pass
	19	2440	10.82	≤ 30	Pass
	39	2480	10.80	≤ 30	Pass

4.8 Power Density**VERDICT: PASS****4.8.1 Limit:**

Standard	FCC Part 15 Subpart C Paragraph 15.247 (b)(3)
-----------------	---

Power Spectral Density $\leq 8\text{dBm}/3\text{kHz}$ **4.8.2 Test Setup****4.8.3 Test Procedure**

	References Rule		Chapter	Description
☒	ANSI C63.10		11.10	Maximum power spectral density level in the fundamental emission
	☒	ANSI C63.10	11.10.2	Method PKPSD (peak PSD)
	☐	ANSI C63.10	11.10.3	Method AVGPSD-1(Duty cycle $\geq 98\%$)
	☐	ANSI C63.10	11.10.4	Method AVGPSD-1A(Duty cycle $\geq 98\%$)
	☐	ANSI C63.10	11.10.5	Method AVGPSD-2(Duty cycle $< 98\%$)
	☐	ANSI C63.10	11.10.6	Method AVGPSD-2A(Duty cycle $< 98\%$)
	☐	ANSI C63.10	11.10.7	Method AVGPSD-3
	☐	ANSI C63.10	11.10.8	Method AVGPSD-3A

Mode	Channel	Test Frequency (MHz)	Measurement PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
Mode 1	00	2402	-2.176	≤8	Pass
	19	2440	-2.322	≤8	Pass
	39	2480	-2.899	≤8	Pass
Mode 2	00	2402	-6.211	≤8	Pass
	19	2440	-6.474	≤8	Pass
	39	2480	-7.575	≤8	Pass

Keysight Spectrum Analyzer - Sweep SA

RF 50 G AC SENSE INT ALIGN AUTO 06:11:47 PM May 23, 2020

Ref Offset 1.5 dB
Ref 9.00 dBm

10 dB/div
Log

Mkr1 2.401 824 8 GHz
-2.176 dBm

1

Center 2.4020000 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Sweep 126.5 ms (1001 pts)

Span 1.200 MHz

Frequency

Auto Tune

Center Freq
2.40200000 GHz

Start Freq
2.40140000 GHz

Stop Freq
2.40260000 GHz

CF Step
120.000 kHz
Auto Man

Freq Offset
0 Hz

Scale Type

Log Lin

4.9 Antenna Requirement**VERDICT: PASS****4.9.1 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.	

4.9.2 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 _____