

Test Report

FCC Part15 Subpart C& RSS-247 Issue 2

Product Name : EZ-BT Module
Model No. : CYBT-223058-02,
CYBT-253059-02
FCC ID : WAP3058
IC : 7922A-3058

Applicant : Cypress Semiconductor
Address : 198 Champion Ct, San Jose, California
95134 United States

Date of Receipt : Oct. 17, 2019
Test Date : Oct. 31, 2019 ~ Nov. 11, 2019
Issued Date : Dec. 12, 2019
Report No. : 19A2086R-RF-US-P06V01
Report Version : V2.1

The test results presented in this report relate only to the object tested.

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

This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory

This report is not used for social proof in China (or Mainland China) market.

Test Report Certification

Issued Date : Dec. 12, 2019

Report No. : 19A2086R-RF-US-P06V01



Product Name : EZ-BT Module
Applicant : Cypress Semiconductor
Address : 198 Champion Ct, San Jose, California 95134 United States
Manufacturer : Cypress Semiconductor
Address : 198 Champion Ct, San Jose, California 95134 United States
Factory : Wujiang Sigmatron Electronics Co., Ltd
Address : 386 Huahong Rd, Wujiang, Suzhou, Jiangsu, China
Model No. : CYBT-223058-02, CYBT-253059-02
FCC ID : WAP3058
IC : 7922A-3058
EUT Voltage : DC 1.8-3.6 V
Test Voltage : DC 3.3V
Applicable Standard : FCC CFR Title 47 Part 15 Subpart C
KDB 558074 D01v05
ANSI C63.10: 2013
RSS-Gen Issue 5/RSS-247 Issue 2
Test Result : Complied
Performed Location : DEKRA Testing & Certification (Suzhou) Co., Ltd.
No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006,
Jiangsu, China
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098
FCC Designation Number: CN1199;
ISED CAB identifier: CN0040

Documented By


:



(Adm. Specialist: Kitty Li)

Reviewed By

:



(Senior Engineer: Frank He)

Approved By

:



(Engineering Supervisor: Jack Zhang)

TABLE OF CONTENTS

Description	Page
1. General Information.....	7
1.1. EUT Description	7
1.2. Channel List	8
1.3. Antenna information	9
1.4. Mode of Operation.....	10
1.5. Tested System Details	11
1.6. Configuration of Tested System.....	12
1.7. EUT Exercise Software	13
2. Technical Test.....	14
2.1. Summary of Test Result	14
2.2. Test Environment.....	16
3. Conducted Emission	17
3.1. Test Equipment	17
3.2. Test Setup	17
3.3. Limit	18
3.4. Test Procedure	18
3.5. Uncertainty	18
3.6. Test Result	19
4. Emissions in restricted frequency bands	21
4.1. Test Equipment	21
4.2. Test Setup	22
4.3. Limit	23
4.4. Test Procedure	26
4.5. Uncertainty	26
4.6. Test Result	27
5. 20dB Bandwidth	47
5.1. Test Equipment	47
5.2. Test Setup	47
5.3. Limit	47
5.4. Test Procedure	48
5.5. Uncertainty	48
5.6. Test Result	49
6. Carrier Frequency Separation	58
6.1. Test Equipment	58
6.2. Test Setup	58
6.3. Limit	59
6.4. Test Procedure	59

6.5.	Uncertainty	59
6.6.	Test Result	60
7.	Number of Hopping Frequencies	66
7.1.	Test Equipment	66
7.2.	Test Setup	66
7.3.	Limit	66
7.4.	Test Procedure	67
7.5.	Uncertainty	67
7.6.	Test Result	68
8.	Time of Occupancy (Dwell Time)	71
8.1.	Test Equipment	71
8.2.	Test Setup	71
8.3.	Limit	71
8.4.	Test Procedure	72
8.5.	Uncertainty	72
8.6.	Test Result	73
9.	Peak Output Power	79
9.1.	Test Equipment	79
9.2.	Test Setup	79
9.3.	Limit	80
9.4.	Test Procedure	80
9.5.	Uncertainty	80
9.6.	Test Result	81
10.	Emissions in non-restricted frequency bands	87
10.1.	Test Equipment	87
10.2.	Test Setup	87
10.3.	Limit	88
10.4.	Test Procedure	88
10.5.	Uncertainty	88
10.6.	Test Result	89
11.	Radiated Emission Band Edge	90
11.1.	Test Equipment	90
11.2.	Test Setup	90
11.3.	Limit	91
11.4.	Test Procedure	91
11.5.	Uncertainty	91
11.6.	Duty Cycle	92
11.7.	Test Result	93

12.	Antenna Requirement	117
12.1.	Limit	117
12.2.	Antenna Connector Construction.....	117

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
19A2086R-RF-US-P06V01	V1.0	Initial Issued Report	Nov. 19, 2019
19A2086R-RF-US-P06V01	V2.0	Page 1&2 : Mofify FCC ID and IC ID	Nov. 29, 2019
19A2086R-RF-US-P06V01	V2.1	Page 47 : Modify data of 99% BW	Dec. 12, 2019

1. General Information

1.1. EUT Description

Product Name	EZ-BT Module
Model No.	CYBT-223058-02, CYBT-253059-02
EUT Voltage	DC 1.8-3.6 V
Test Voltage	DC 3.3V
Bluetooth Specification	V3.0
Frequency Range	2402- 2480 MHz
Channel Number	V3.0: 79
Channel Separation	V3.0: 1MHz
Type of Modulation	V3.0: GFSK, Pi/4 DQPSK, 8DPSK
Data Rate	V3.0: 1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps(8DPSK)

Note 1:

Model differences:

1. The differences between CYBT-223058-02 and CYBT-253059-02:

- The two modules use main ICs with different P/N.

Module	RF IC	Flash Size(KB)	Package	Supported Bluetooth Standard
CYBT-223058-02	CYW20819	256	62-pin BGA	BR/EDR/BLE 1M&2M
CYBT-253059-02	CYW20820	256	62-pin BGA	BR/EDR/BLE 1M&2M

- CYBT-253059-02 need two more bypass capacitors for power supply.

2. About these two main ICs:

- These two chip components are pin-to-pin compatible.
- These two chip components have the same basic functions.
- These two chip components have different maximum output power which in case of CYW20819 is limited by firmware to nominal 4dBm. For CYW20820 the maximum output power is nominally 10.5dBm. That's why they use different P/N.

Note 2:

We have evaluated all modes of two models, the power of CYBT-253059-02 is higher than CYBT-223058-02, the test data of two models is showed in the report with test items Peak Output Power; the test data of worse case is showed with other test items.

1.2 Channel List

Bluetooth Working Frequency of Each Channel: (For V3.0)

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

1.3 Antenna information

Antenna manufacturer	N/A					
Antenna Delivery	<input checked="" type="checkbox"/>	1*TX+1*RX	<input type="checkbox"/>	2*TX+2*RX	<input type="checkbox"/>	3*TX+3*RX
Antenna technology	<input checked="" type="checkbox"/>	SISO				
	<input type="checkbox"/>	MIMO	<input type="checkbox"/>	Basic		
			<input type="checkbox"/>	CDD		
			<input type="checkbox"/>	Beam-forming		
Antenna Type	<input type="checkbox"/>	External	<input type="checkbox"/>	Dipole		
	<input checked="" type="checkbox"/>	Internal	<input type="checkbox"/>	PIFA		
			<input type="checkbox"/>	PCB		
			<input checked="" type="checkbox"/>	Ceramic Chip Antenna		
			<input type="checkbox"/>	Stamping Antenna		
			<input type="checkbox"/>	Metal plate type F antenna		
			<input type="checkbox"/>	Monopole antenna		
Antenna Gain	-2.5dBi					

1.4 Mode of Operation

DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Transmitter-1Mbps(GFSK_DH5)
Mode 2: Transmitter-2Mbps(Pi/4 DQPSK_DH5)
Mode 3: Transmitter-3Mbps(8DPSK_DH5)
Mode 4: Transmitter-Hopping

Note:

1. For portable device, radiated spurious emission was verified over X, Y, Z Axis, and shown the worst case on this report.
2. Regards to the frequency band operation for systems using FHSS modulation: normal operation (hopping) was selected to test for conducted spurious test.
3. The extreme test condition for voltage and temperature were declared by the manufacturer.
4. The reading values of all the test items contain cable loss.

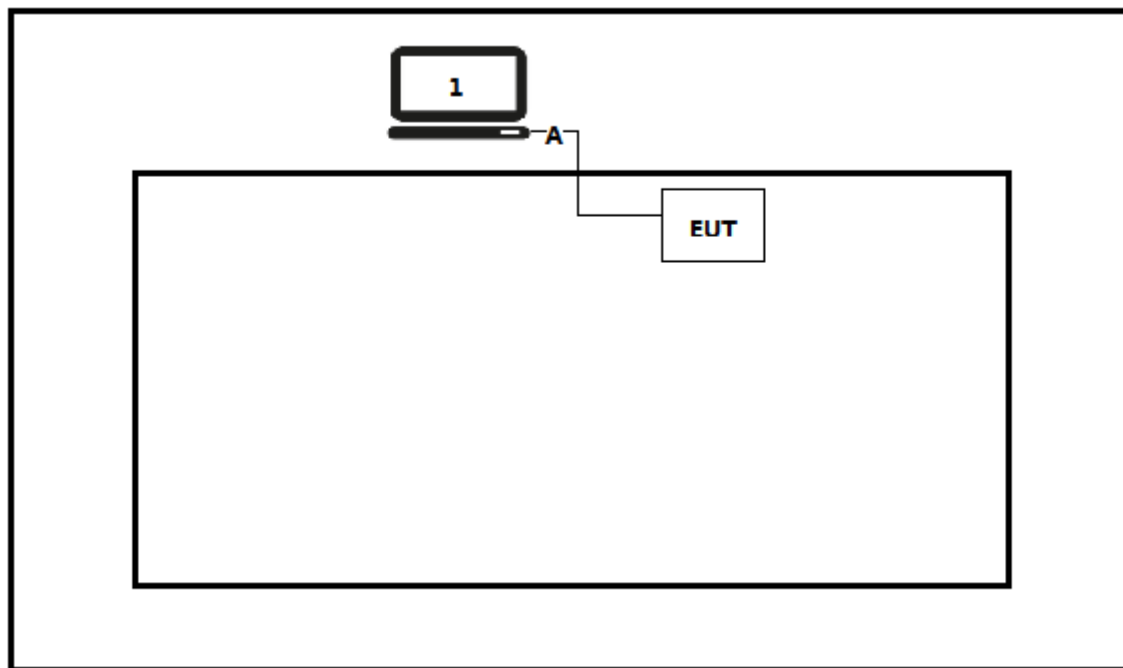
1.5 Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

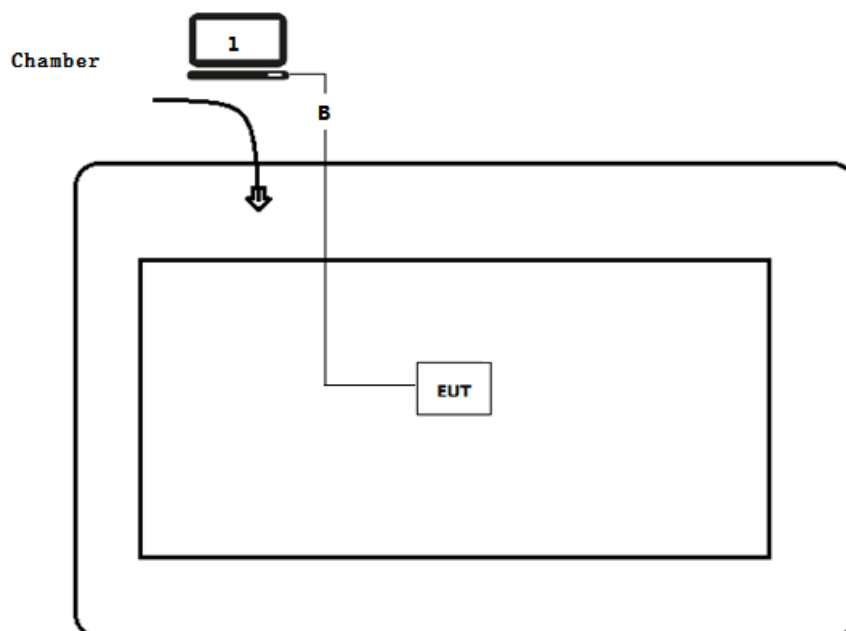
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	Think Pad	2526	LV-A3285	Power by adapter
A	USB Cable	N/A	N/A	N/A	Shield, 0.5m
B	USB Cable	N/A	N/A	N/A	Shield, 10m

1.6 Configuration of Tested System

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Radiated Emission



1.7 EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of all equipment.
3	Run RF software [Bluetool], and set the test mode and channel, then press OK to start to continue transmit.

2. Technical Test

2.1. Summary of Test Result

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

For FCC

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 15.247(d)	Yes	No
Antenna Requirement	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.203	Yes	No

For ISED

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	RSS-Gen Issue 5 Section 8.8	Yes	No
Radiated Emission	RSS-Gen Issue 5 Section 8.9	Yes	No
20dB Bandwidth	RSS-247 Issue 2 Section 5.1	Yes	No
Carrier Frequency Separation	RSS-247 Issue 2 Section 5.1	Yes	No
Number of Hopping Frequencies	RSS-247 Issue 2 Section 5.1	Yes	No
Time of Occupancy (Dwell Time)	RSS-247 Issue 2 Section 5.1	Yes	No
Peak Output Power	RSS-247 Issue 2 Section 5.4	Yes	No
Emissions in non-restricted frequency bands	RSS-247 Issue 2 Section 5.5	Yes	No
Radiated Emission Band Edge	RSS-Gen Issue 5 Section 8.10	Yes	No
Antenna Requirement	RSS-Gen Issue 5 Section 8.3	Yes	No

2.2. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

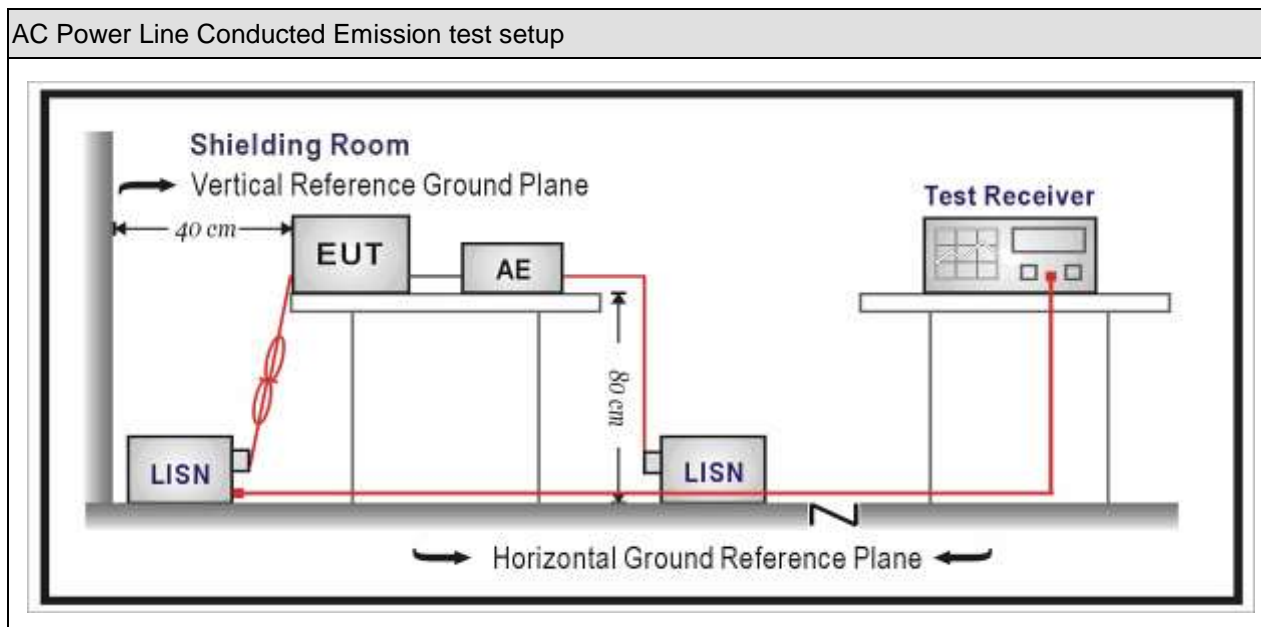
3. Conducted Emission

3.1. Test Equipment

AC Power Line Conducted Emission / TR-1					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100906	2019.04.20	2020.04.19
Two-Line V-Network	R&S	ENV 216	101189	2019.05.25	2020.05.24
Two-Line V-Network	R&S	ENV 216	101044	2019.05.25	2020.05.24
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
50ohm Termination	SHX	TF2	07081402	2019.09.02	2020.09.01
Temperature/Humidity Meter	Zhichen	ZC1-2	TR1-TH	2019.08.21	2020.08.20
Dekra EMI V3(test software)	Dekra	N/A	N/A	N/A	N/A

Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

3.2. Test Setup



3.3. Limit

Frequency of Emission (MHz)	Conducted Limit	
	Quasi-peak (dB μ V)	Average(dB μ V)
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50
Note 1: The lower limit shall apply at the transition frequencies.		
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.		

3.4. Test Procedure

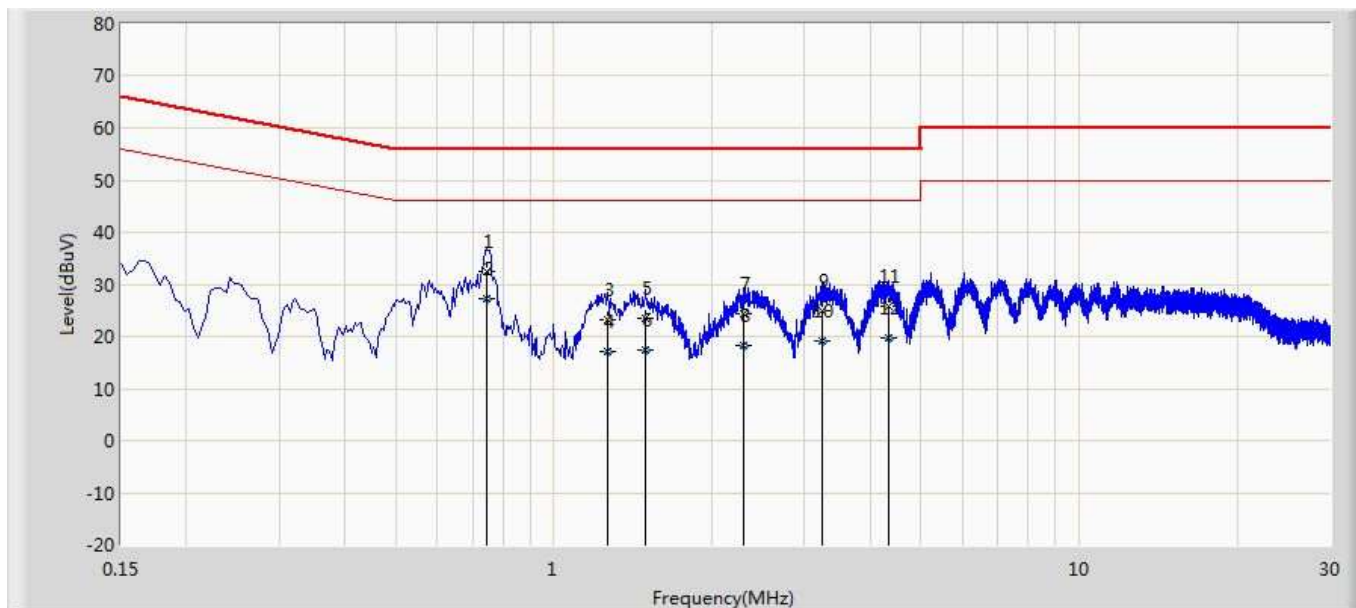
Test Method			
	References Rule	Chapter	Item
<input checked="" type="checkbox"/>	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

3.6. Test Result

Engineer: Lacey	
Site: TR1	Time: 2019/10/28
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101189(0.009-30MHz)	Polarity: Line
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 1	



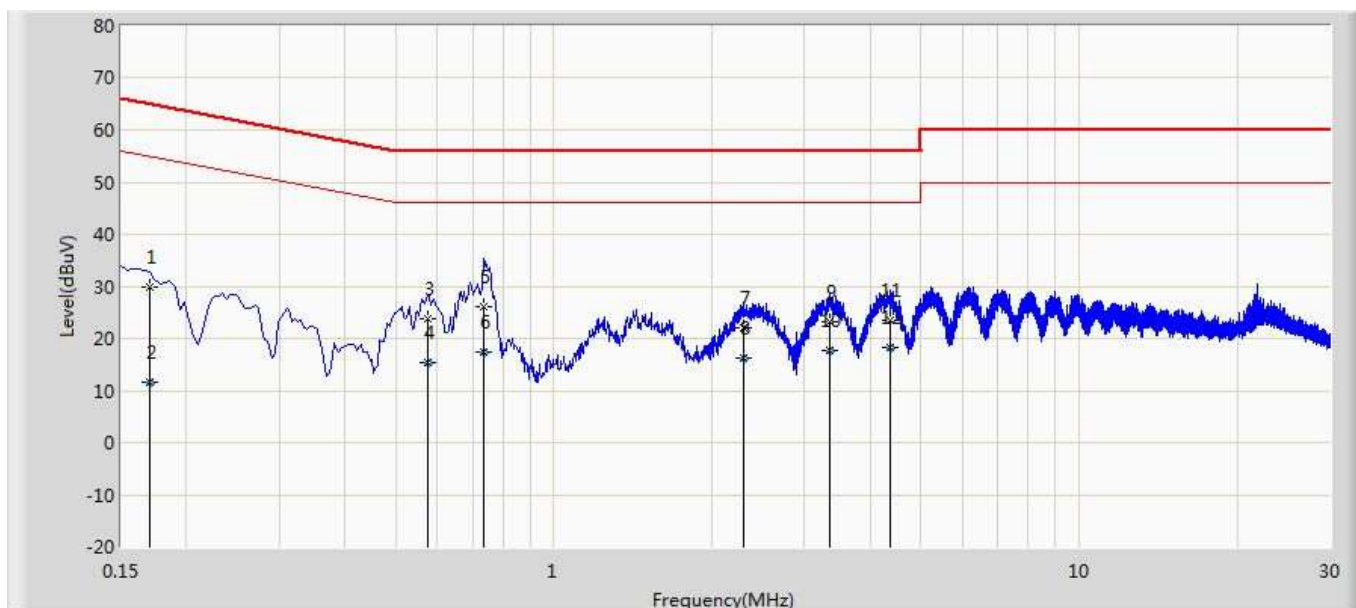
No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.746	32.598	22.686	-23.402	56.000	9.861	0.051	0.000	QP
2	*	0.746	27.151	17.239	-18.849	46.000	9.861	0.051	0.000	AV
3		1.262	23.204	13.365	-32.796	56.000	9.773	0.067	0.000	QP
4		1.262	17.142	7.303	-28.858	46.000	9.773	0.067	0.000	AV
5		1.494	23.573	13.715	-32.427	56.000	9.785	0.074	0.000	QP
6		1.494	17.464	7.605	-28.536	46.000	9.785	0.074	0.000	AV
7		2.290	24.312	14.415	-31.688	56.000	9.803	0.094	0.000	QP
8		2.290	18.159	8.262	-27.841	46.000	9.803	0.094	0.000	AV
9		3.250	24.814	14.919	-31.186	56.000	9.781	0.114	0.000	QP
10		3.250	19.036	9.142	-26.964	46.000	9.781	0.114	0.000	AV
11		4.338	25.662	15.773	-30.338	56.000	9.756	0.133	0.000	QP
12		4.338	19.782	9.894	-26.218	46.000	9.756	0.133	0.000	AV

Note:

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

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

Engineer: Lacey	
Site: TR1	Time: 2019/10/28
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101189(0.009-30MHz)	Polarity: Neutral
EUT: EZ-BT Module	Power: DC 3.3V
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		0.170	30.000	20.117	-34.961	64.960	9.854	0.028	0.000	QP
2		0.170	11.573	1.691	-43.387	54.960	9.854	0.028	0.000	AV
3		0.574	23.769	13.850	-32.231	56.000	9.874	0.045	0.000	QP
4		0.574	15.396	5.477	-30.604	46.000	9.874	0.045	0.000	AV
5		0.734	26.089	16.173	-29.911	56.000	9.866	0.051	0.000	QP
6		0.734	17.519	7.603	-28.481	46.000	9.866	0.051	0.000	AV
7		2.290	21.997	12.100	-34.003	56.000	9.803	0.094	0.000	QP
8		2.290	16.260	6.363	-29.740	46.000	9.803	0.094	0.000	AV
9		3.342	23.084	13.190	-32.916	56.000	9.779	0.115	0.000	QP
10		3.342	17.723	7.829	-28.277	46.000	9.779	0.115	0.000	AV
11		4.370	23.523	13.636	-32.477	56.000	9.755	0.133	0.000	QP
12	*	4.370	18.285	8.398	-27.715	46.000	9.755	0.133	0.000	AV

Note:

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

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

4. Emissions in restricted frequency bands

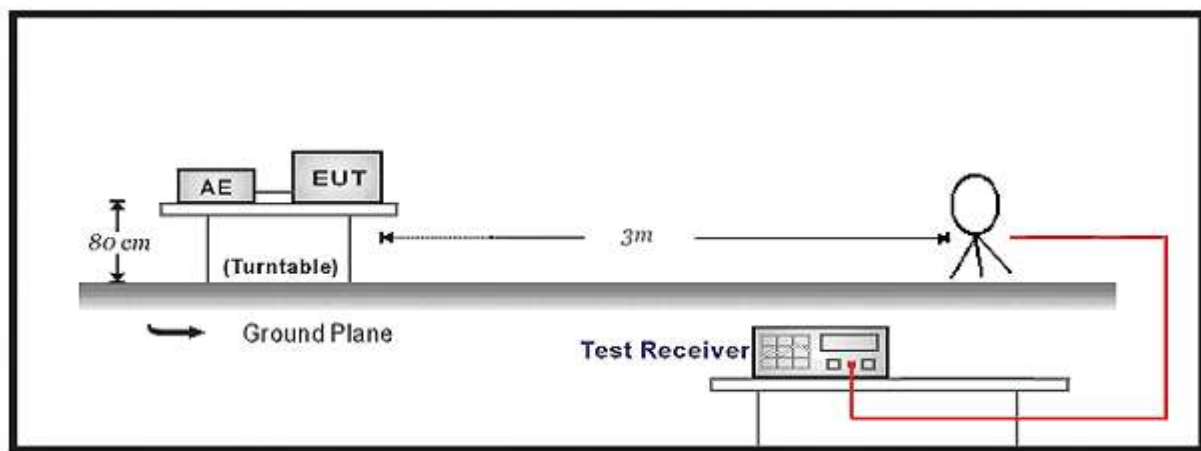
4.1. Test Equipment

Radiated Emission(Below 1GHz) / AC-2					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2019.03.03	2020.03.02
Loop Antenna	R&S	HFH2-Z2	833799/003	2019.01.28	2020.01.27
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2019.09.23	2020.09.22
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2019.09.02	2020.09.01
Temperature/Humidity Meter	Zhichen	ZC1-2	AC2-TH	2019.04.13	2020.04.12
Dekra EMI V3(test software)	Dekra	N/A	N/A	N/A	N/A
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

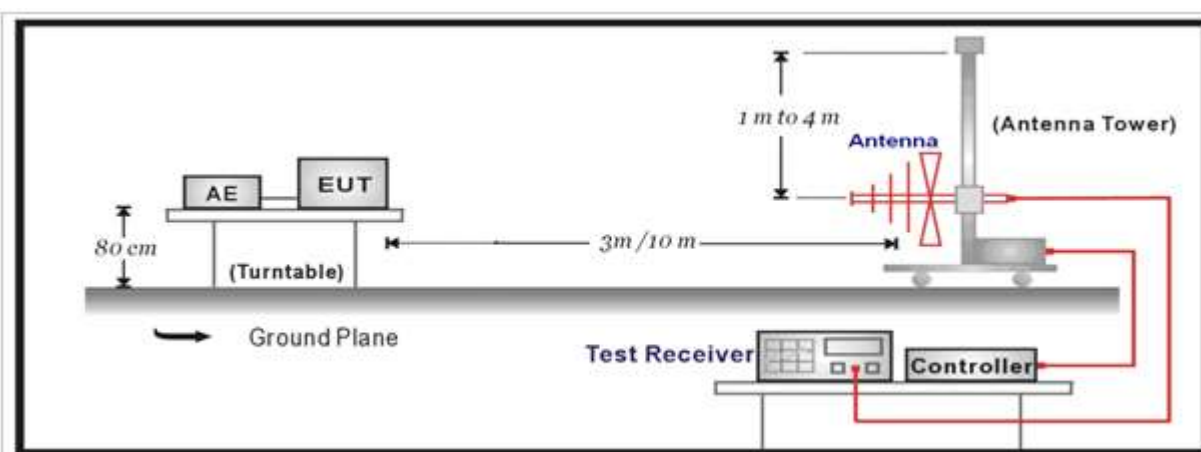
Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2019.05.08	2020.05.07
Preamplifier	Miteq	NSP1800-25	1364185	N/A	N/A
Preamplifier	Dekra	AP-040G	CHM-0906001	N/A	N/A
DRG Horn	ETS-Lindgren	3117	00123988	2019.09.25	2020.09.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2019.04.18	2020.04.17
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	N/A	N/A
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2019.04.13	2020.04.12
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	N/A	N/A
EMI Receiver	Agilent	N9038A	MY51210196	2019.05.25	2020.05.24
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2019.09.02	2020.09.01
Dekra EMI V3(test software)	Dekra	N/A	N/A	N/A	N/A
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

4.2. Test Setup

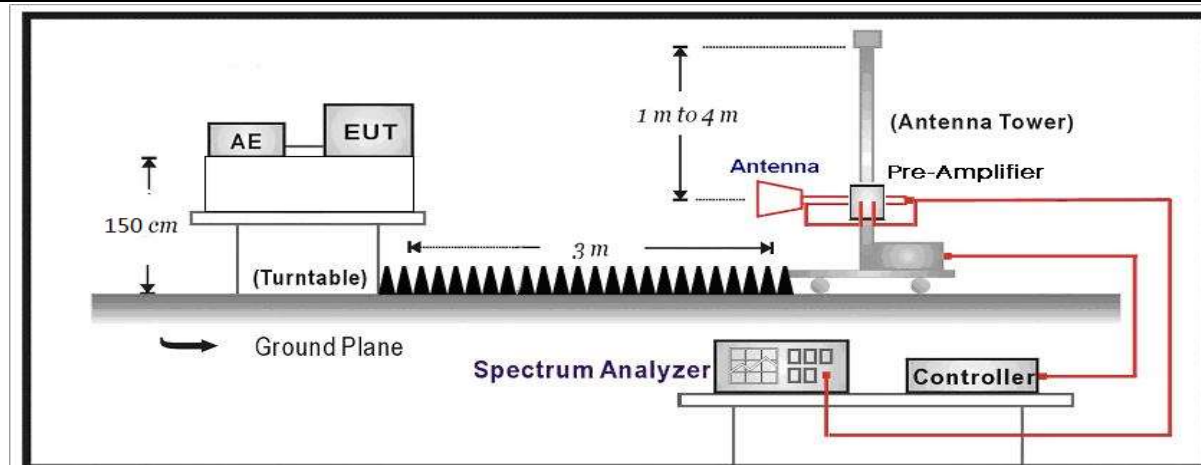
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

For FCC:

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			

For ISED:

Restricted Bands of operation

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090-0.110	13.36-13.41	1645.5-1646.5	13.25-13.4
2.1735-2.1905	16.42-16.423	1660-1710	14.47-14.5
3.020-3.026	16.69475-16.69525	1718.8-1722.2	15.35-16.2
4.125-4.128	16.80425-16.80475	2200-2300	17.7-21.4
4.17725-4.17775	25.5-25.67	2310-2390	22.01-23.12
4.20725-4.20775	37.5-38.25	2655-2900	23.6-24.0
5.677-5.683	73-74.6	3260-3267	31.2-31.8
6.215-6.218	74.8-75.2	3332-3339	36.43-36.5
6.26775-6.26825	108-138	3345.8-3358	Above 38.6
6.31175-6.31225	156.52475-156.52525	3500-4400	
8.291-8.294	156.7-156.9	4500-5150	
8.362-8.366	240-285	5350-5460	
8.37625-8.38675	322-335.4	7250-7750	
8.41425-8.41475	399.9-410	8025-8500	
12.29-12.293	608-614	9.0-9.2	
12.51975-12.52025	960-1427	9.3-9.5	
12.57675-12.57725	1435-1626.5	10.6-12.7	

Restricted Band Emissions Limit			
Frequency (MHz)	Field strength ($\mu\text{V/m}$)	Field strength ($\text{dB}\mu\text{V/m}$)	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).

4.4. Test Procedure

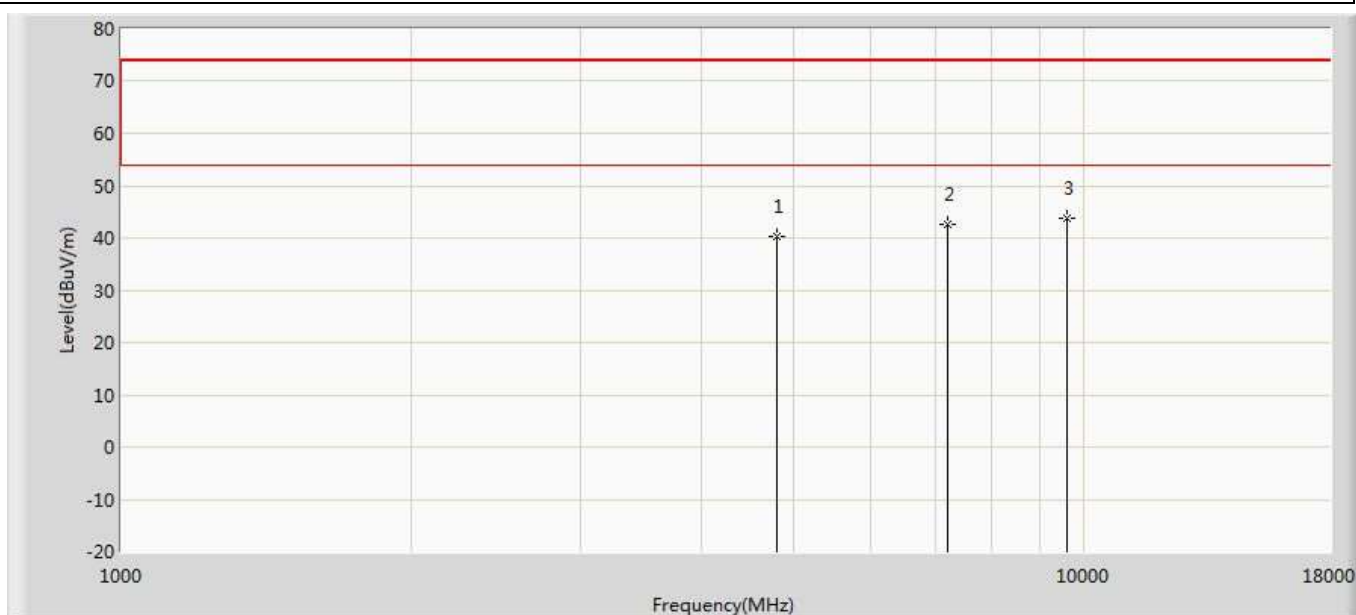
Test Method			
	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
<input checked="" type="checkbox"/>	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
<input checked="" type="checkbox"/>	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

4.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB
below 1G is defined as ± 3.8 dB

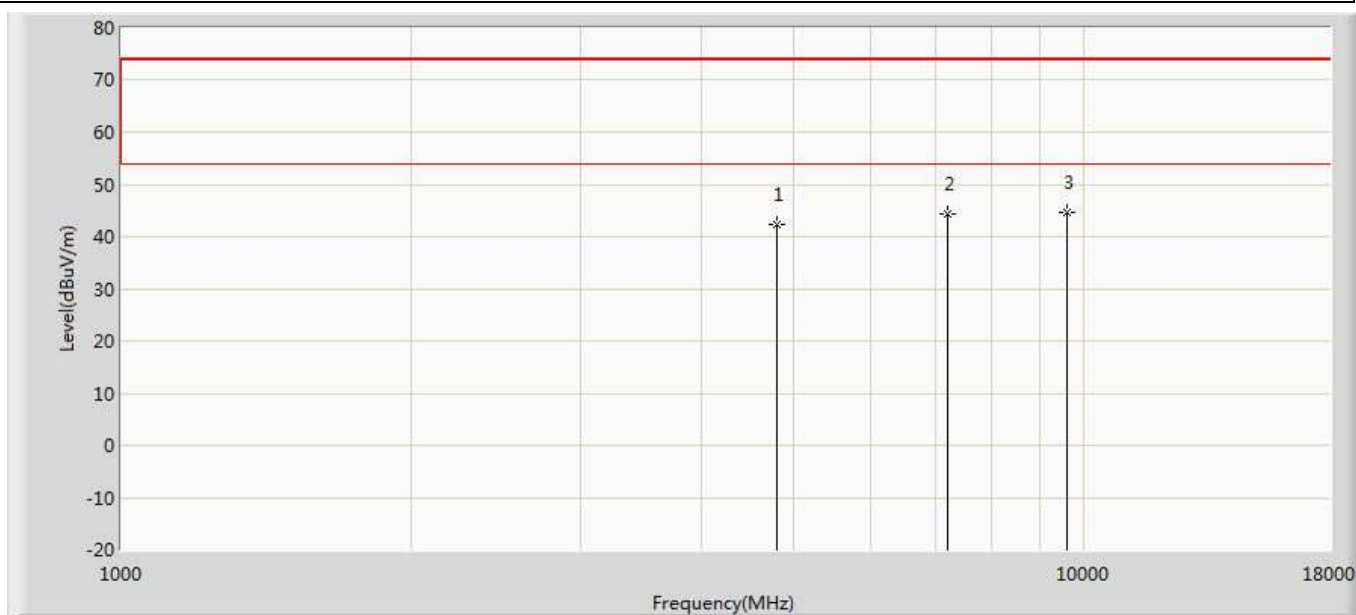
4.6. Test Result

Profile: 19A2086R	Page No.: 43
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 1:Transmit at 2402MHz by DH5	



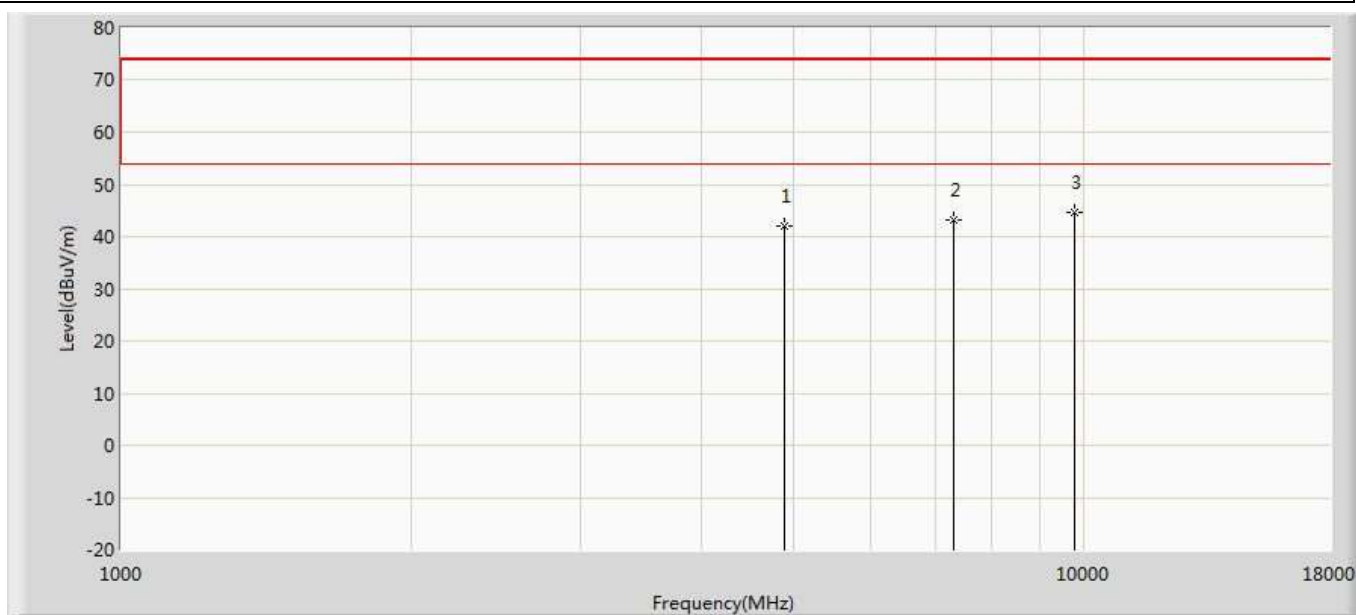
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	40.335	35.704	-33.665	74.000	4.631	PK
2		7206.000	42.674	34.650	-31.326	74.000	8.024	PK
3	*	9608.000	43.701	34.384	-30.299	74.000	9.318	PK

Profile: 19A2086R	Page No.: 44
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 1:Transmit at 2402MHz by DH5	



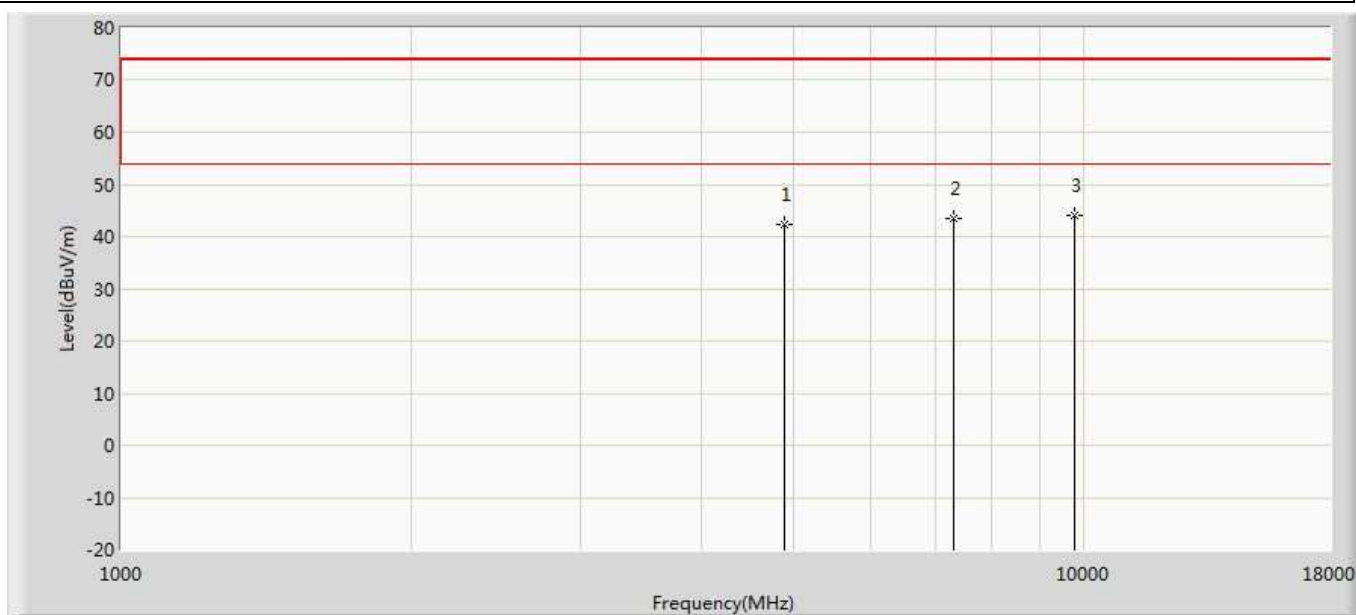
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	42.271	37.640	-31.729	74.000	4.631	PK
2		7206.000	44.254	36.230	-29.746	74.000	8.024	PK
3	*	9608.000	44.655	35.338	-29.345	74.000	9.318	PK

Profile: 19A2086R	Page No.: 45
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 1:Transmit at 2441MHz by DH5	



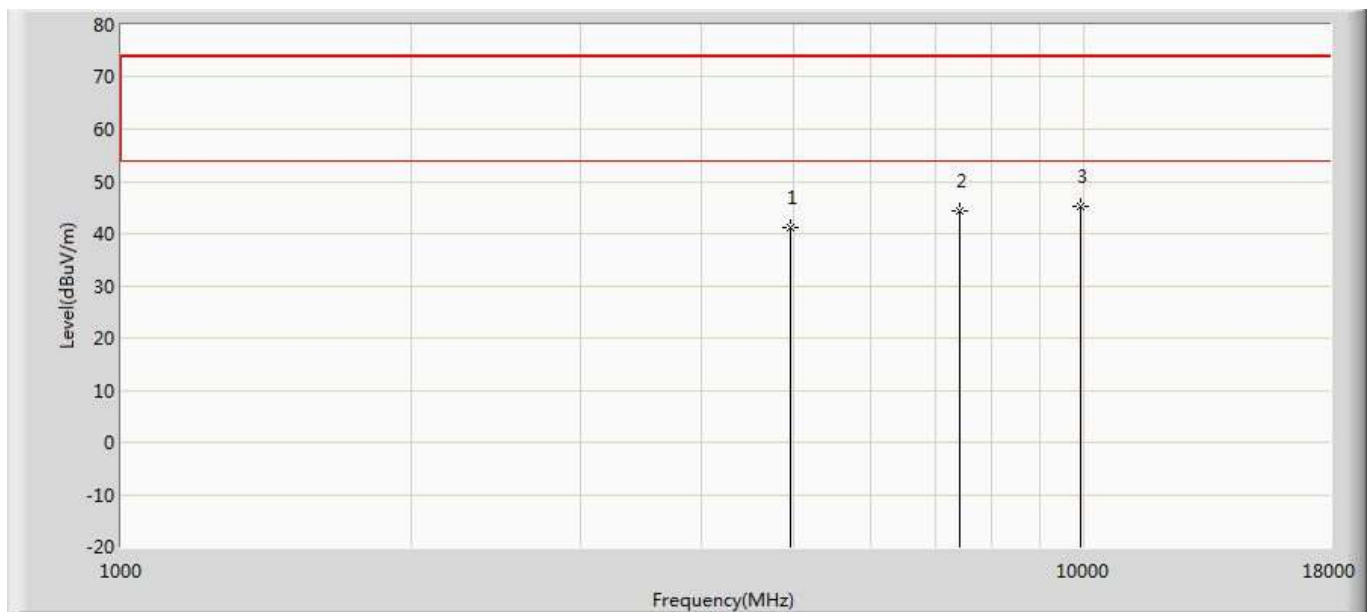
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	42.168	37.433	-31.832	74.000	4.736	PK
2		7323.000	43.201	35.105	-30.799	74.000	8.095	PK
3	*	9764.000	44.692	34.559	-29.308	74.000	10.133	PK

Profile: 19A2086R	Page No.: 46
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 1:Transmit at 2441MHz by DH5	



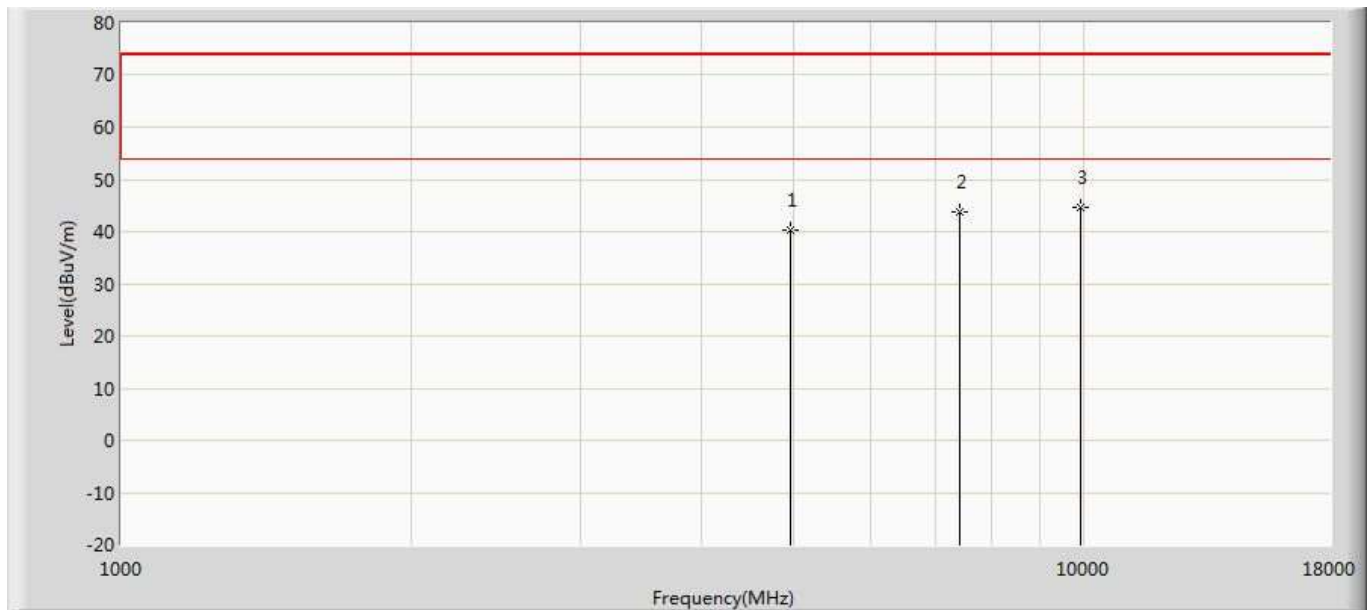
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	42.422	37.687	-31.578	74.000	4.736	PK
2		7323.000	43.608	35.512	-30.392	74.000	8.095	PK
3	*	9764.000	44.039	33.906	-29.961	74.000	10.133	PK

Profile: 19A2086R	Page No.: 47
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 1:Transmit at 2480MHz by DH5	



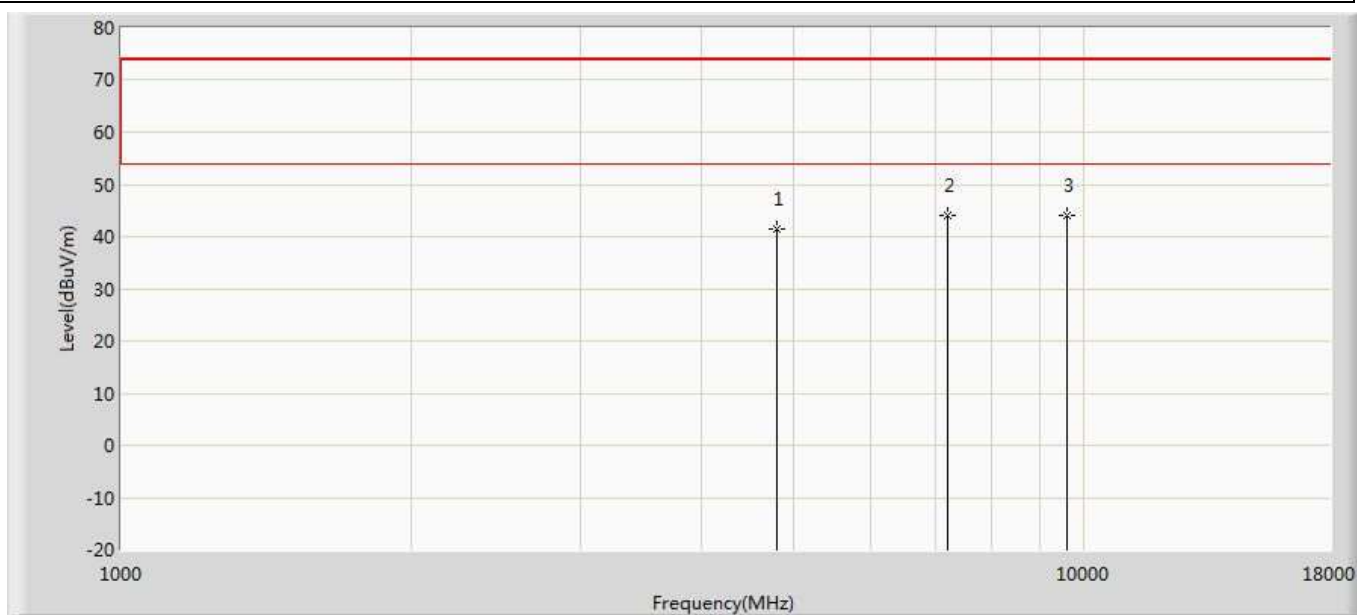
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	41.022	36.237	-32.978	74.000	4.784	PK
2		7440.000	44.388	36.337	-29.612	74.000	8.051	PK
3	*	9920.000	45.098	35.203	-28.902	74.000	9.894	PK

Profile: 19A2086R	Page No.: 48
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 1:Transmit at 2480MHz by DH5	



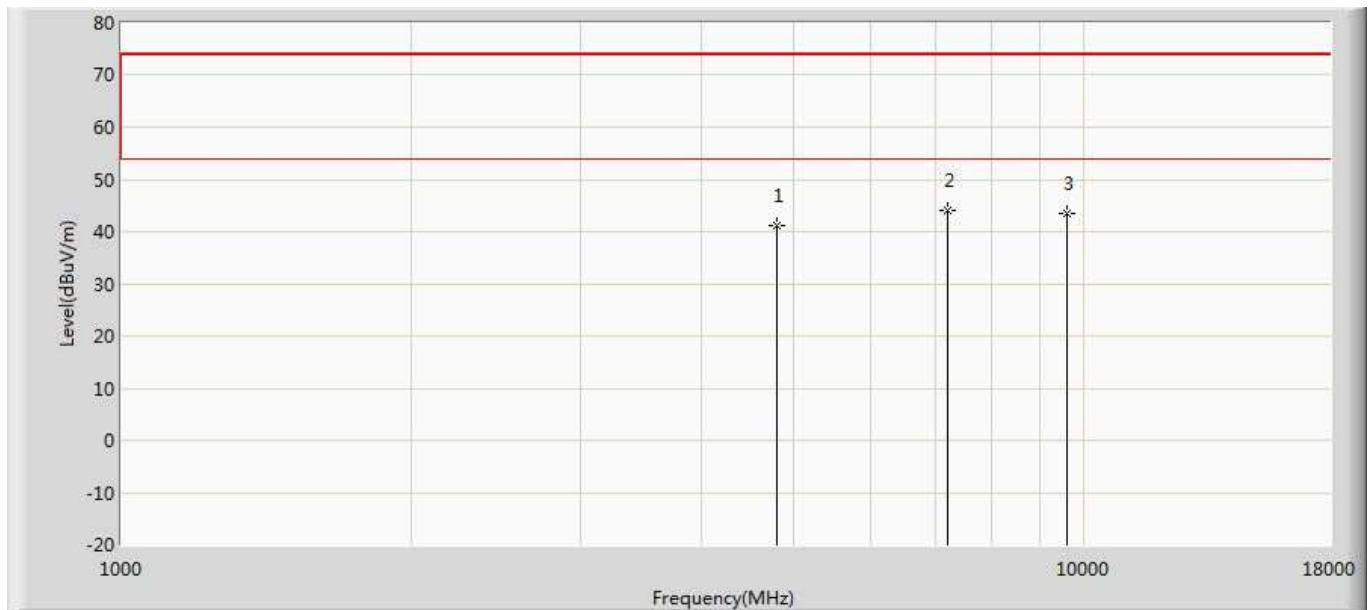
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.302	35.517	-33.698	74.000	4.784	PK
2		7440.000	43.690	35.639	-30.310	74.000	8.051	PK
3	*	9920.000	44.575	34.680	-29.425	74.000	9.894	PK

Profile: 19A2086R	Page No.: 49
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 2:Transmit at 2402MHz by 2DH5	



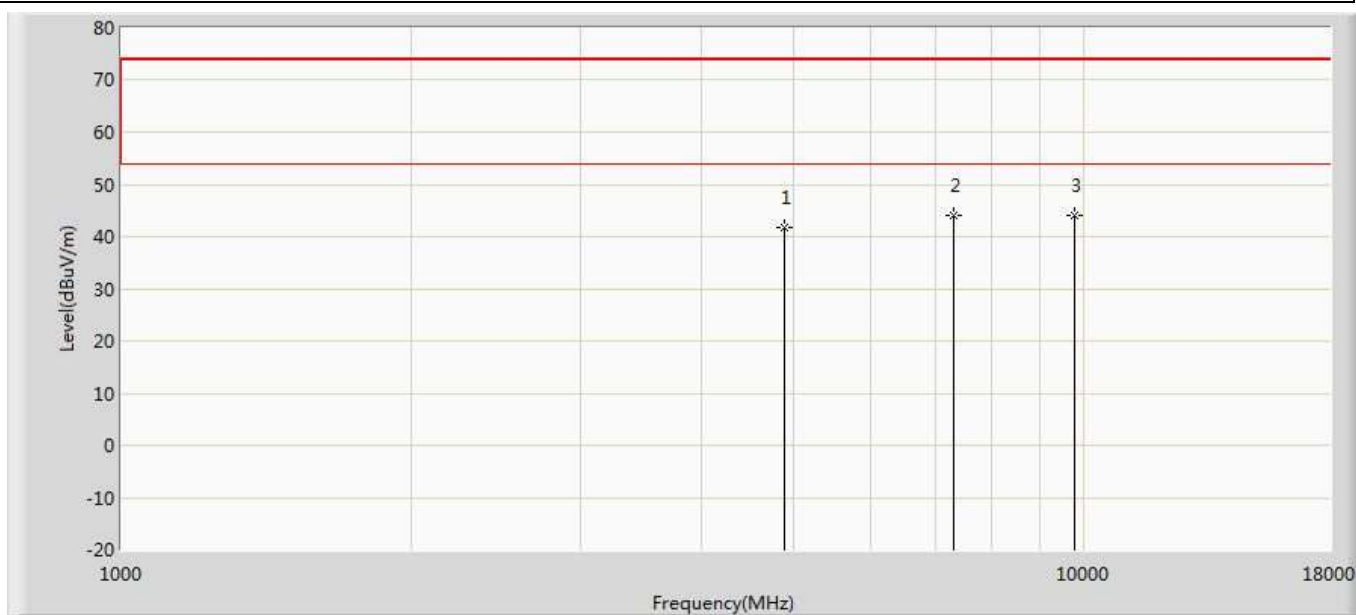
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.457	36.826	-32.543	74.000	4.631	PK
2	*	7206.000	44.010	35.986	-29.990	74.000	8.024	PK
3		9608.000	43.936	34.619	-30.064	74.000	9.318	PK

Profile: 19A2086R	Page No.: 50
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 2:Transmit at 2402MHz by 2DH5	



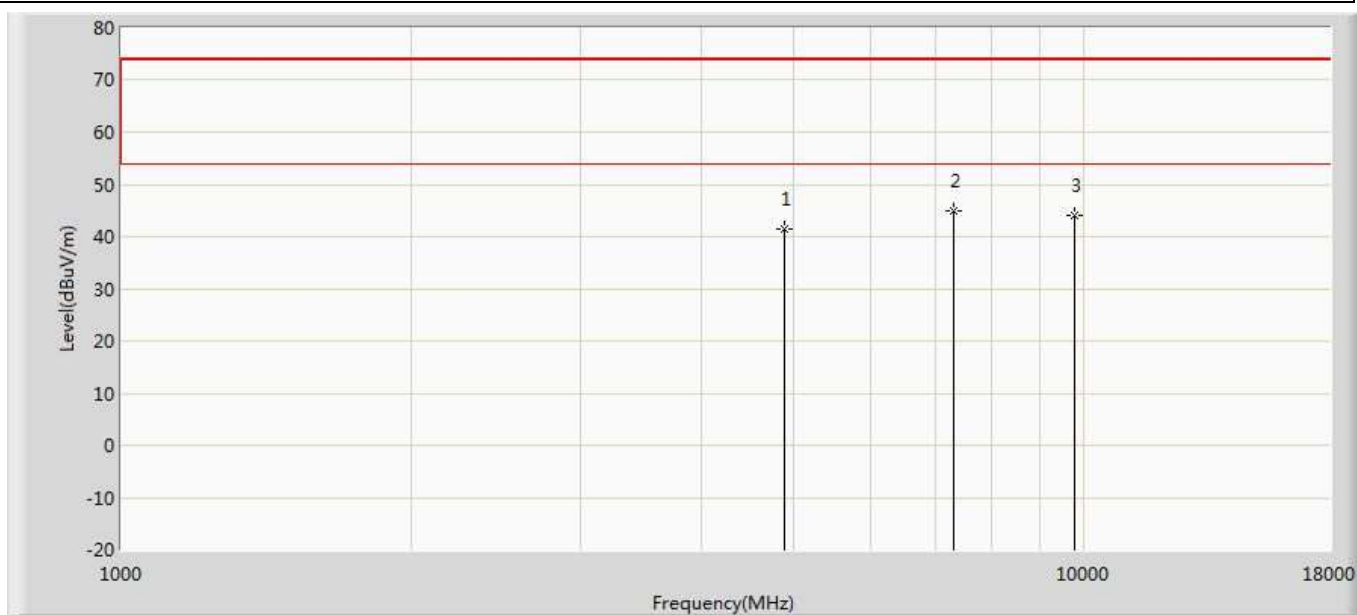
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.117	36.486	-32.883	74.000	4.631	PK
2	*	7206.000	43.955	35.931	-30.045	74.000	8.024	PK
3		9608.000	43.477	34.160	-30.523	74.000	9.318	PK

Profile: 19A2086R	Page No.: 51
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 2:Transmit at 2441MHz by 2DH5	



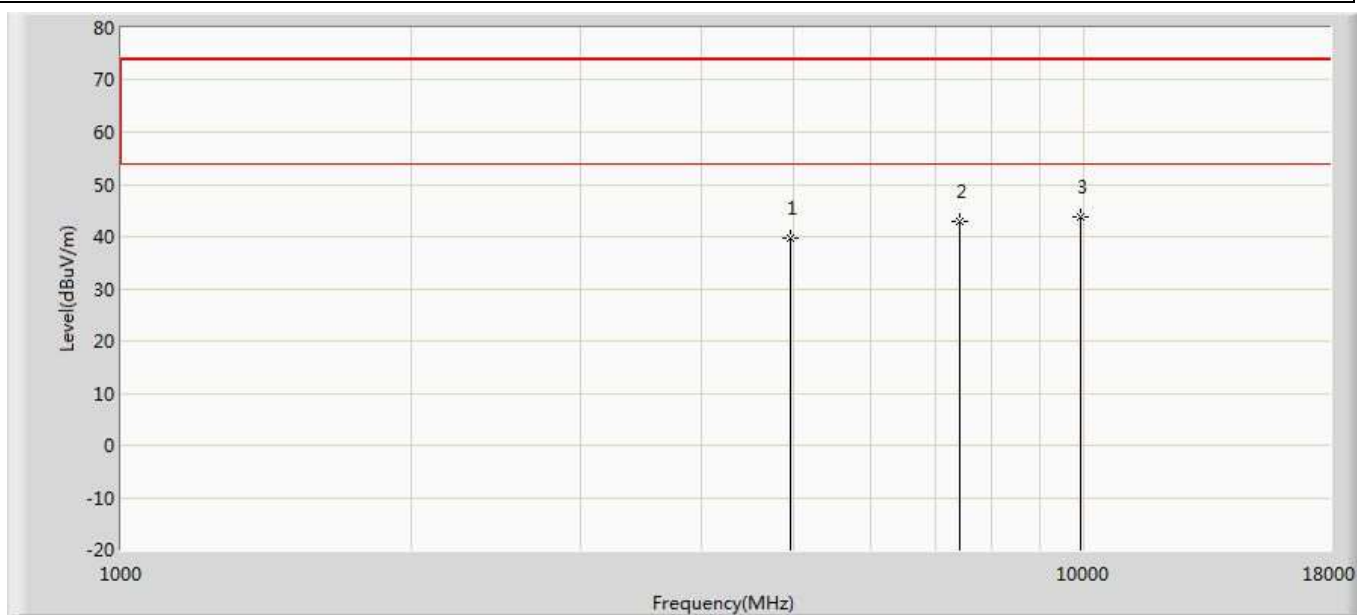
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	41.863	37.128	-32.137	74.000	4.736	PK
2		7323.000	44.130	36.034	-29.870	74.000	8.095	PK
3	*	9764.000	44.200	34.067	-29.800	74.000	10.133	PK

Profile: 19A2086R	Page No.: 52
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 2:Transmit at 2441MHz by 2DH5	



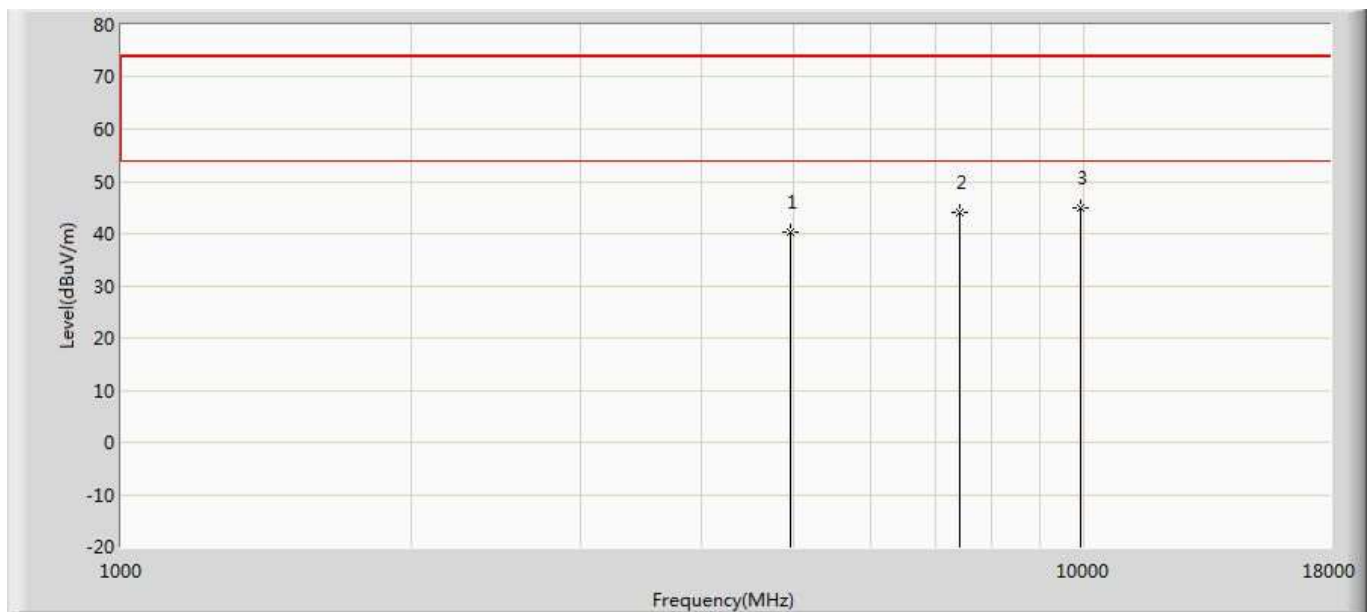
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	41.409	36.674	-32.591	74.000	4.736	PK
2	*	7323.000	45.040	36.944	-28.960	74.000	8.095	PK
3		9764.000	44.195	34.062	-29.805	74.000	10.133	PK

Profile: 19A2086R	Page No.: 53
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 2:Transmit at 2480MHz by 2DH5	



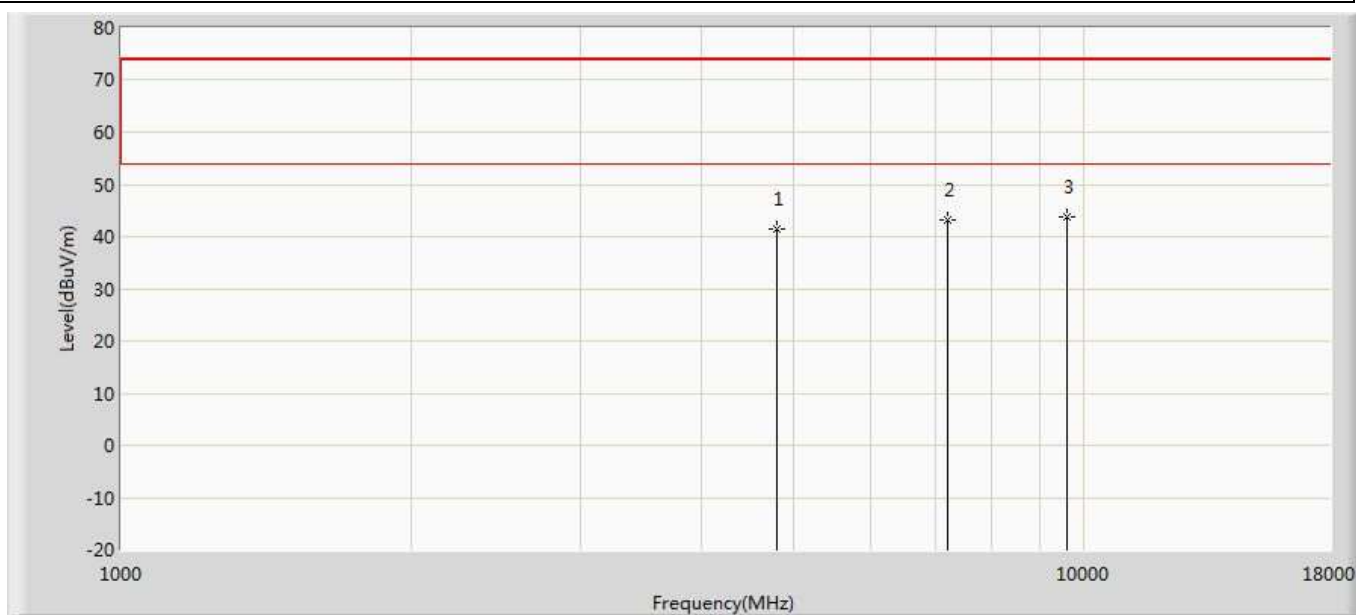
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	39.658	34.873	-34.342	74.000	4.784	PK
2		7440.000	42.988	34.937	-31.012	74.000	8.051	PK
3	*	9920.000	43.884	33.989	-30.116	74.000	9.894	PK

Profile: 19A2086R	Page No.: 54
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 2:Transmit at 2480MHz by 2DH5	



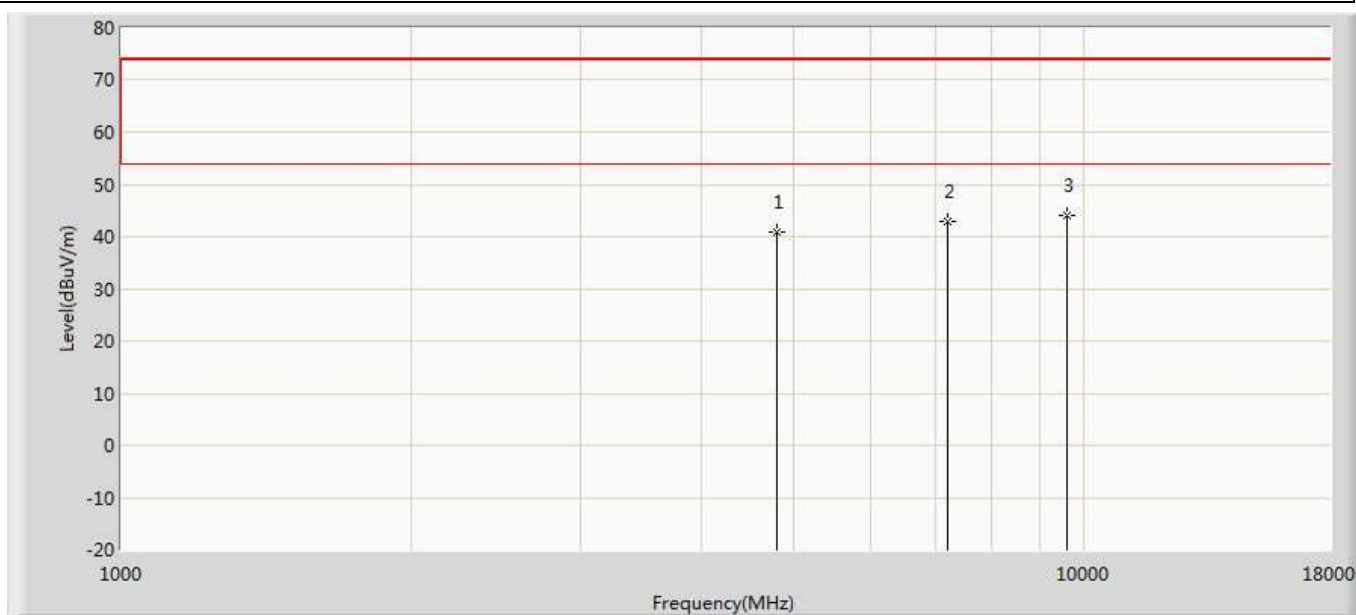
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.389	35.604	-33.611	74.000	4.784	PK
2		7440.000	44.010	35.959	-29.990	74.000	8.051	PK
3	*	9920.000	44.842	34.947	-29.158	74.000	9.894	PK

Profile: 19A2086R	Page No.: 55
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 3:Transmit at 2402MHz by 3DH5	



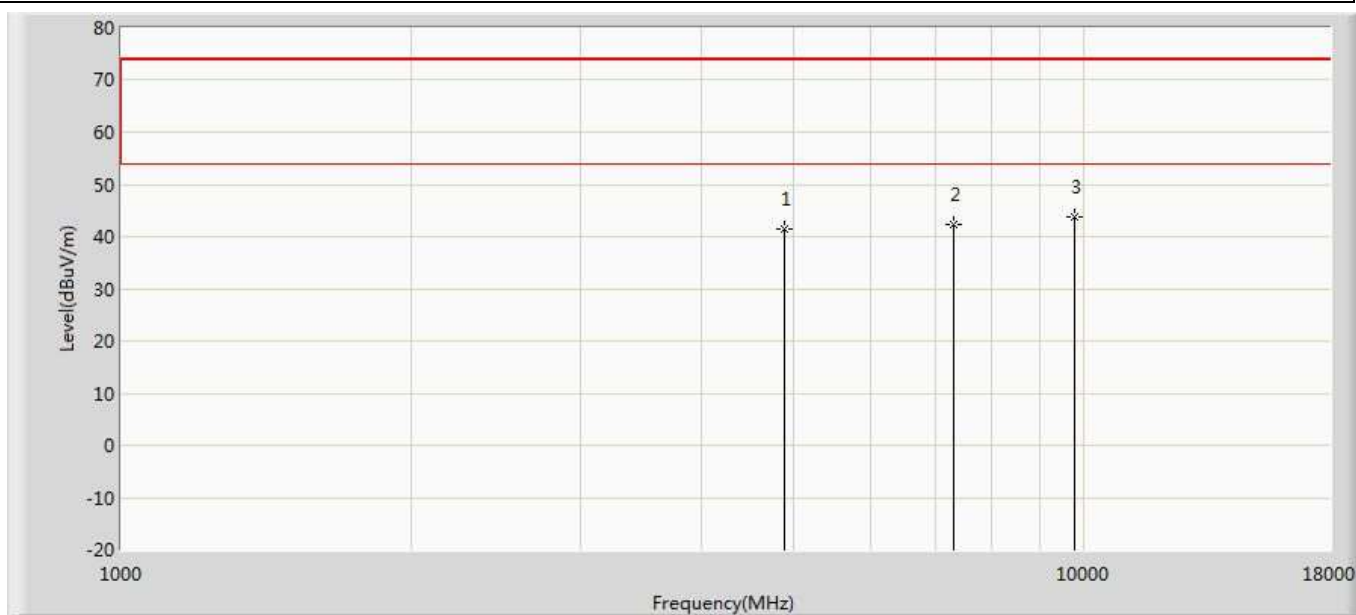
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.553	36.922	-32.447	74.000	4.631	PK
2		7206.000	43.269	35.245	-30.731	74.000	8.024	PK
3	*	9608.000	43.692	34.375	-30.308	74.000	9.318	PK

Profile: 19A2086R	Page No.: 56
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 3:Transmit at 2402MHz by 3DH5	



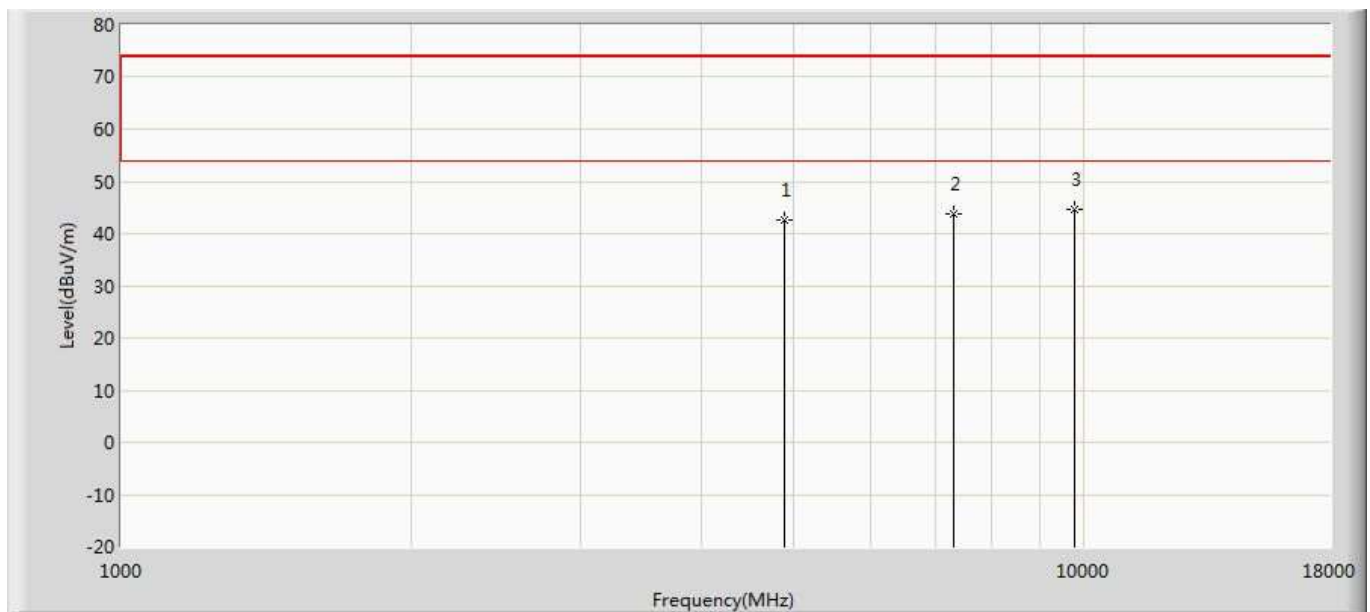
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	40.860	36.229	-33.140	74.000	4.631	PK
2		7206.000	42.900	34.876	-31.100	74.000	8.024	PK
3	*	9608.000	43.935	34.618	-30.065	74.000	9.318	PK

Profile: 19A2086R	Page No.: 57
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 3:Transmit at 2441MHz by 3DH5	



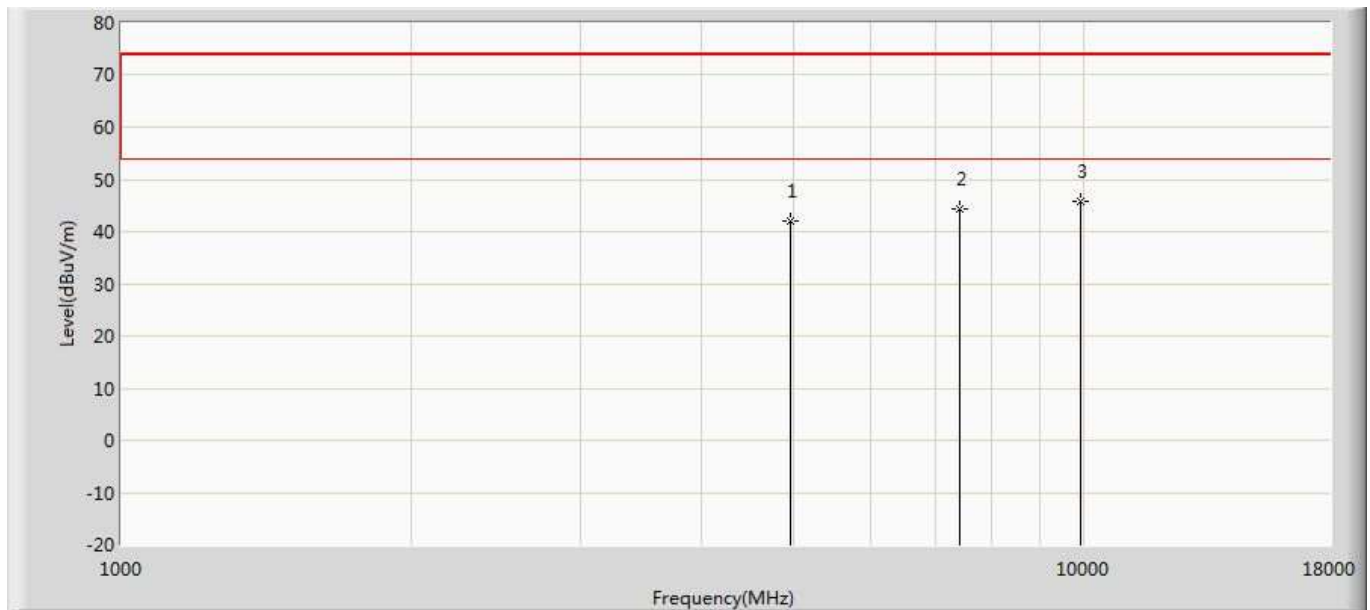
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	41.334	36.599	-32.666	74.000	4.736	PK
2		7323.000	42.377	34.281	-31.623	74.000	8.095	PK
3	*	9764.000	43.754	33.621	-30.246	74.000	10.133	PK

Profile: 19A2086R	Page No.: 58
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 3:Transmit at 2441MHz by 3DH5	



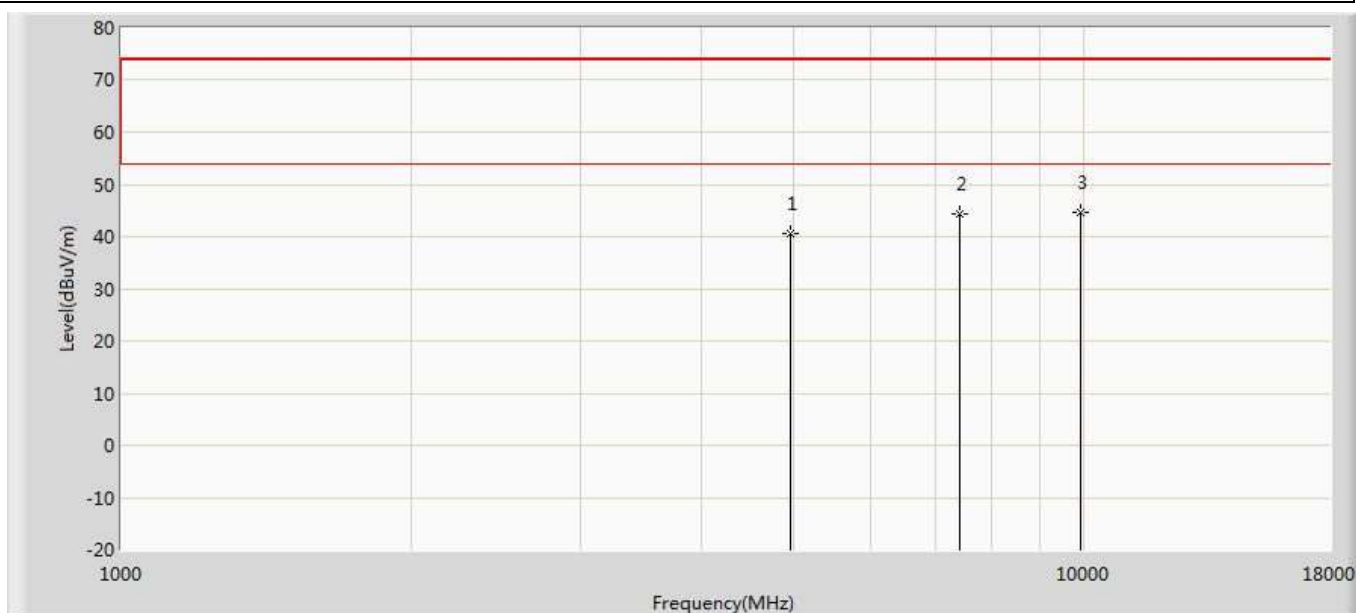
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	42.707	37.972	-31.293	74.000	4.736	PK
2		7323.000	43.849	35.753	-30.151	74.000	8.095	PK
3	*	9764.000	44.628	34.495	-29.372	74.000	10.133	PK

Profile: 19A2086R	Page No.: 59
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 3:Transmit at 2480MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	42.120	37.335	-31.880	74.000	4.784	PK
2		7440.000	44.387	36.336	-29.613	74.000	8.051	PK
3	*	9920.000	45.758	35.863	-28.242	74.000	9.894	PK

Profile: 19A2086R	Page No.: 60
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 3:Transmit at 2480MHz by 3DH5	



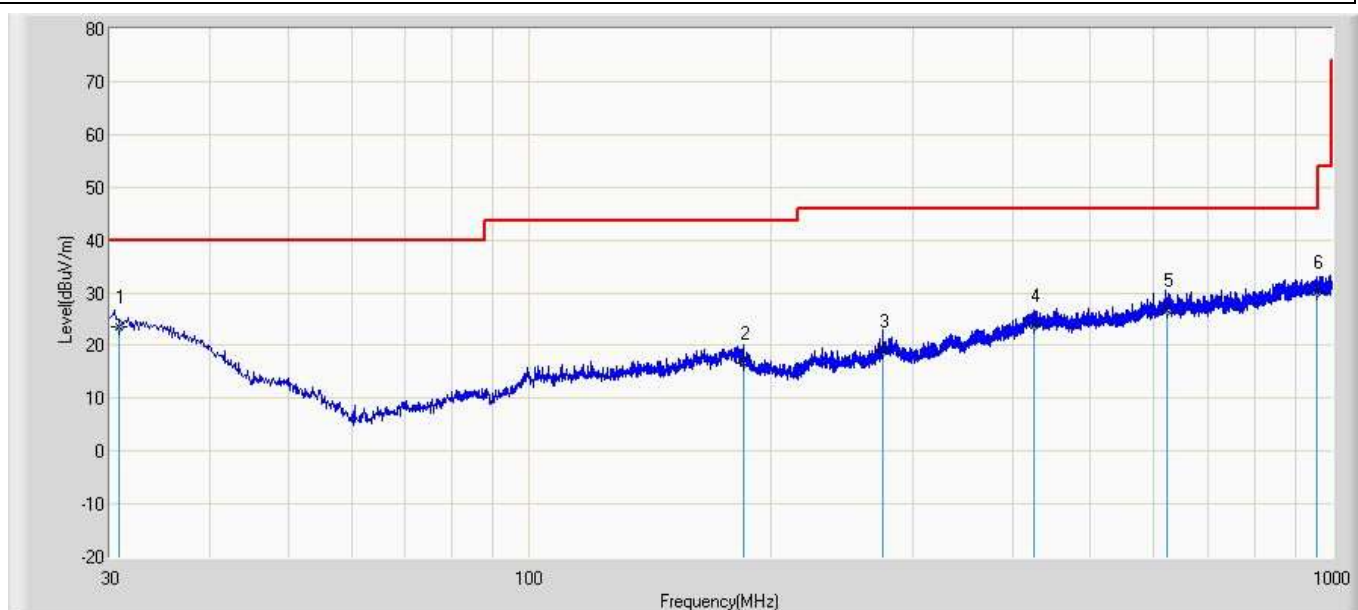
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.716	35.931	-33.284	74.000	4.784	PK
2		7440.000	44.320	36.269	-29.680	74.000	8.051	PK
3	*	9920.000	44.655	34.760	-29.345	74.000	9.894	PK

Note:

1. Measured Level = Reading Level + Factor.
2. The test frequency range, 9kHz~30MHz, 18GHz~26GHz, both of the worst case are at least 20dB below the limits, therefore no data appear in the report.
3. 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.
4. As the radiated emission was performed, so conducted emission was not tested.

The worst case of Radiated Emission below 1GHz:

Profile: 19A2086R	Page No.: 1
Engineer: Tim	
Site: AC3	Time: 2019/10/25
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 1	

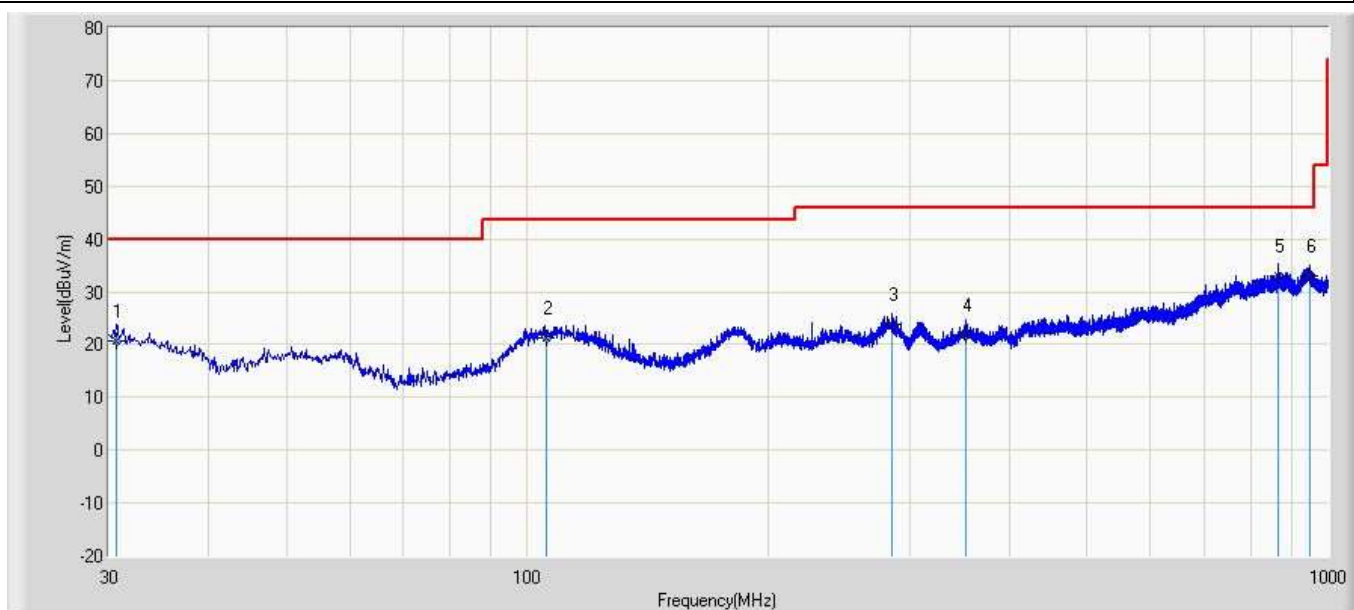


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		30.814	23.458	-4.034	-16.542	40.000	21.033	6.459	0.000	200	111	QP
2		184.611	16.760	-0.612	-26.740	43.500	10.149	7.222	0.000	200	326	QP
3		275.815	19.012	-1.056	-26.988	46.000	12.526	7.542	0.000	200	13	QP
4		425.815	23.879	-3.441	-22.121	46.000	19.345	7.975	0.000	100	134	QP
5		621.813	26.673	-3.011	-19.327	46.000	21.202	8.482	0.000	100	49	QP
6	*	955.615	30.261	-2.515	-15.739	46.000	23.559	9.217	0.000	100	43	QP

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Profile: 19A2086R	Page No.: 2
Engineer: Tim	
Site: AC3	Time: 2019/10/25
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Vertical
EUT: EZ-BT 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		30.615	20.790	-3.117	-19.210	40.000	17.449	6.458	0.000	100	118	QP
2		105.652	21.331	-0.616	-22.169	43.500	15.064	6.883	0.000	100	222	QP
3		285.615	23.738	-1.065	-22.262	46.000	17.228	7.575	0.000	100	360	QP
4		353.624	21.810	-3.015	-24.190	46.000	17.046	7.779	0.000	100	359	QP
5	*	866.614	33.103	0.310	-12.897	46.000	23.771	9.023	0.000	100	48	QP
6		947.614	32.866	-2.012	-13.134	46.000	25.682	9.196	0.000	200	205	QP

Note:

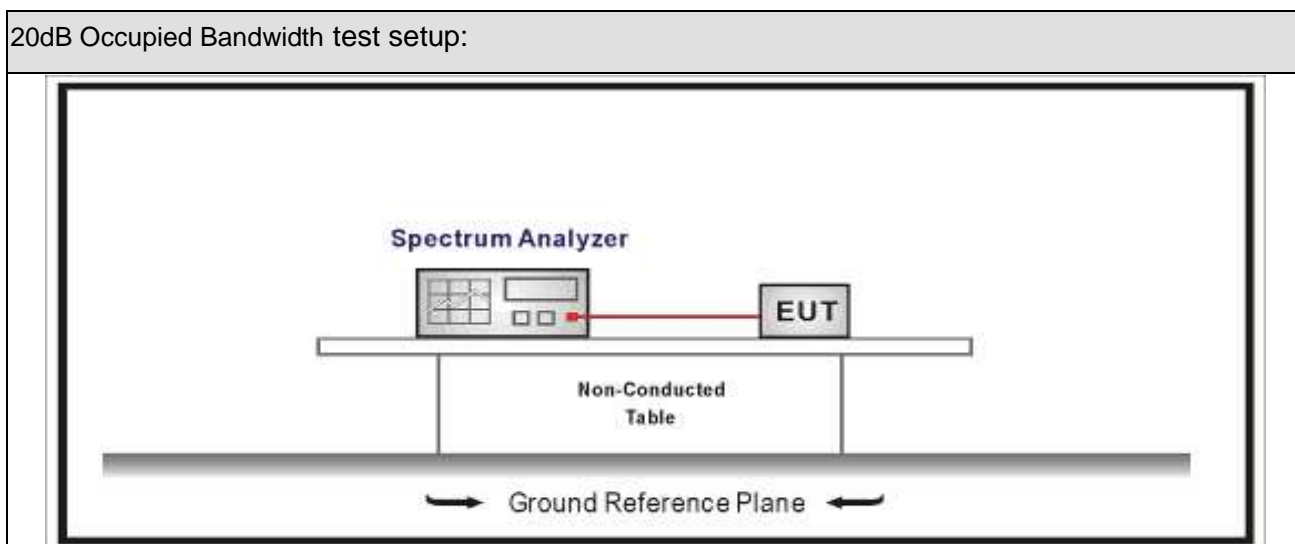
1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

5. 20dB Bandwidth

5.1 Test Equipment

20dB Occupied Bandwidth / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2019.04.17	2020.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2019.04.18	2020.04.17
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

5.2 Test Setup



5.3 Limit

Carrier Frequency Separation	
<input checked="" type="checkbox"/>	For frequency hopping systems operating in 2400-2483.5 MHz band, within frequency range.
<input type="checkbox"/>	For frequency hopping systems operating in 902-928 MHz band, the maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.
<input type="checkbox"/>	For frequency hopping systems operating in 5725-5850 MHz band, the maximum 20 dB bandwidth of the hopping channel is 1 MHz.

5.4 Test Procedure

Test Method			
	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	6.9.2	Occupied bandwidth tests

5.5 Uncertainty

The measurement uncertainty is defined as ± 1 kHz

5.6 Test Result

Product Name	: EZ-BT Module	Test Voltage	: DC 3.3V
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2019.11.01 & 2019.12.12	Test Engineer	: Tim

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	952.4	923.69
39	2441	875.5	954.68
78	2480	951.4	987.68

Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



Product Name	: EZ-BT Module	Test Voltage	: DC 3.3V
Test Mode	: Mode 2	Test Site	: TR-8
Test Date	: 2019.11.01 & 2019.12.12	Test Engineer	: Tim

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	1398	1312.3
39	2441	1418	1248.0
78	2480	1398	1252.6

Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



Product Name	: EZ-BT Module	Power	: DC 3.3V
Test Mode	: Mode 3	Test Site	: TR-8
Test Date	: 2019.11.01 & 2019.12.12	Test Engineer	: Simon

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	1379	1236.6
39	2441	1372	1239.8
78	2480	1390	1321.2

Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



6. Carrier Frequency Separation

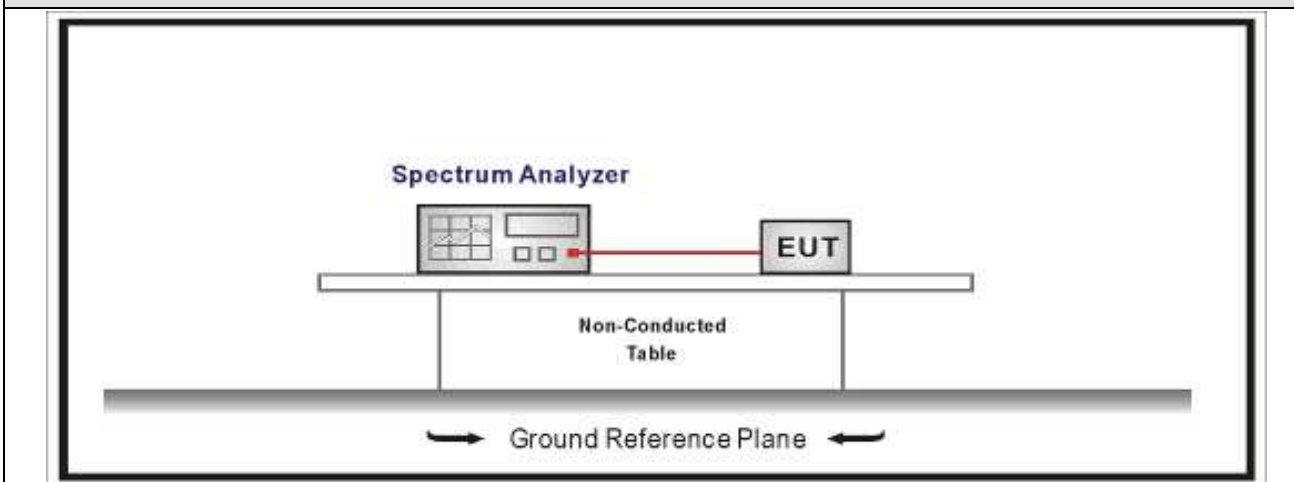
6.1. Test Equipment

Carrier Frequency Separation / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2019.04.17	2020.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2019.04.18	2020.04.17

Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

6.2. Test Setup

Carrier Frequency Separation test setup:



6.3. Limit

Carrier Frequency Separation	
<input type="checkbox"/>	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.
<input checked="" type="checkbox"/>	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.
<input type="checkbox"/>	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 second period;
<input type="checkbox"/>	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 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.
<input type="checkbox"/>	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.

6.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	7.8.2	Carrier frequency separation

6.5. Uncertainty

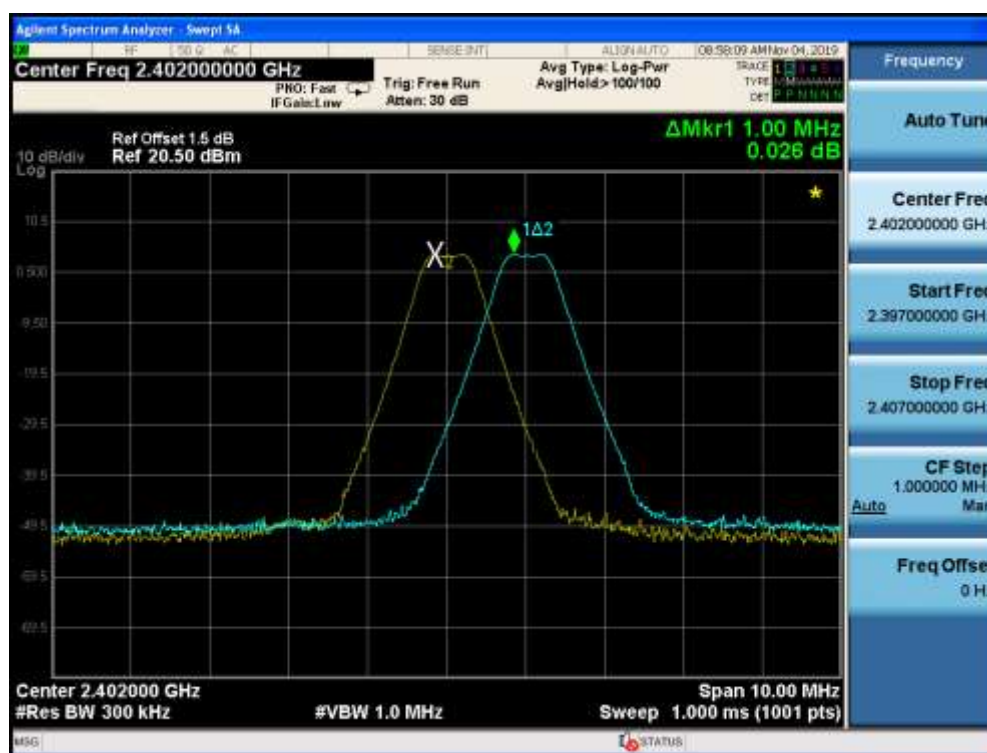
The measurement uncertainty is defined as ± 1 kHz

6.6. Test Result

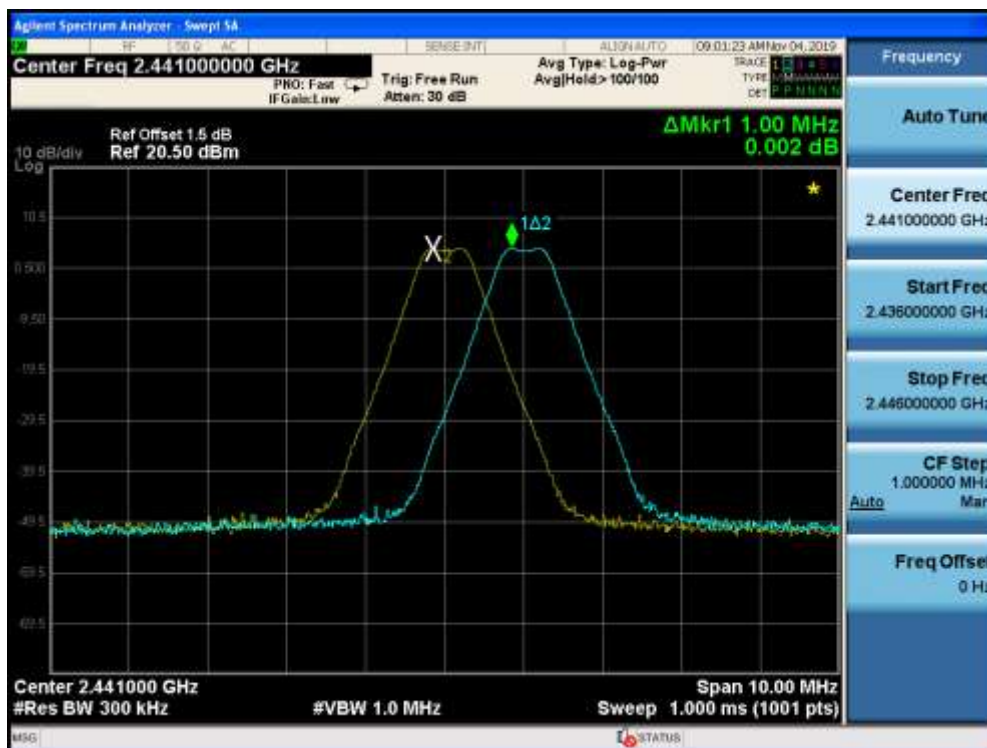
Product Name	: EZ-BT Module	Test Voltage	: DC 3.3V
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2019.11.04	Test Engineer	: Simon

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	634.9	Pass
39	2441	1000	583.7	Pass
78	2480	1000	634.3	Pass

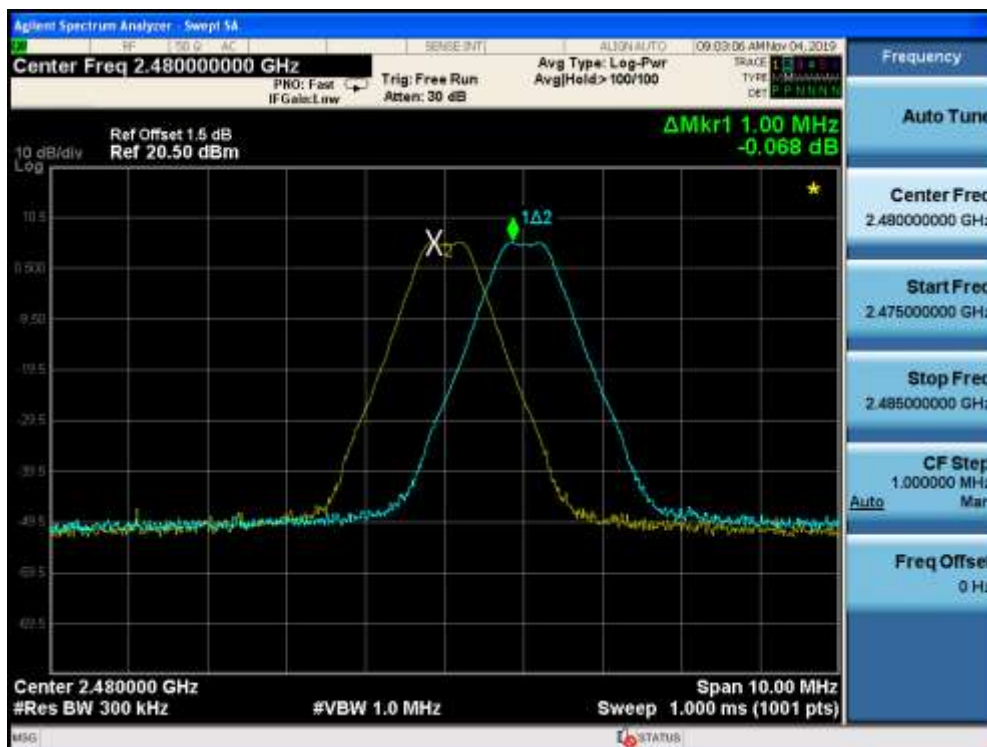
Channel 00 (2402MHz)



Channel 39 (2441MHz)



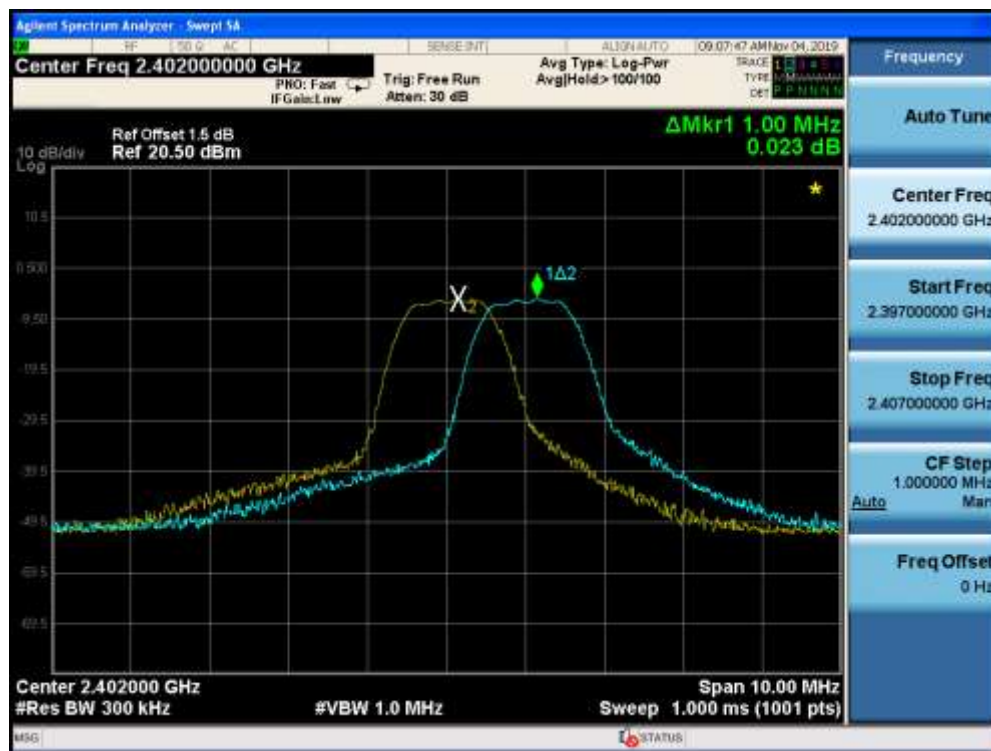
Channel 78 (2480MHz)



Product Name	: EZ-BT Module	Power	: DC 3.3V
Test Mode	: Mode 2	Test Site	: TR-8
Test Date	: 2019.11.04	Test Engineer	: Tim

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	932.0	Pass
39	2441	1000	945.3	Pass
78	2480	1000	932.0	Pass

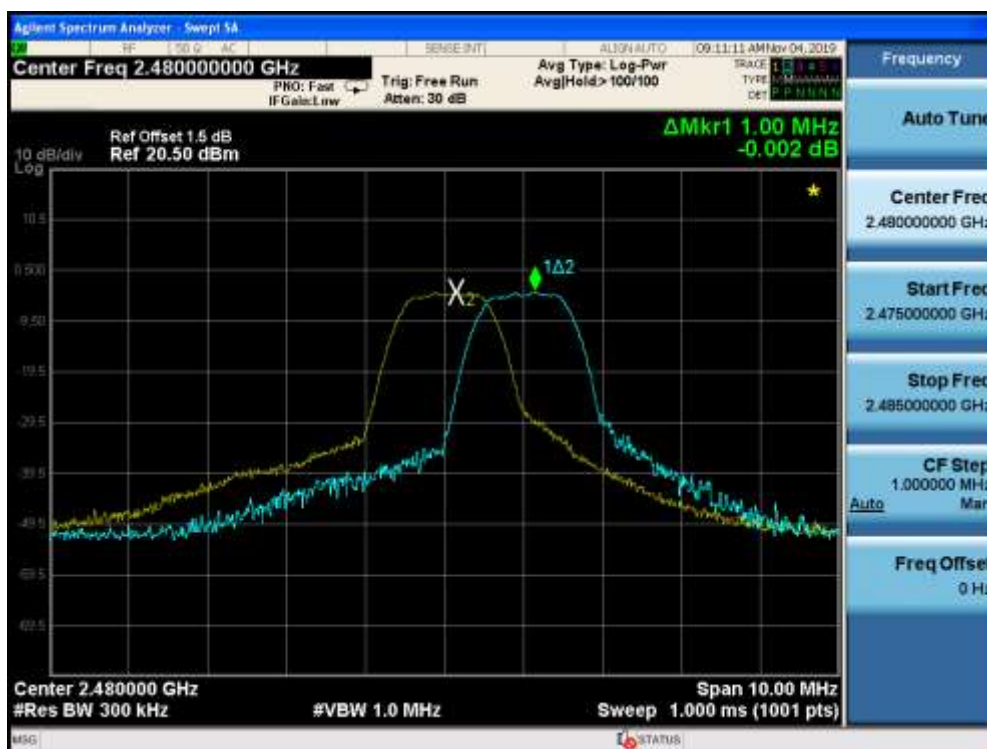
Channel 00 (2402MHz)



Channel 39 (2441MHz)



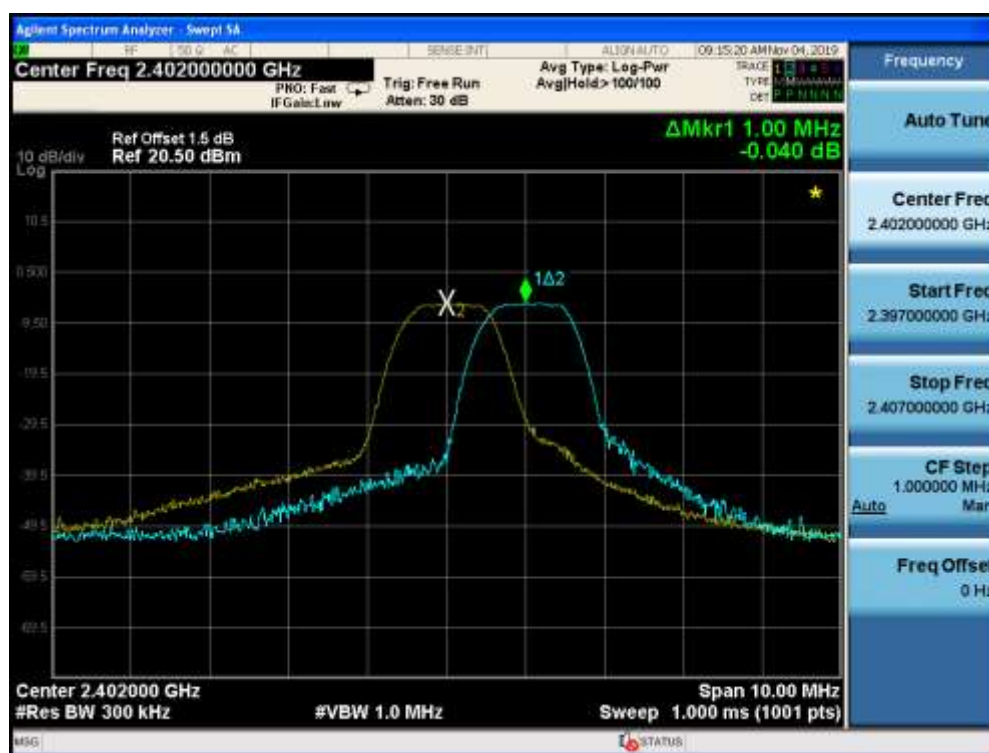
Channel 78 (2480MHz)



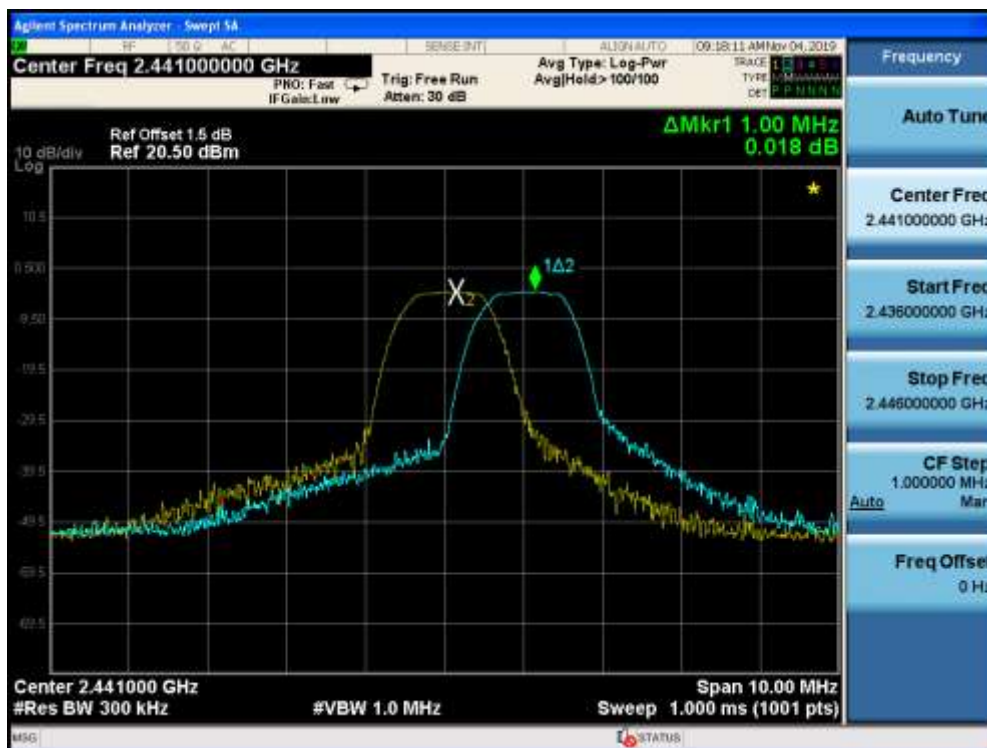
Product Name	: EZ-BT Module	Power	: DC 3.3V
Test Mode	: Mode 3	Test Site	: TR-8
Test Date	: 2019.11.04	Test Engineer	: Tim

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	919.3	Pass
39	2441	1000	914.7	Pass
78	2480	1000	926.7	Pass

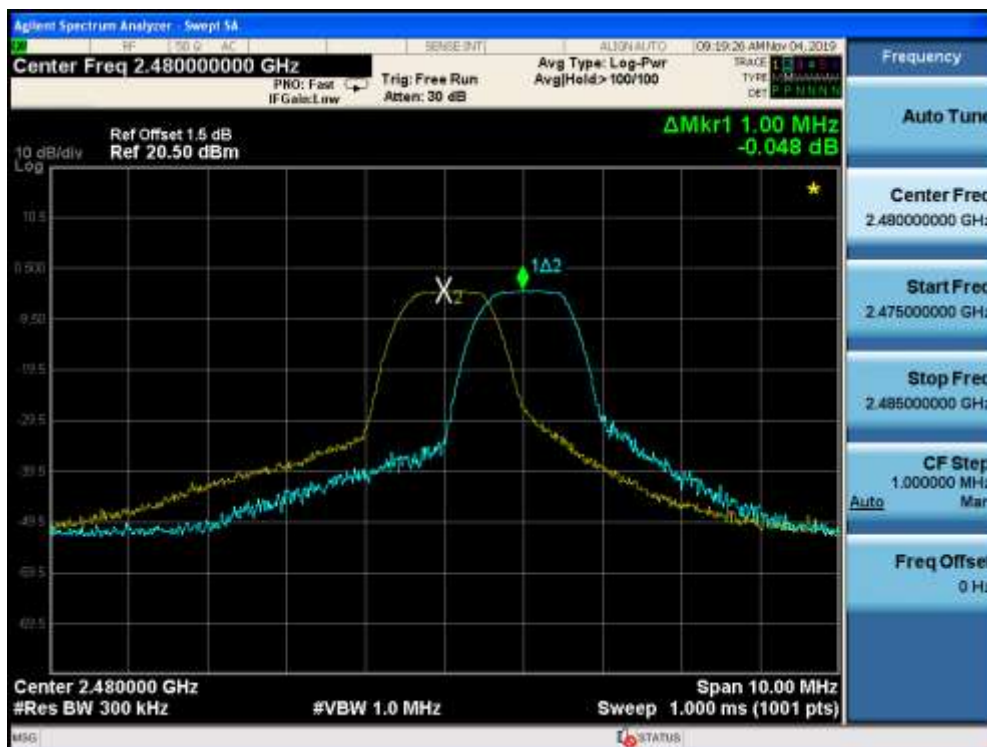
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)

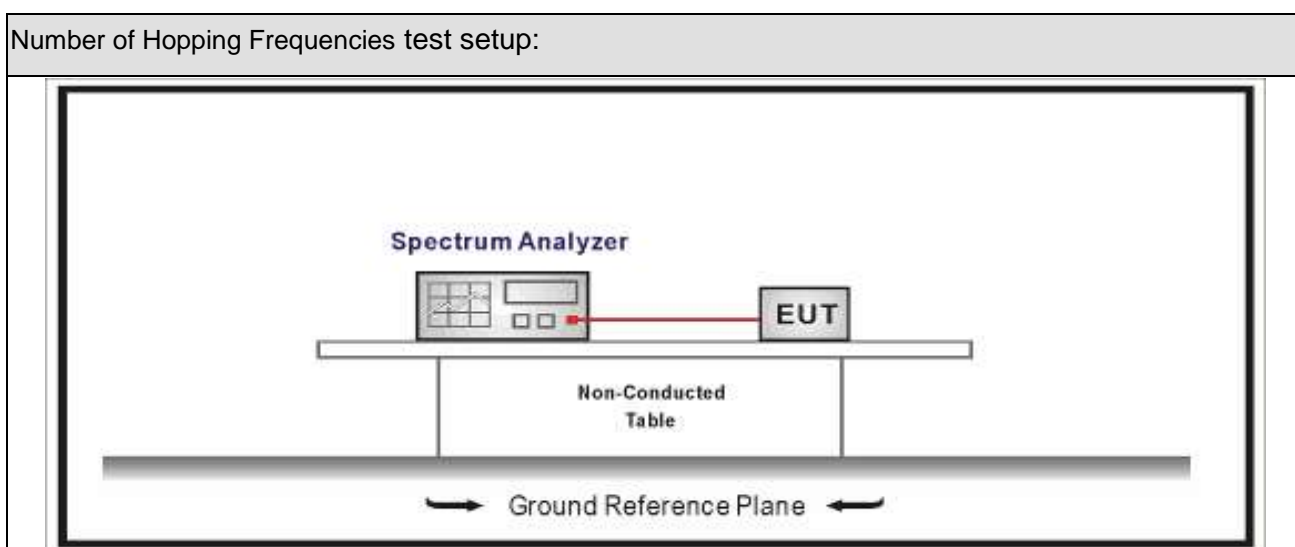


7. Number of Hopping Frequencies

7.1. Test Equipment

Number of Hopping Frequencies / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2019.04.17	2020.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2019.04.18	2020.04.17
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

7.2. Test Setup



7.3. Limit

Carrier Frequency Separation	
<input checked="" type="checkbox"/>	For frequency hopping systems operating in the 2400-2483.5 MHz band shall use at least 15 hopping frequencies.
<input type="checkbox"/>	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.
<input type="checkbox"/>	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.
<input type="checkbox"/>	For frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies.

7.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	7.8.3	Number of Hopping Frequencies

7.5. Uncertainty

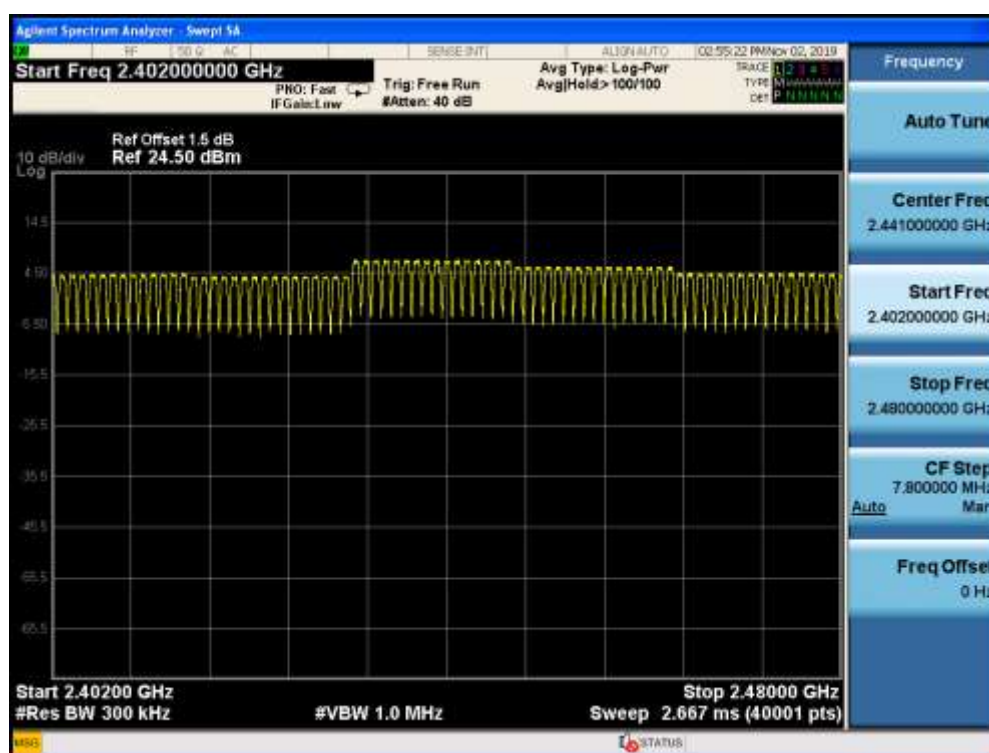
The measurement uncertainty is defined as ± 1 kHz

7.6. Test Result

Product Name	: EZ-BT Module	Test Voltage	: DC 3.3V
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2019.11.02	Test Engineer	: Tim

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
2400 - 2483.5	79	>15	Pass

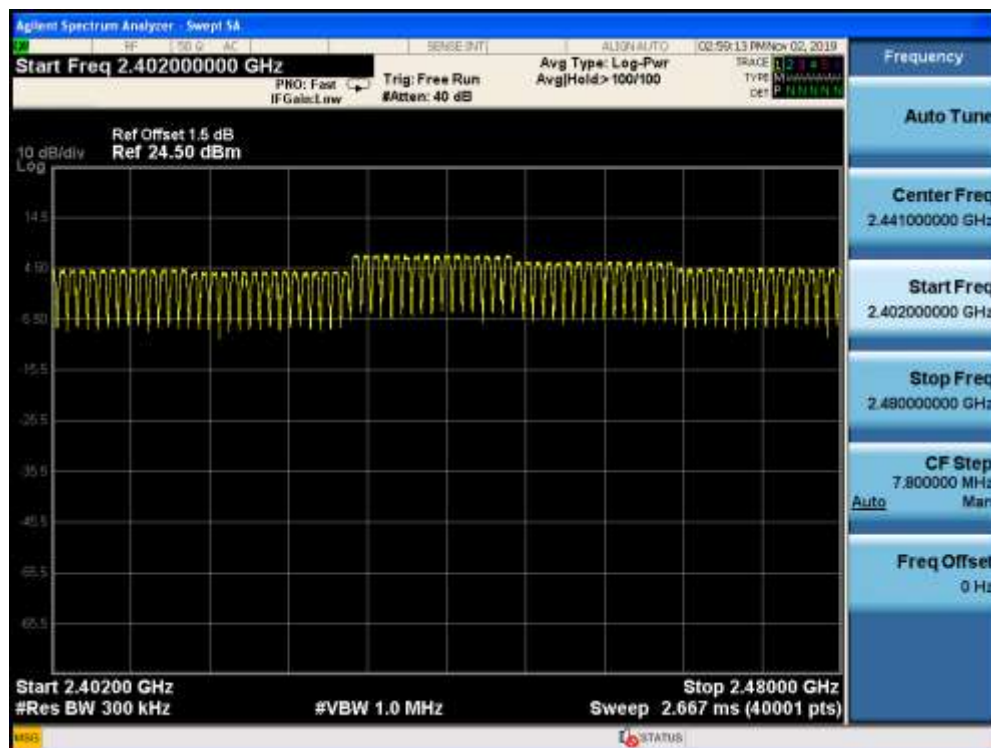
2402 - 2480MHz



Product Name	: EZ-BT Module	Power	: DC 3.3V
Test Mode	: Mode 2	Test Site	: TR-8
Test Date	: 2019.11.02	Test Engineer	: Tim

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
2400 - 2483.5	79	>15	Pass

2402 - 2480 MHz



Product Name	: EZ-BT Module	Power	: DC 3.3V
Test Mode	: Mode 3	Test Site	: TR-8
Test Date	: 2019.11.02	Test Engineer	: Tim

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
2400 - 2483.5	79	>15	Pass

2402 - 2480 MHz

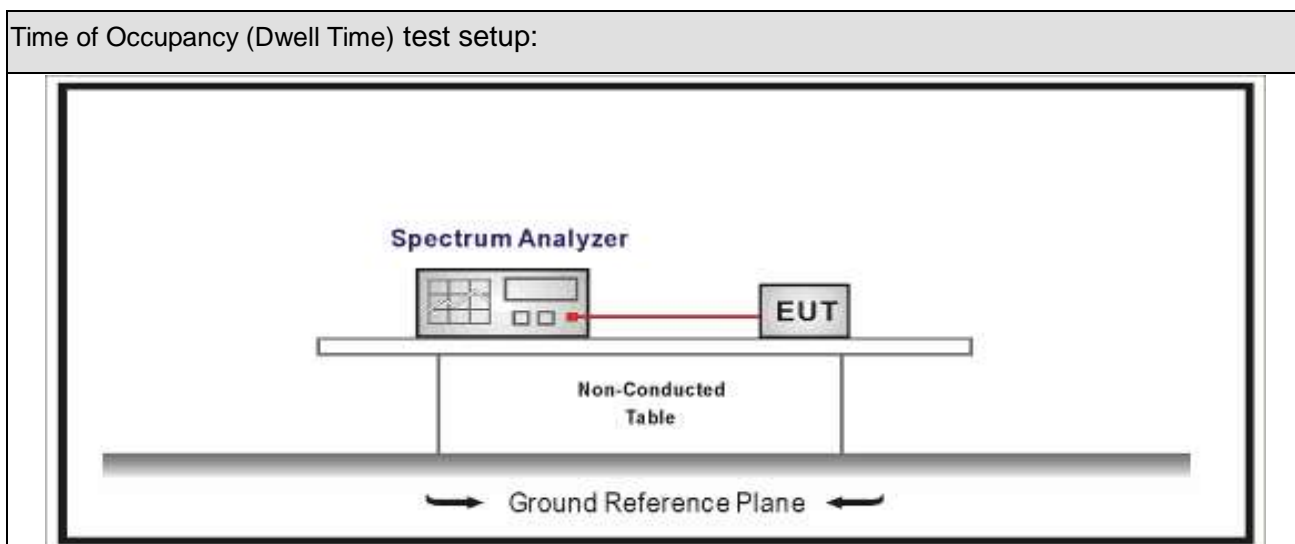


8. Time of Occupancy (Dwell Time)

8.1. Test Equipment

Time of Occupancy (Dwell Time) / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2019.04.17	2020.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2019.04.18	2020.04.17
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

8.2. Test Setup



8.3. Limit

Time of Occupancy (Dwell Time)	
<input checked="" type="checkbox"/>	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.
<input type="checkbox"/>	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 second period
<input type="checkbox"/>	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 second period.
<input type="checkbox"/>	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.

8.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	7.8.4	Time of Occupancy (Dwell Time)

8.5. Uncertainty

The measurement uncertainty is defined as $\pm 0.1 \text{ us}$

8.6. Test Result

Product Name	: EZ-BT Module	Test Voltage	: DC 3.3V
Test Mode	: Mode 1(GFSK_DH1)	Test Site	: TR-8
Test Date	: 2019.11.02	Test Engineer	: Tim

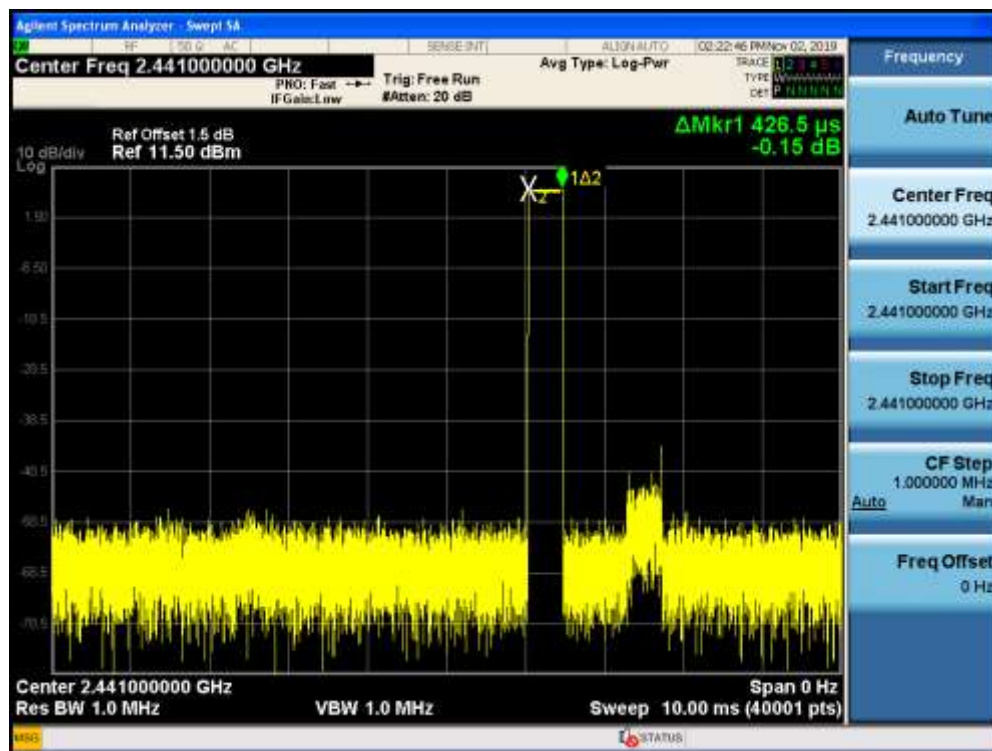
Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	136.48	< 400	Pass

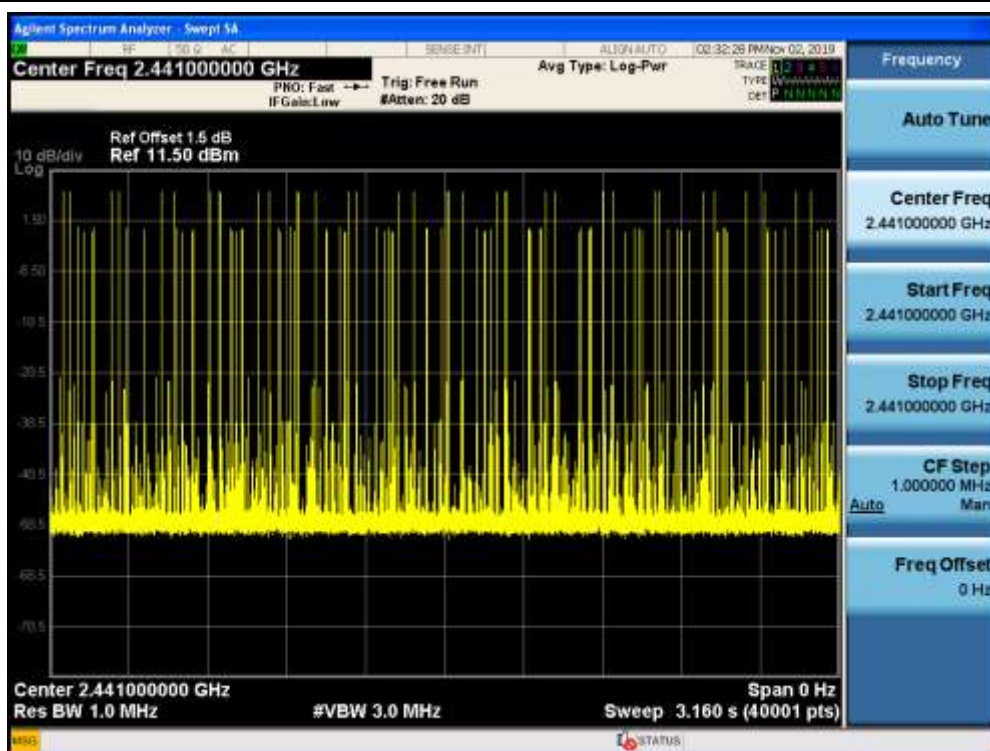
Note1: Test Time Period: $0.4 \times 79 = 31.6 \text{ sec}$

Note2: Time of Occupancy = $0.4265 \times 32 \times 31.6 / 3.16 = 136.48 \text{ ms}$

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

Channel 39 (2441MHz) - (DH1)





Product Name	: EZ-BT Module	Test Voltage	: DC 3.3V
Test Mode	: Mode 1(GFSK_DH3)	Test Site	: TR-8
Test Date	: 2019.11.02	Test Engineer	: Tim

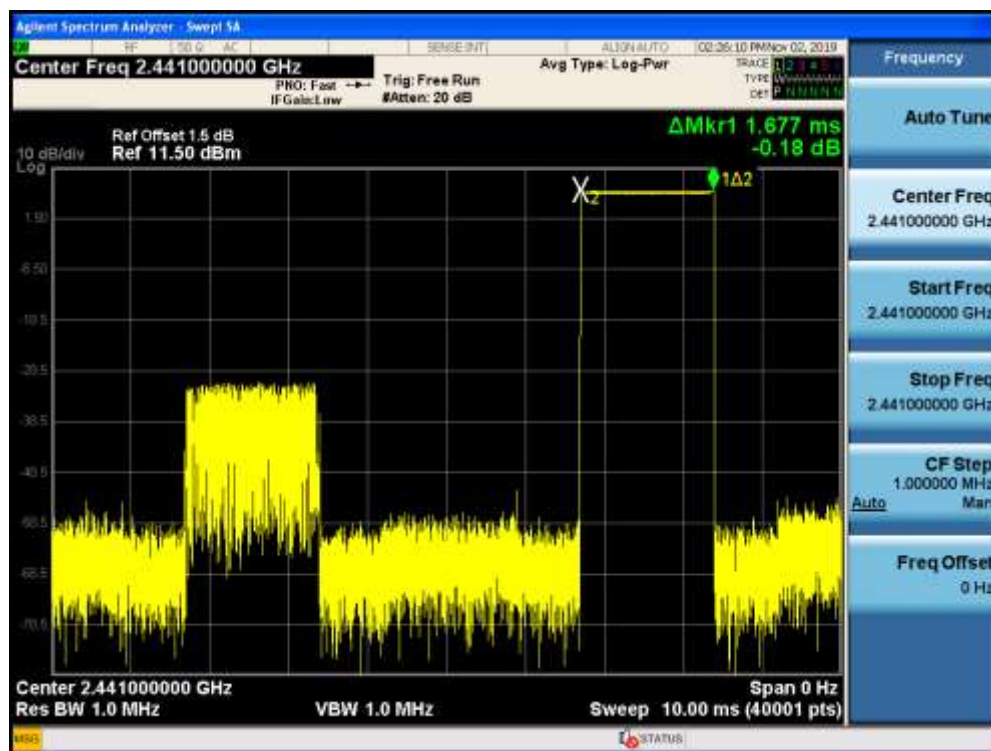
Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	268.32	< 400	Pass

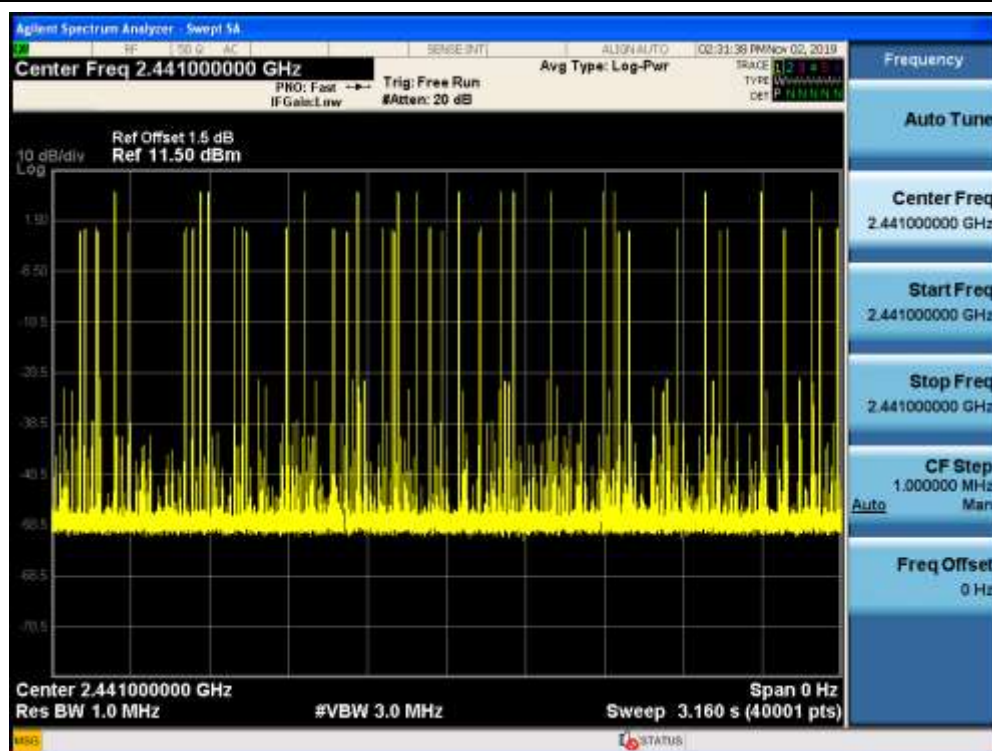
Note1: Test Time Period: $0.4 \times 79 = 31.6 \text{ sec}$

Note2: Time of Occupancy = $1.677 \times 16 \times 31.6 / 3.16 = 268.32 \text{ ms}$

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

Channel 39 (2441MHz) - (DH3)





Product Name	: EZ-BT Module	Test Voltage	: DC 3.3V
Test Mode	: Mode 1(GFSK_DH5)	Test Site	: TR-8
Test Date	: 2019.11.02	Test Engineer	: Tim

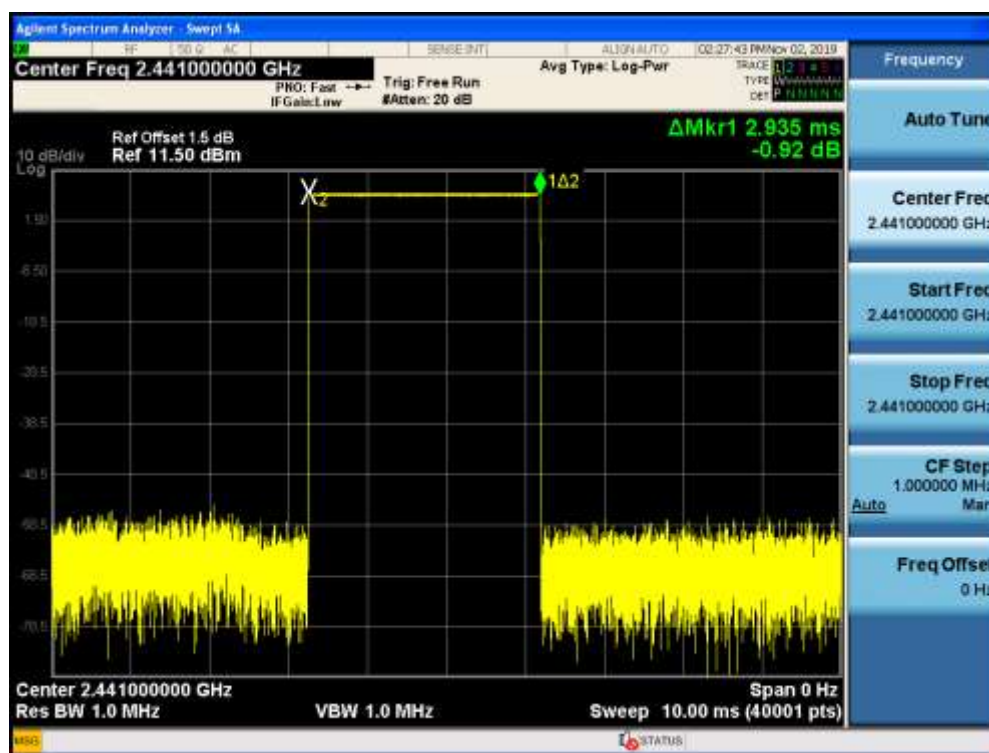
Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	352.20	< 400	Pass

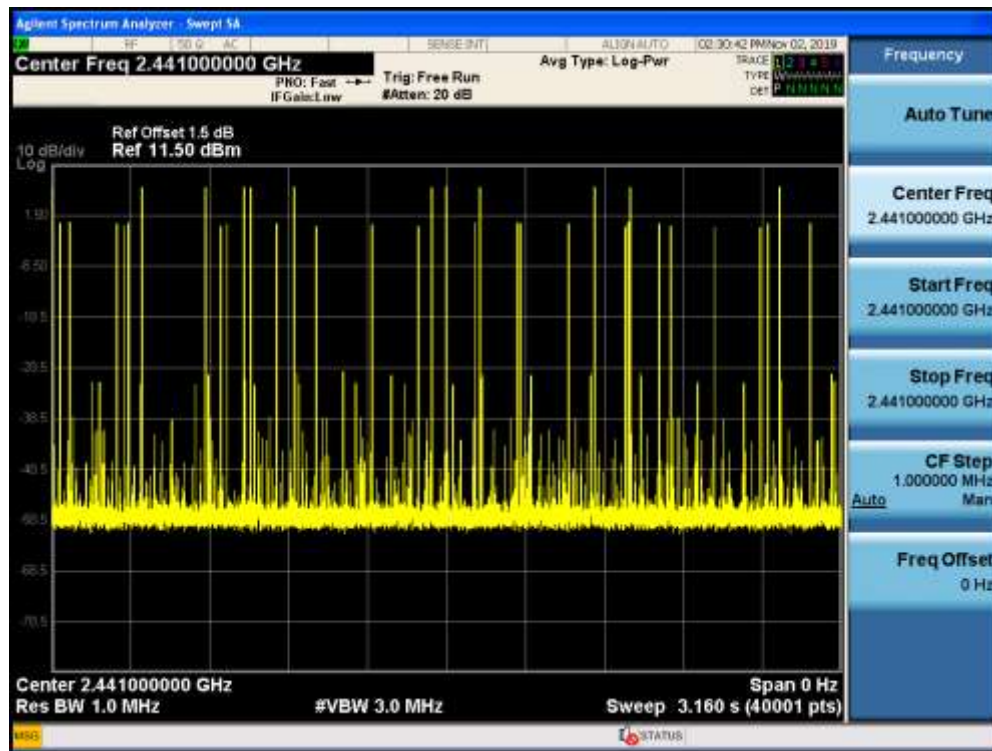
Note1: Test Time Period: $0.4 \times 79 = 31.6 \text{ sec}$

Note2: Time of Occupancy = $2.935 \times 12 \times 31.6 / 3.16 = 352.20 \text{ ms}$

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

Channel 39 (2441MHz) - (DH5)





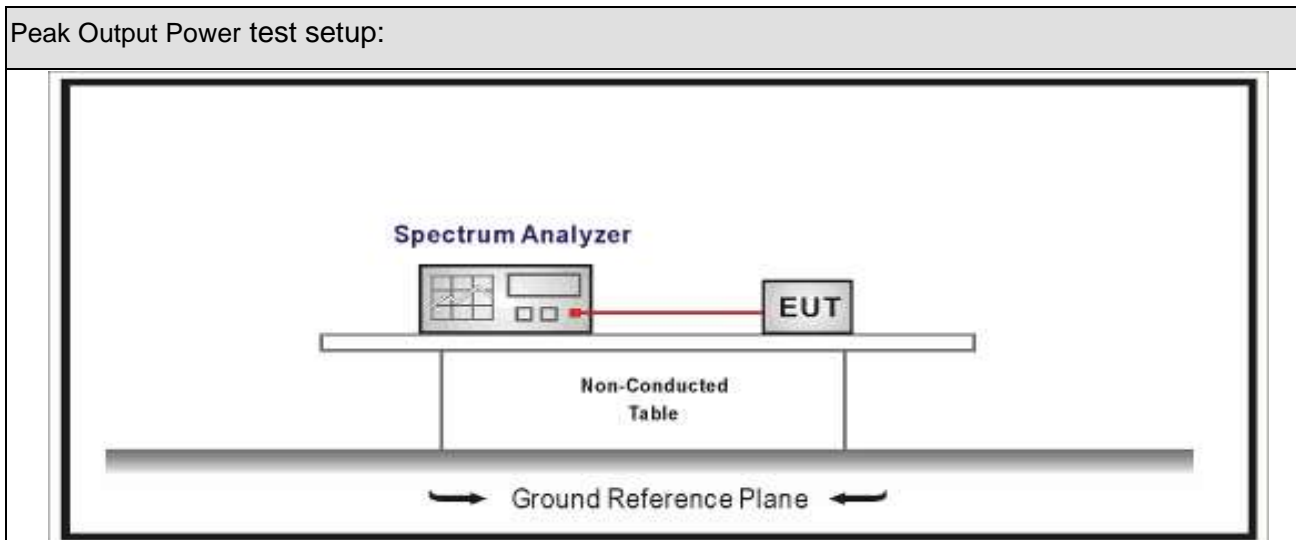
Note: The packet time of AFH mode is same as normal mode, due to the packet time of AFH mode multiply with lesser factor is dwell time of $0.4 \times 20 = 8S$, the dwell time of AFH mode comply with the limit.

9. Peak Output Power

9.1. Test Equipment

Peak Output Power / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2019.04.17	2020.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2019.04.18	2020.04.17
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

9.2. Test Setup



9.3. Limit

Peak Output Power	
<input type="checkbox"/>	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.
<input checked="" type="checkbox"/>	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.
<input type="checkbox"/>	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

9.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	7.8.5	Output power test procedure for frequency-hopping spread-spectrum (FHSS) devices

9.5. Uncertainty

The measurement uncertainty is defined as ± 1.0 dB

9.6. Test Result

CYBT-223058-02:

Product Name	:	EZ-BT Module	Test Voltage	:	DC 3.3V
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2019.10.31	Test Engineer	:	Simon

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
00	2402	2.51	21.00	Pass
39	2441	3.62	21.00	Pass
78	2480	2.81	21.00	Pass

Product Name	:	EZ-BT Module	Test Voltage	:	DC 3.3V
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2019.10.31	Test Engineer	:	Simon

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
00	2402	0.71	21.00	Pass
39	2441	0.70	21.00	Pass
78	2480	1.24	21.00	Pass

Product Name	:	EZ-BT Module	Test Voltage	:	DC 3.3V
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2019.10.31	Test Engineer	:	Simon

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
00	2402	0.66	21.00	Pass
39	2441	0.78	21.00	Pass
78	2480	1.41	21.00	Pass

CYBT-253059-02:

Product Name	:	EZ-BT Module	Test Voltage	:	DC 3.3V
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2019.10.31	Test Engineer	:	Simon

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
00	2402	10.57	21.00	Pass
39	2441	10.55	21.00	Pass
78	2480	10.84	21.00	Pass

Product Name	:	EZ-BT Module	Test Voltage	:	DC 3.3V
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2019.10.31	Test Engineer	:	Simon

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
00	2402	5.02	21.00	Pass
39	2441	4.77	21.00	Pass
78	2480	4.60	21.00	Pass

Product Name	:	EZ-BT Module	Test Voltage	:	DC 3.3V
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2019.10.31	Test Engineer	:	Simon

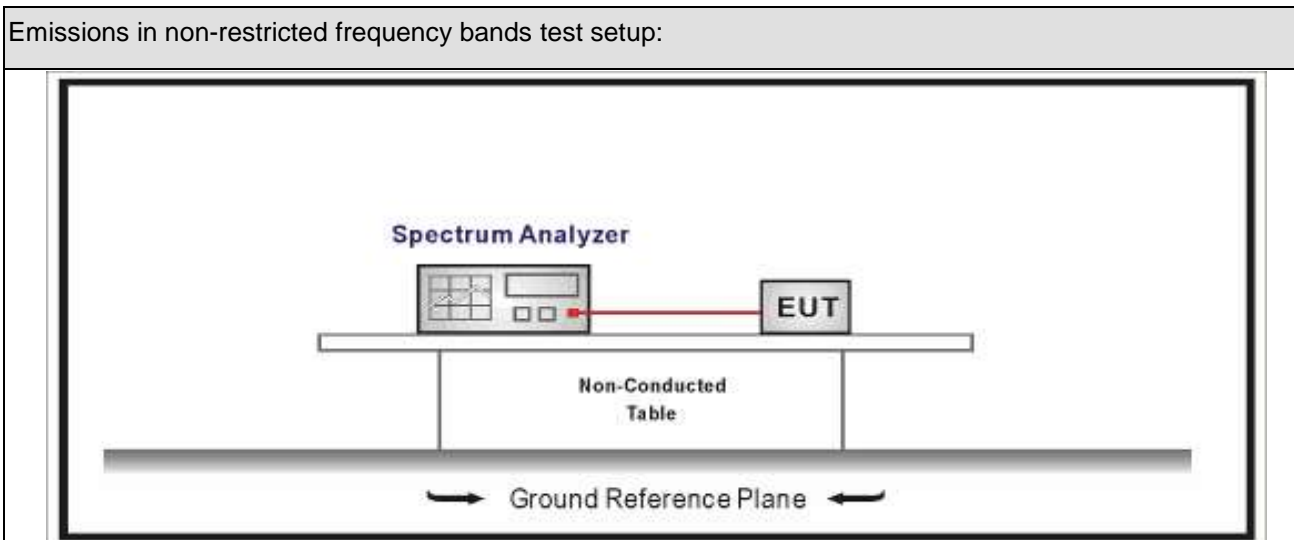
Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
00	2402	5.22	21.00	Pass
39	2441	5.03	21.00	Pass
78	2480	4.90	21.00	Pass

10. Emissions in non-restricted frequency bands

10.1. Test Equipment

Emissions in non-restricted frequency bands / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2019.04.17	2020.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2019.04.18	2020.04.17
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

10.2. Test Setup



10.3. Limit

Un-Restricted Band Emissions Limit	
RF Output power (Detection methods)	Limit(dB)
RF Output power(Average detector)	30c(Note1)
RF Output power(PK detector)	20c(Note2)
<p>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).</p> <p>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).</p>	

10.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	7.8.6	Band-edge Compliance of RF Conducted Emissions

10.5. Uncertainty

The measurement uncertainty is defined as ± 1.0 dB

10.6. Test Result

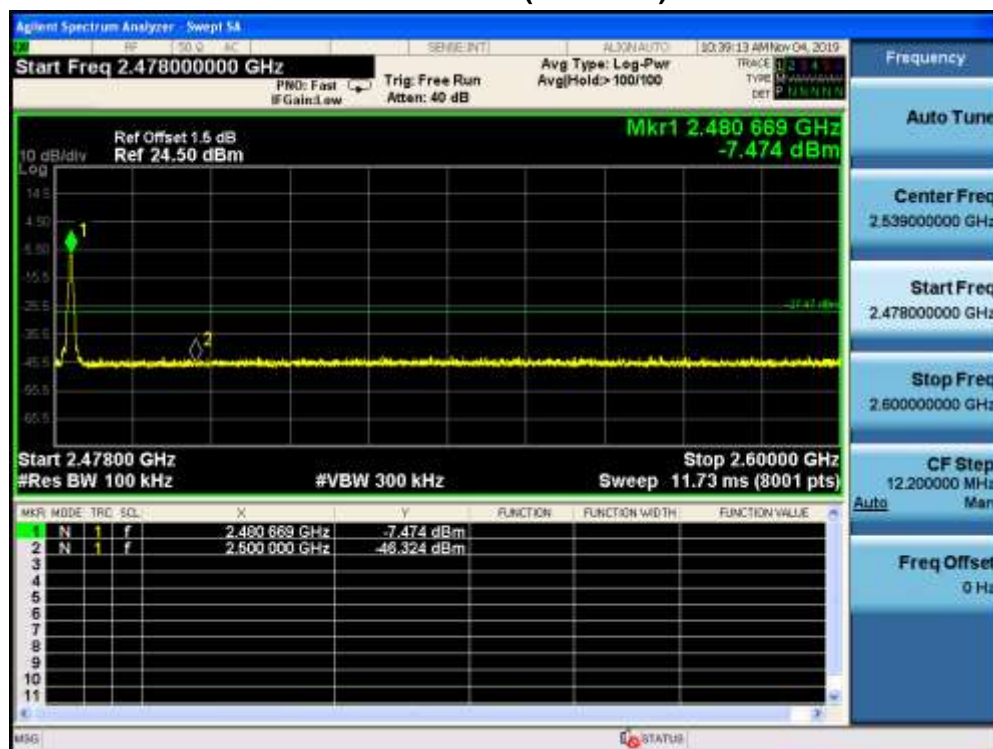
Product Name	: EZ-BT Module	Test Voltage	: DC 3.3V
Test Mode	: Mode 1~4	Test Site	: TR-8
Test Date	: 2019.11.04	Test Engineer	: Tim

Mode	Channel	Test Frequency (MHz)	In-Band PSD[a] (dBm/100kHz)	Frequency (MHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
1	00	2402	2.835	2400.00	-45.124	47.959	>20	Pass
1	78	2480	4.467	2500.00	-46.379	50.846	>20	Pass
2	00	2402	-7.263	2400.00	-50.165	42.902	>20	Pass
2	78	2480	-7.474	2500.00	-46.324	38.85	>20	Pass
3	00	2402	-7.153	2400.00	-49.217	42.064	>20	Pass
3	78	2480	-5.314	2500.00	-45.408	40.094	>20	Pass
4	00~78	00~78	-6.607	2400.00	-46.684	40.077	>20	Pass

Note1: The worst case of Emissions in non-restricted frequency bands as below:

2: Mode 1-3, The In-Band PSD is the highest PSD of All channels.

Mode2 CH78(2480MHz)



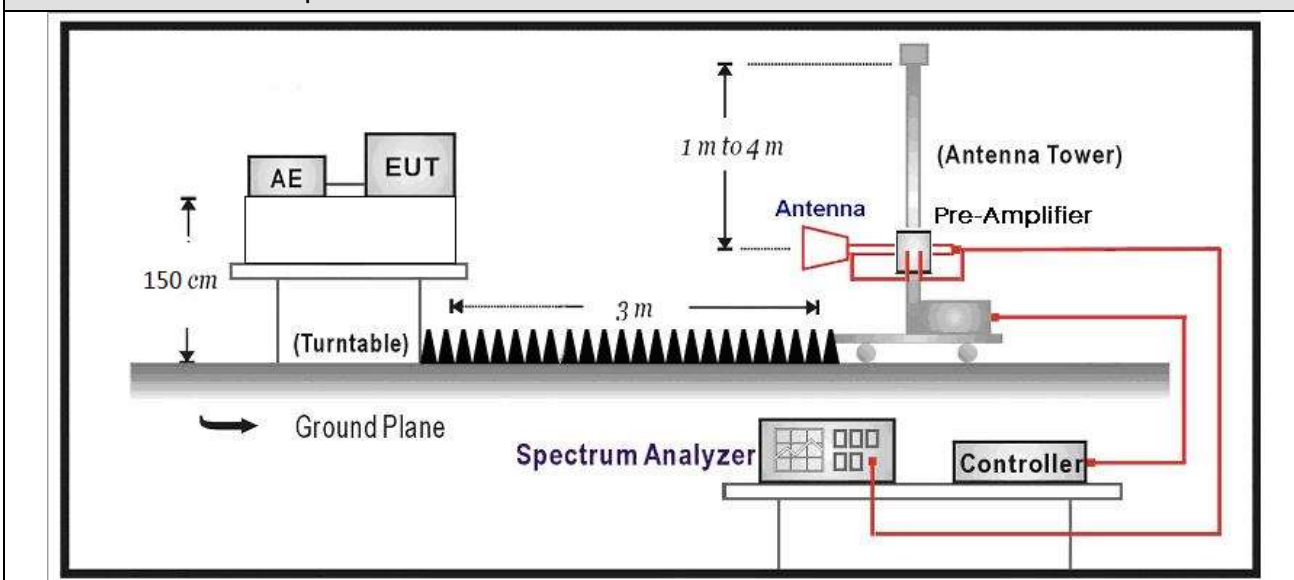
11. Radiated Emission Band Edge

11.1. Test Equipment

Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Receiver	Agilent	N9038A	MY51210196	2019.05.25	2020.05.24
Pre-Amplifier	Miteq	NSP1800-25	1364185	N/A	N/A
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2019.05.25	2020.05.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2019.04.18	2020.04.17
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	N/A	N/A
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2019.04.13	2020.04.12
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2019.09.02	2020.09.01

11.2. Test Setup

Above 1GHz Test Setup:



11.3. Limit

Band edge Limit				
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.

11.4. Test Procedure

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

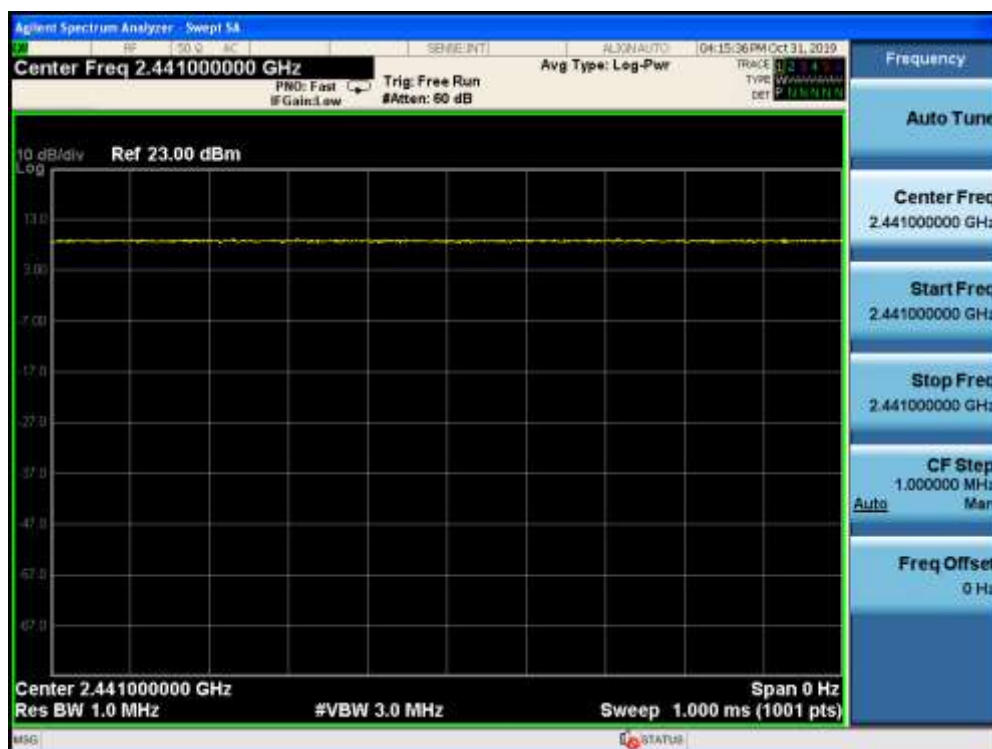
11.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB
below 1G is defined as ± 3.8 dB

11.6. Duty Cycle

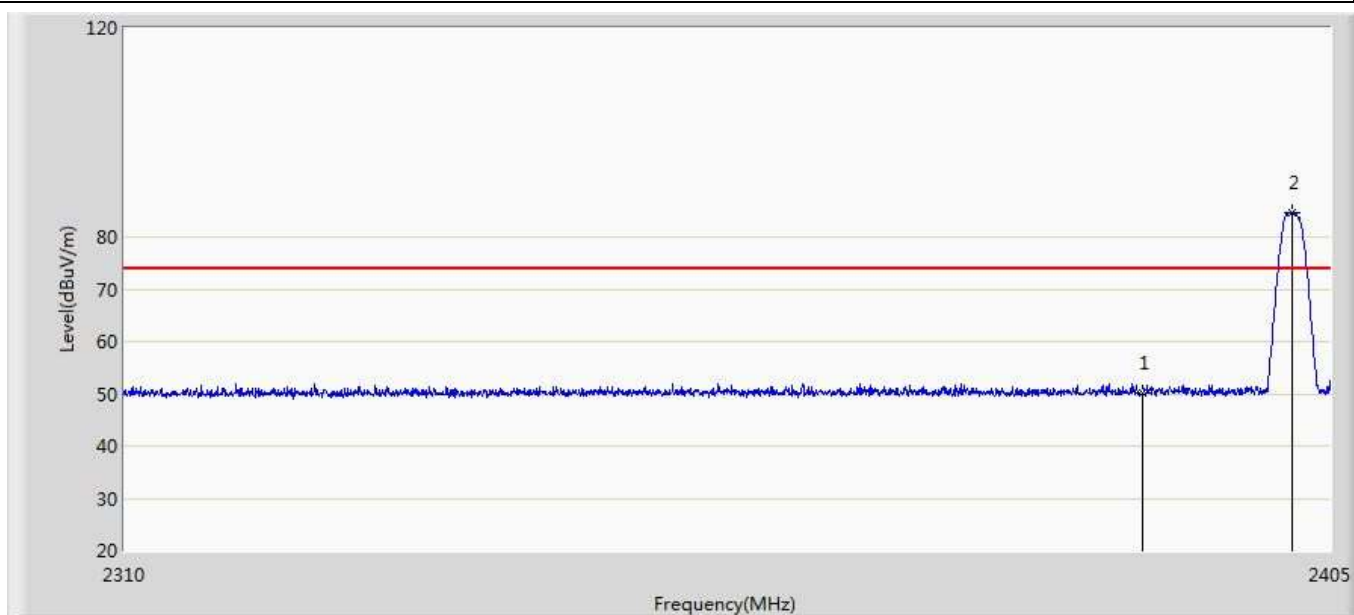
Test Mode	Tx On (ms)	Tx Off (ms)	Reduced VBW (Hz)	Tx On + Tx Off (ms)	Duty Cycle
DH5	N/A	N/A	10	N/A	100%
2-DH5	N/A	N/A	10	N/A	100%
3-DH5	N/A	N/A	10	N/A	100%

Worst Case: DH5 CH39(2441MHz)



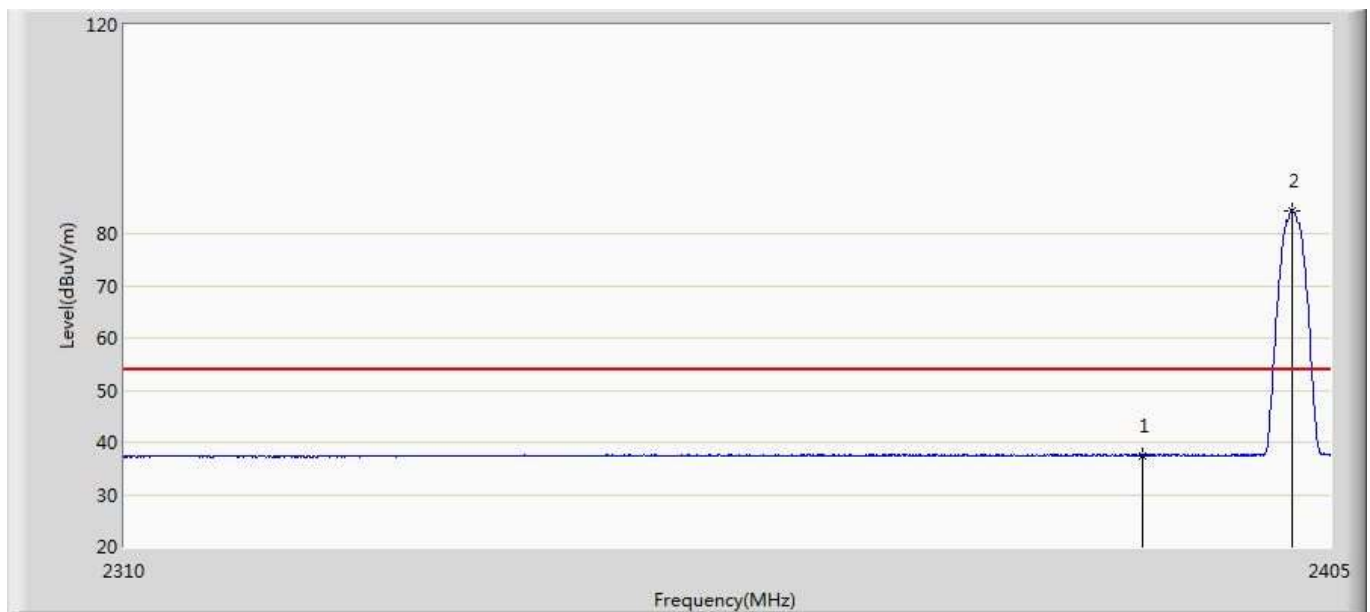
11.7. Test Result

Profile: 19A2086R	Page No.: 1
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 20:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 1:Transmit at 2402MHz by DH5	



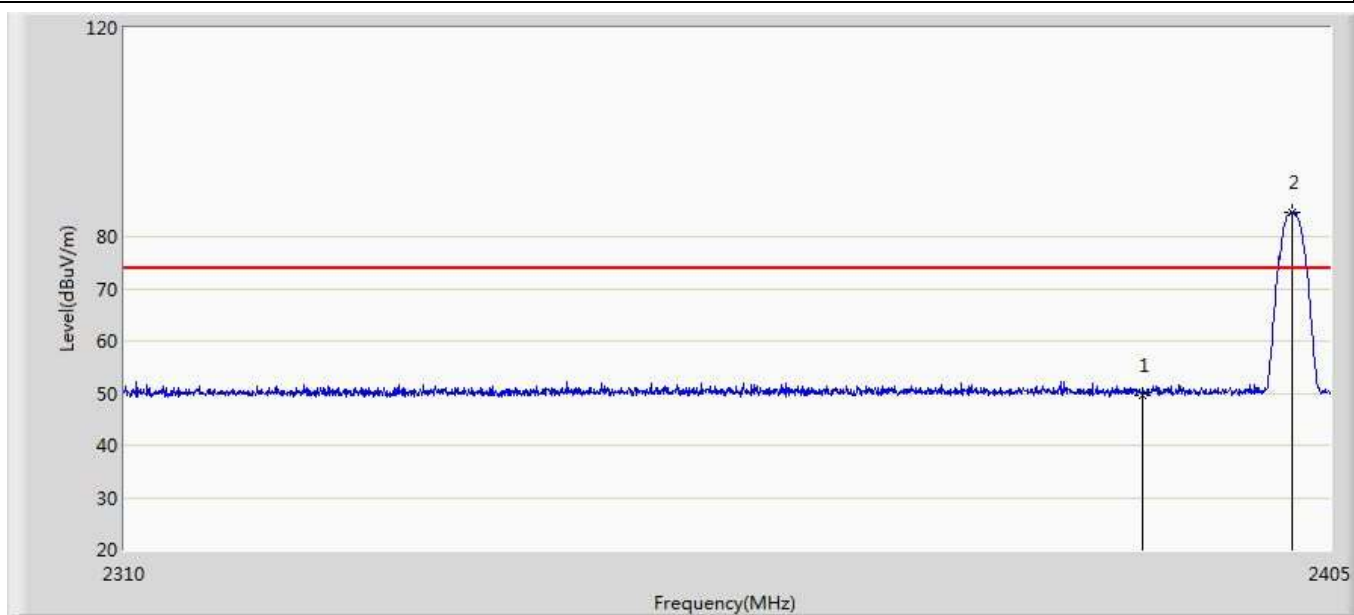
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.130	14.672	-23.870	74.000	35.458	PK
2	*	2401.913	84.714	49.245	N/A	N/A	35.469	PK

Profile: 19A2086R	Page No.: 2
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 20:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 1:Transmit at 2402MHz by DH5	



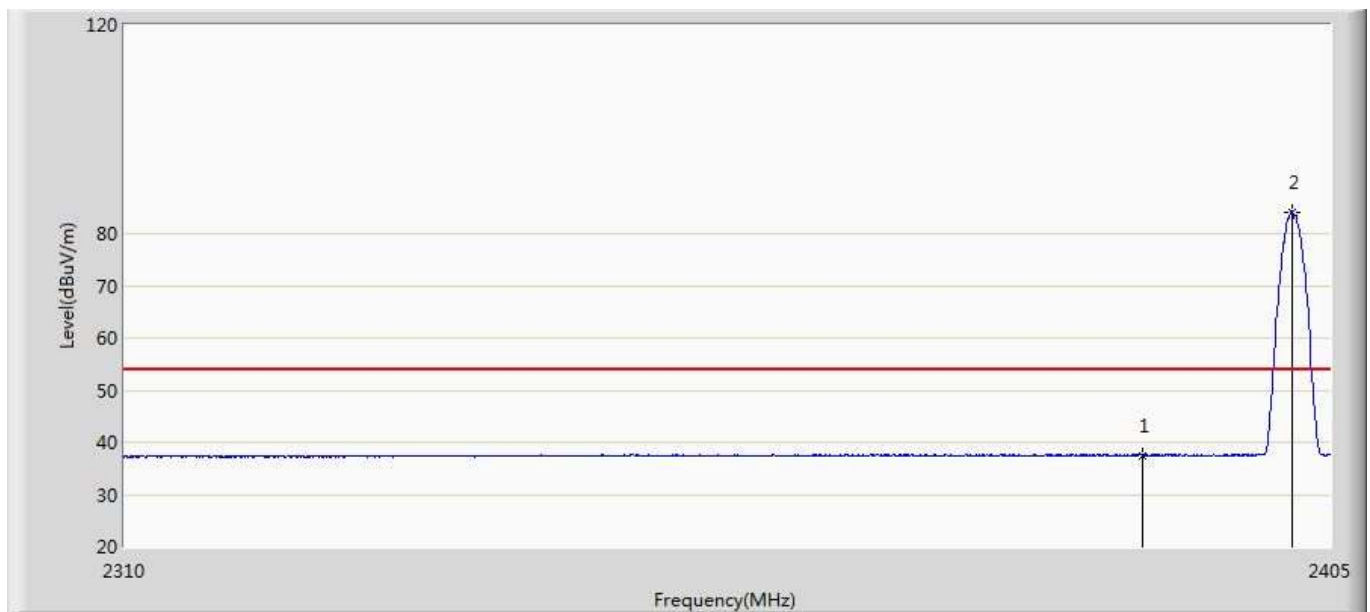
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.523	2.065	-16.477	54.000	35.458	AV
2	*	2401.913	84.436	48.967	N/A	N/A	35.469	AV

Profile: 19A2086R	Page No.: 3
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 20:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 1:Transmit at 2402MHz by DH5	



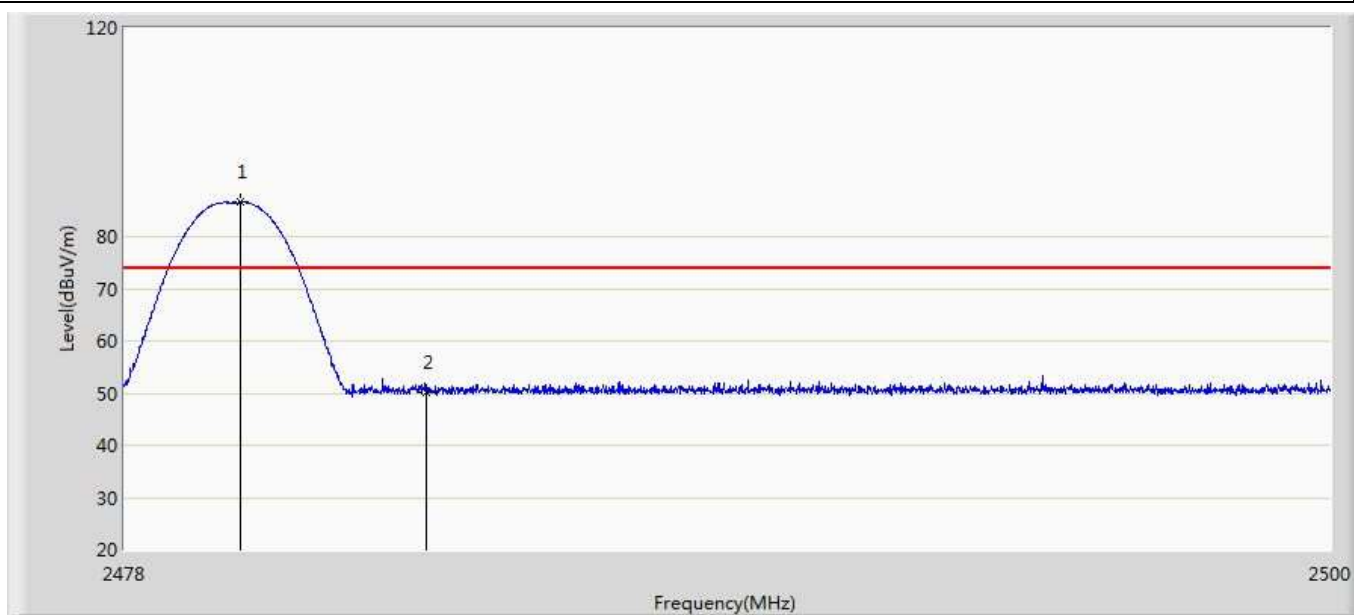
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	49.667	14.209	-24.333	74.000	35.458	PK
2	*	2401.913	84.509	49.040	N/A	N/A	35.469	PK

Profile: 19A2086R	Page No.: 4
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 20:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 1:Transmit at 2402MHz by DH5	



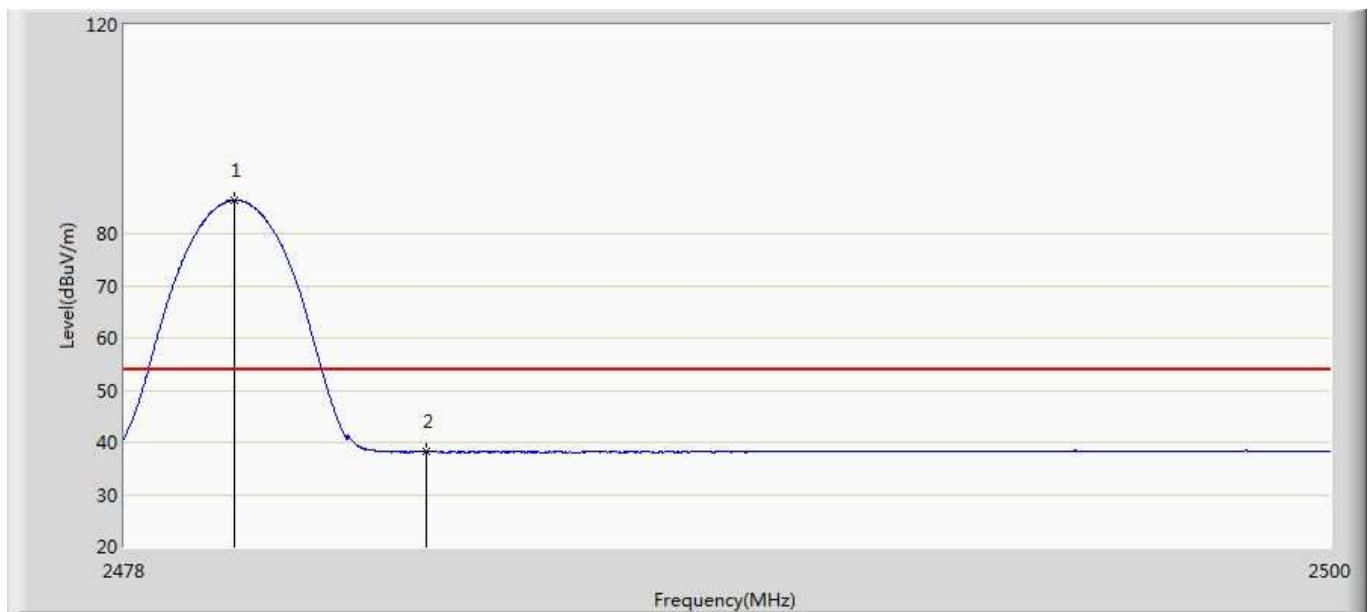
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.532	2.074	-16.468	54.000	35.458	AV
2	*	2401.913	84.120	48.651	N/A	N/A	35.469	AV

Profile: 19A2086R	Page No.: 5
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 20:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 1:Transmit at 2480MHz by DH5	



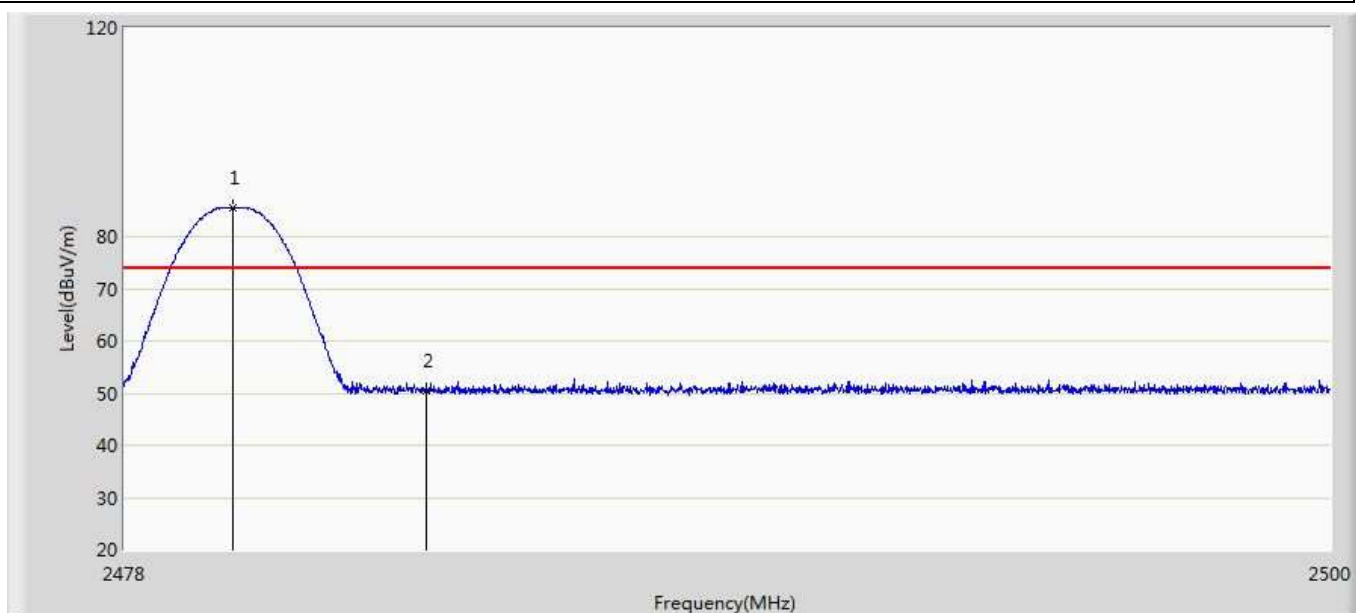
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.101	86.562	51.063	N/A	N/A	35.499	PK
2		2483.500	50.130	14.613	-23.870	74.000	35.517	PK

Profile: 19A2086R	Page No.: 6
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 20:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 1:Transmit at 2480MHz by DH5	



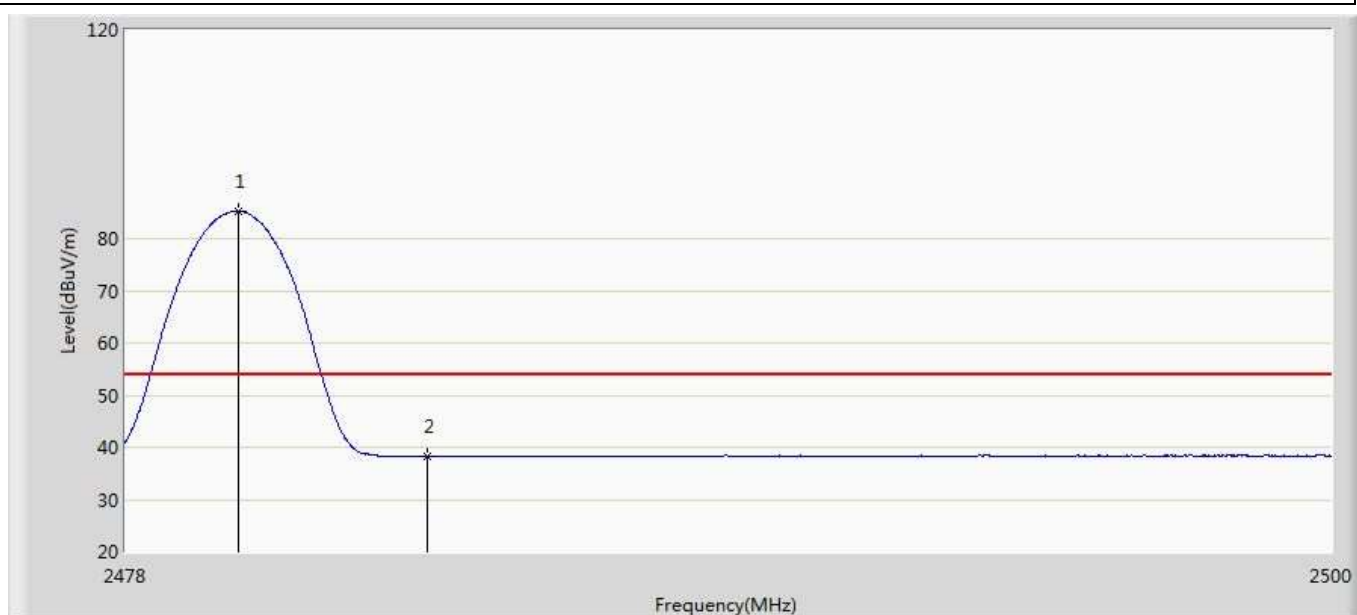
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.013	86.263	50.765	N/A	N/A	35.498	AV
2		2483.500	38.168	2.651	-15.832	54.000	35.517	AV

Profile: 19A2086R	Page No.: 7
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 20:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 1:Transmit at 2480MHz by DH5	



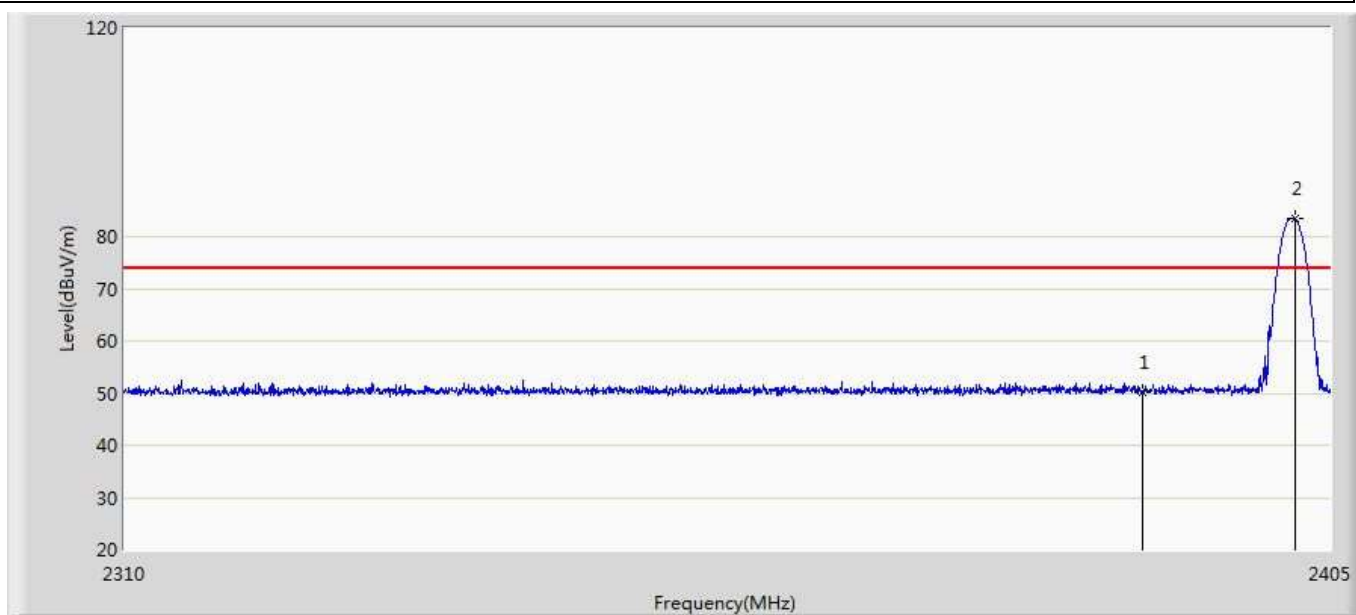
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.980	85.531	50.033	N/A	N/A	35.498	PK
2		2483.500	50.330	14.812	-23.670	74.000	35.517	PK

Profile: 19A2086R	Page No.: 8
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 20:55
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 1:Transmit at 2480MHz by DH5	



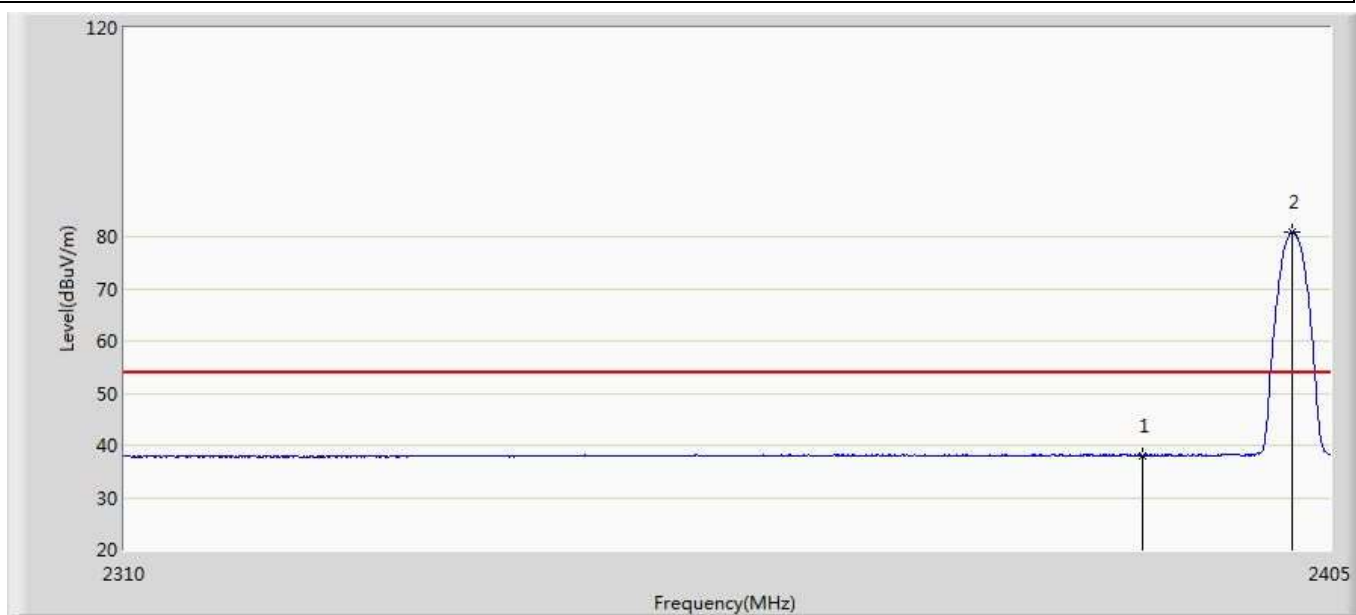
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.046	85.258	49.760	N/A	N/A	35.498	AV
2		2483.500	38.154	2.636	-15.846	54.000	35.517	AV

Profile: 19A2086R	Page No.: 9
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 21:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 2:Transmit at 2402MHz by 2DH5	



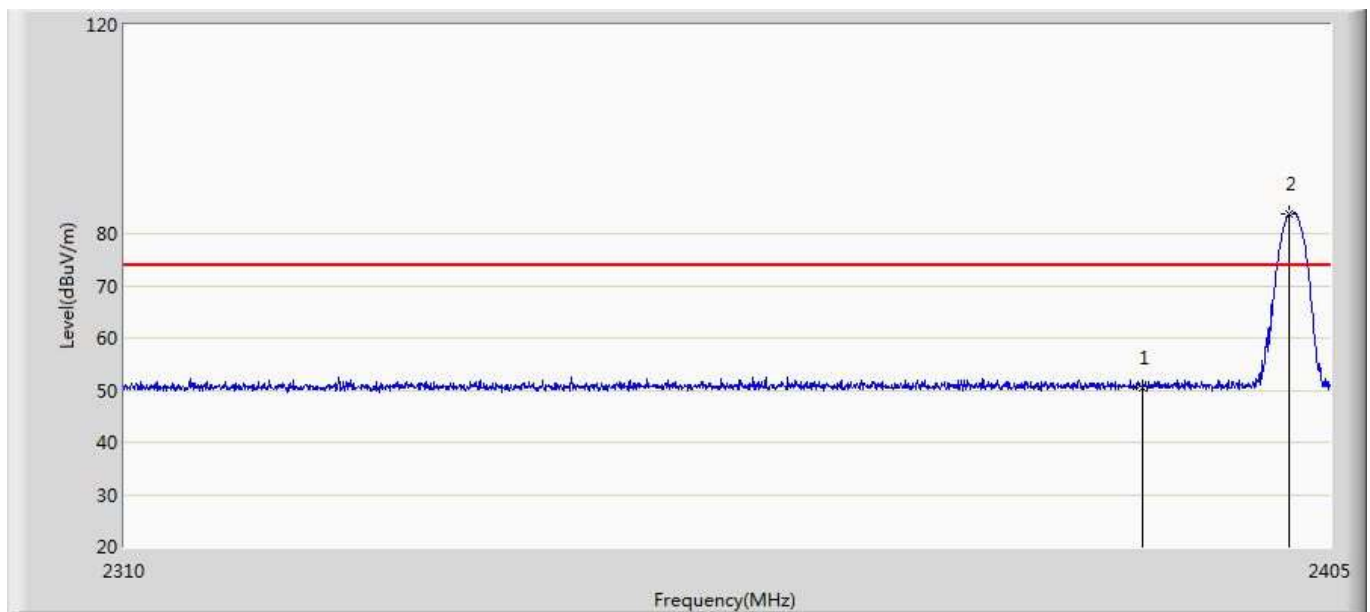
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.211	14.754	-23.789	74.000	35.458	PK
2	*	2402.150	83.510	48.040	N/A	N/A	35.469	PK

Profile: 19A2086R	Page No.: 10
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 21:11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 2:Transmit at 2402MHz by 2DH5	



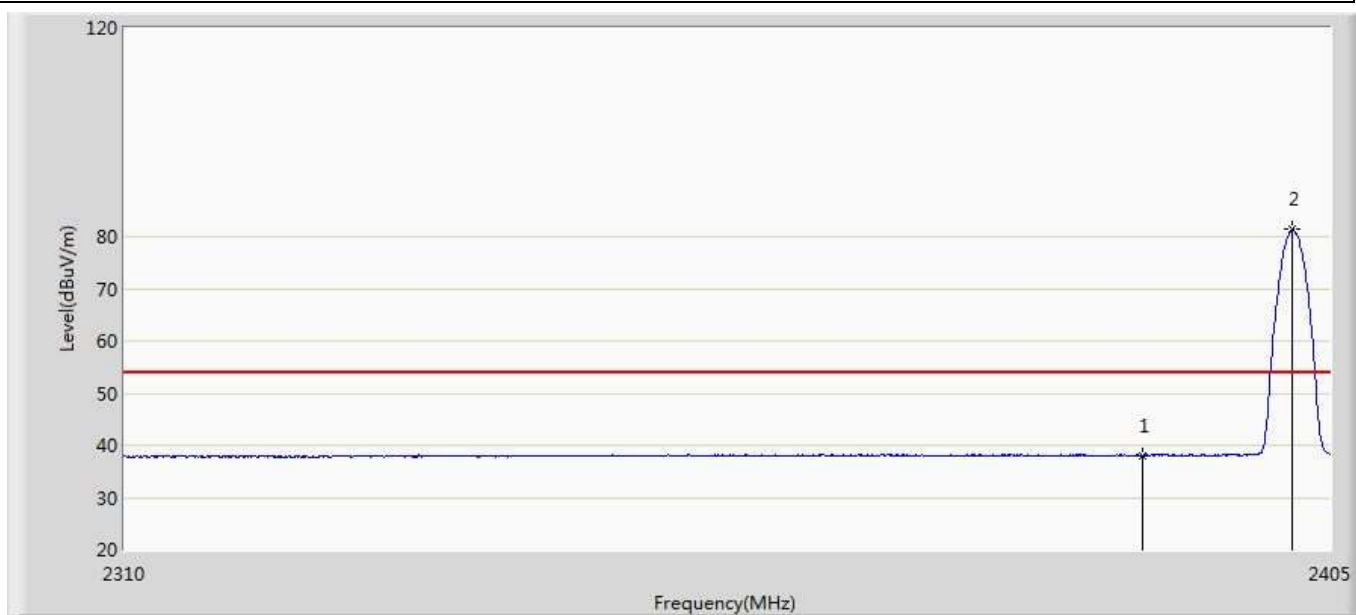
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	38.064	2.607	-15.936	54.000	35.458	AV
2	*	2401.913	80.839	45.370	N/A	N/A	35.469	AV

Profile: 19A2086R	Page No.: 11
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 21:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 2:Transmit at 2402MHz by 2DH5	



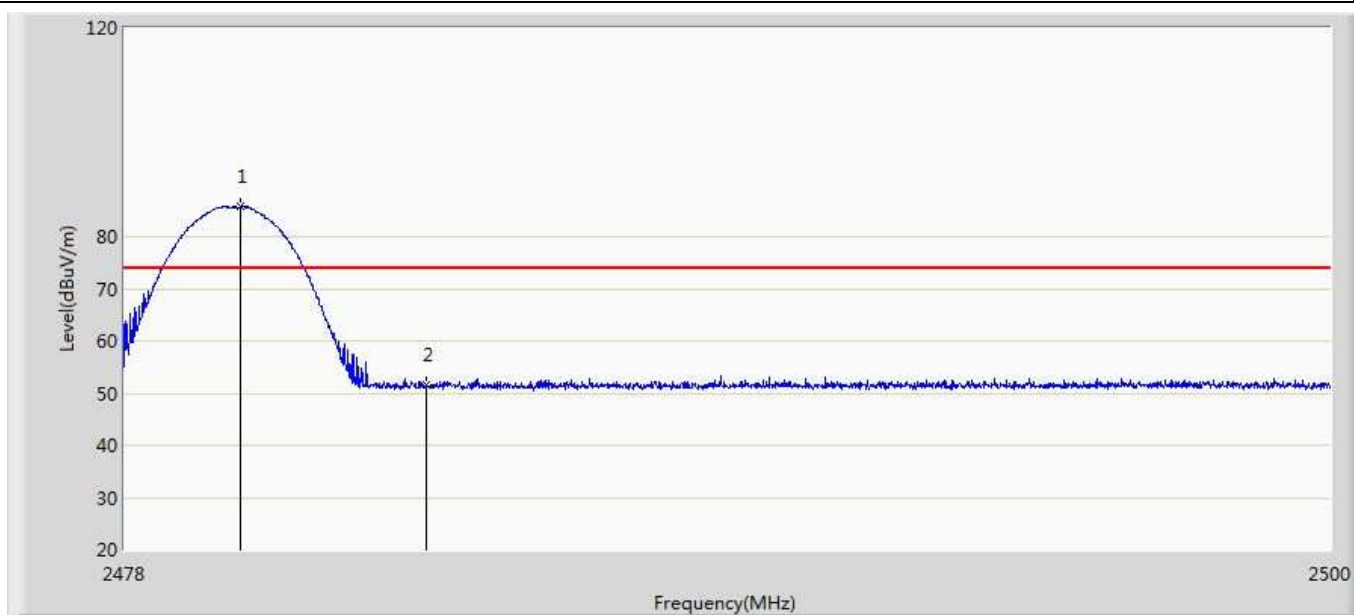
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.463	15.006	-23.537	74.000	35.458	PK
2	*	2401.770	83.851	48.382	N/A	N/A	35.469	PK

Profile: 19A2086R	Page No.: 12
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 21:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 2:Transmit at 2402MHz by 2DH5	



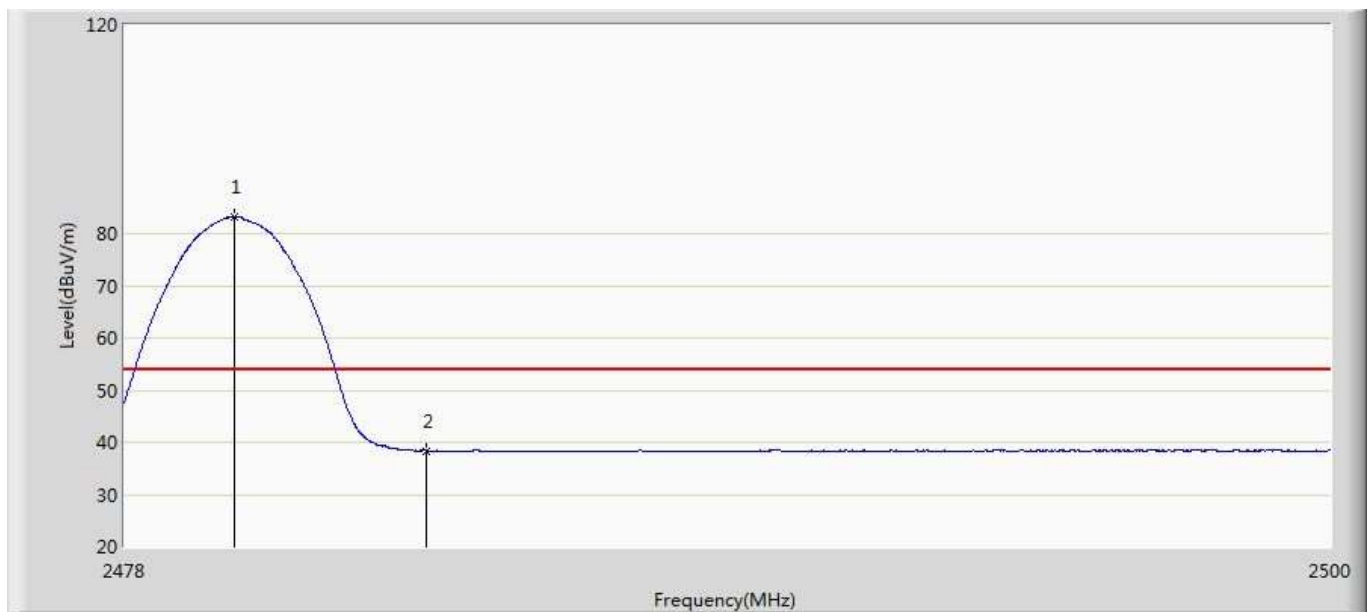
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	38.069	2.612	-15.931	54.000	35.458	AV
2	*	2401.960	81.343	45.874	N/A	N/A	35.469	AV

Profile: 19A2086R	Page No.: 13
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 21:20
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 2:Transmit at 2480MHz by 2DH5	



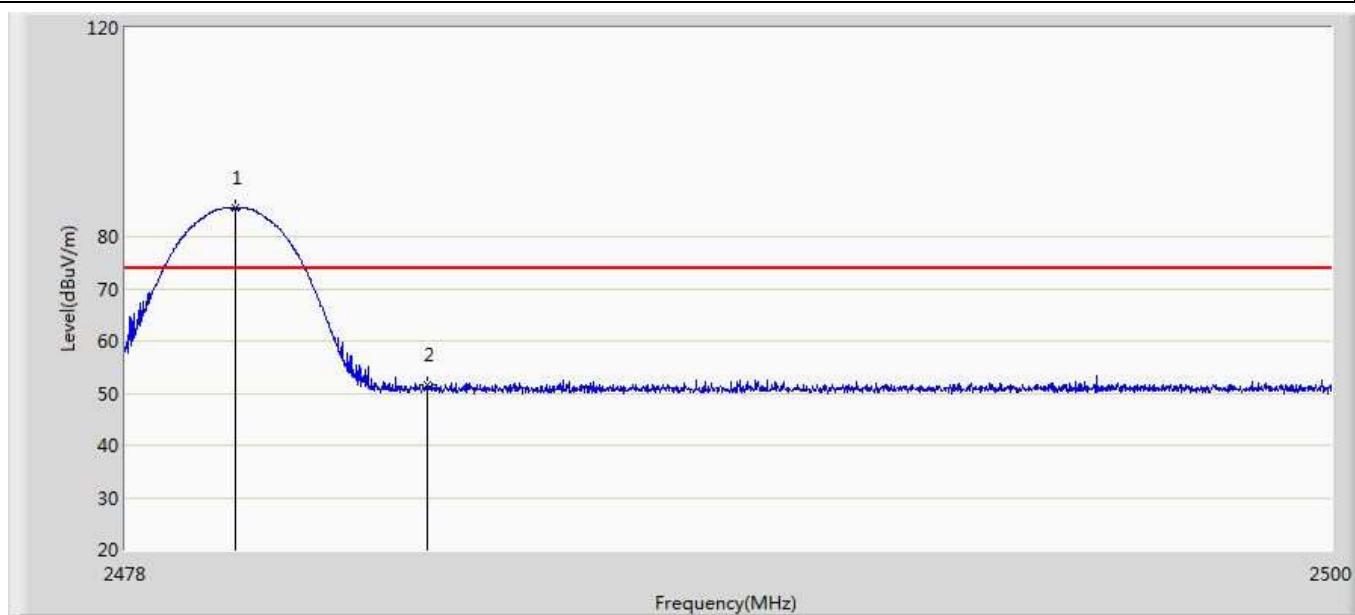
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.101	85.710	50.212	N/A	N/A	35.499	PK
2		2483.500	51.727	16.209	-22.273	74.000	35.517	PK

Profile: 19A2086R	Page No.: 14
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 21:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 2:Transmit at 2480MHz by 2DH5	



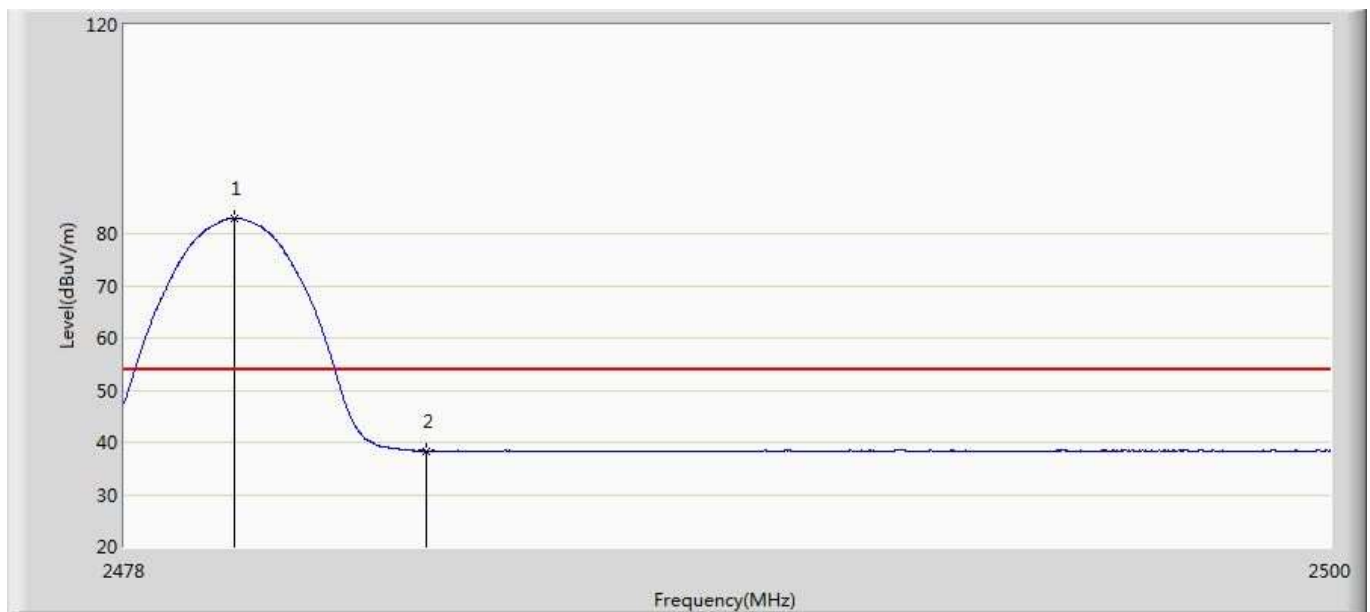
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.013	83.197	47.699	N/A	N/A	35.498	AV
2		2483.500	38.392	2.874	-15.608	54.000	35.517	AV

Profile: 19A2086R	Page No.: 15
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 21:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 2:Transmit at 2480MHz by 2DH5	



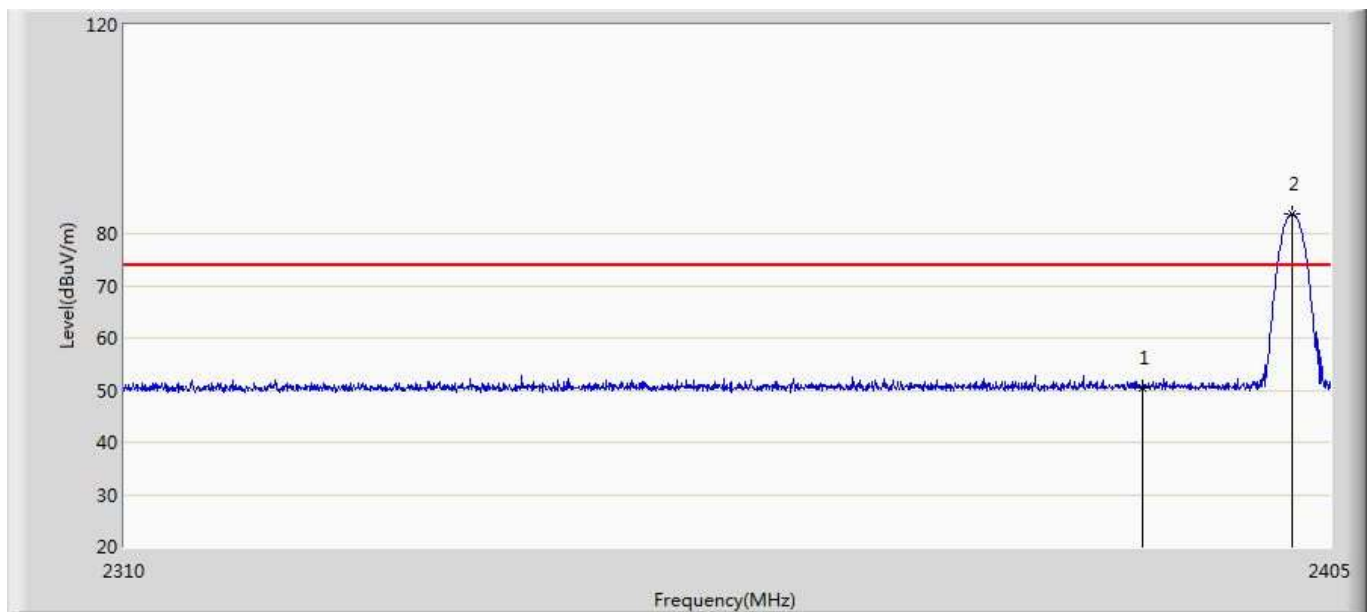
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.002	85.402	49.904	N/A	N/A	35.498	PK
2		2483.500	51.639	16.121	-22.361	74.000	35.517	PK

Profile: 19A2086R	Page No.: 16
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 21:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 2:Transmit at 2480MHz by 2DH5	



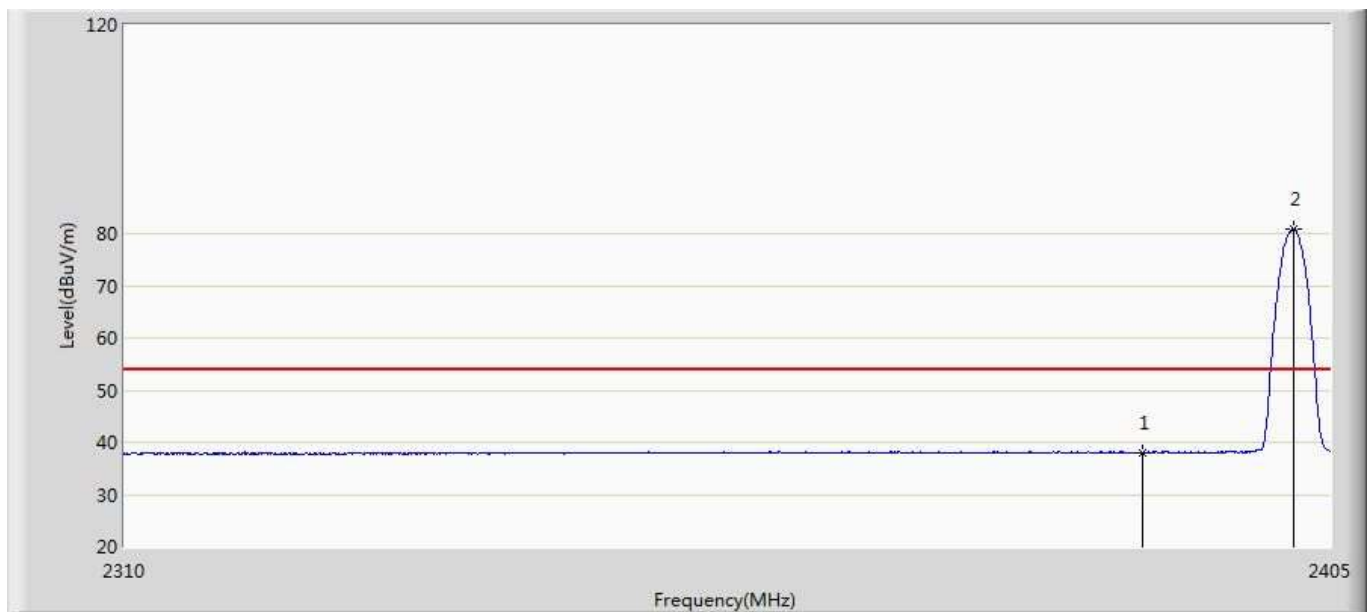
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.013	83.038	47.540	N/A	N/A	35.498	AV
2		2483.500	38.321	2.803	-15.679	54.000	35.517	AV

Profile: 19A2086R	Page No.: 17
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 21:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 3:Transmit at 2402MHz by 3DH5	



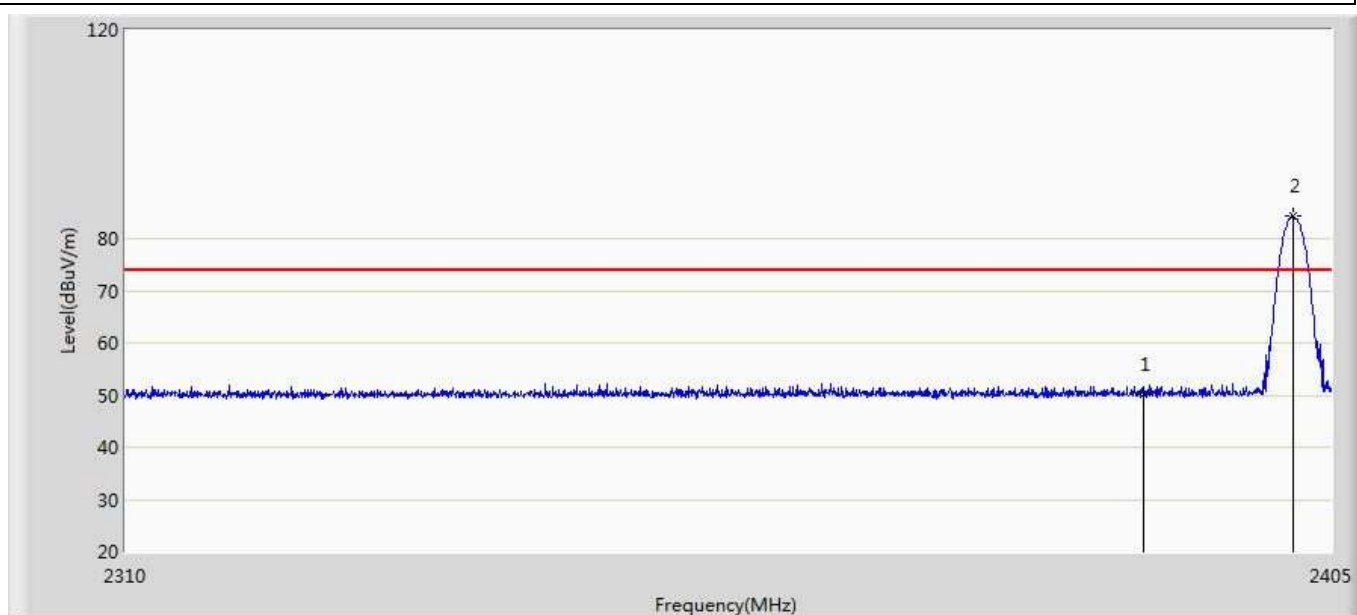
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.557	15.100	-23.443	74.000	35.458	PK
2	*	2401.960	83.883	48.414	N/A	N/A	35.469	PK

Profile: 19A2086R	Page No.: 18
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 21:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 3:Transmit at 2402MHz by 3DH5	



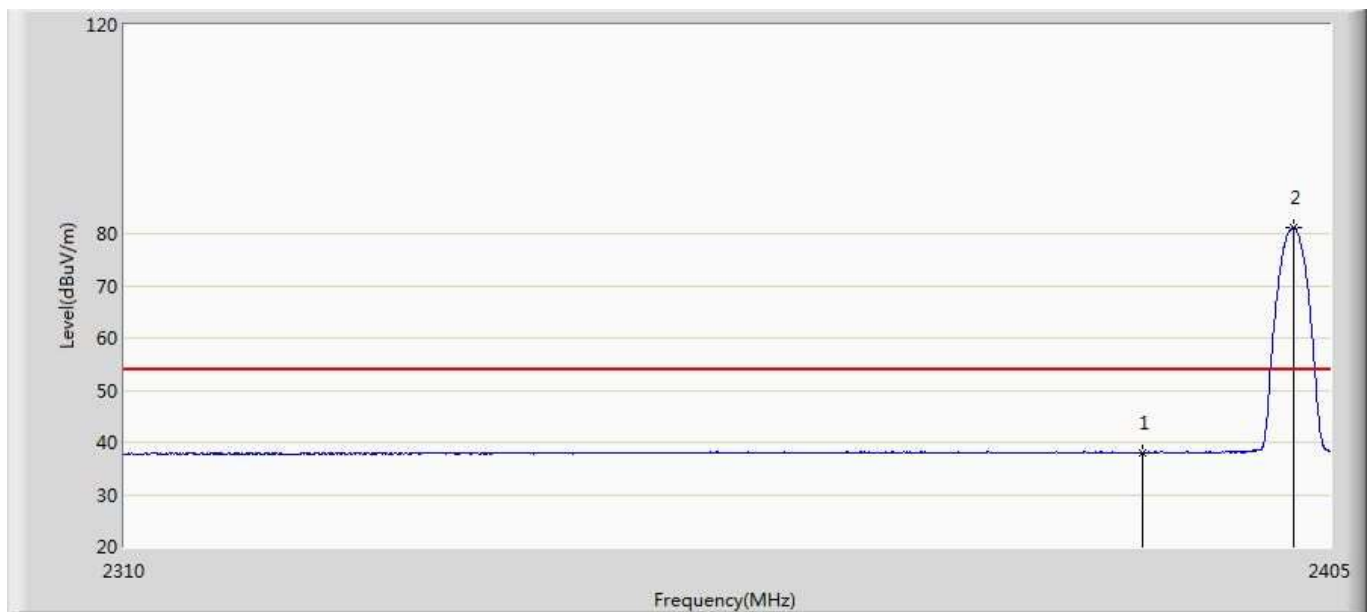
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	38.052	2.595	-15.948	54.000	35.458	AV
2	*	2402.055	80.798	45.328	N/A	N/A	35.469	AV

Profile: 19A2086R	Page No.: 19
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 21:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 3:Transmit at 2402MHz by 3DH5	



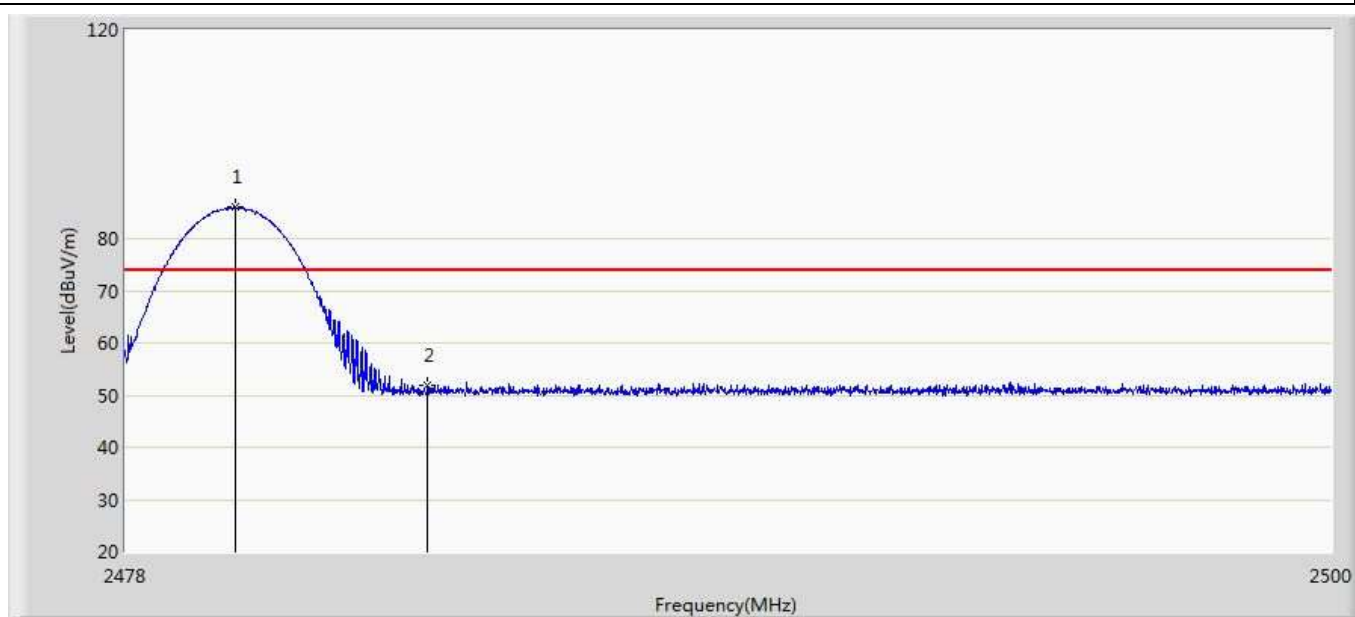
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.220	14.763	-23.780	74.000	35.458	PK
2	*	2401.913	84.312	48.843	N/A	N/A	35.469	PK

Profile: 19A2086R	Page No.: 20
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 21:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 3:Transmit at 2402MHz by 3DH5	



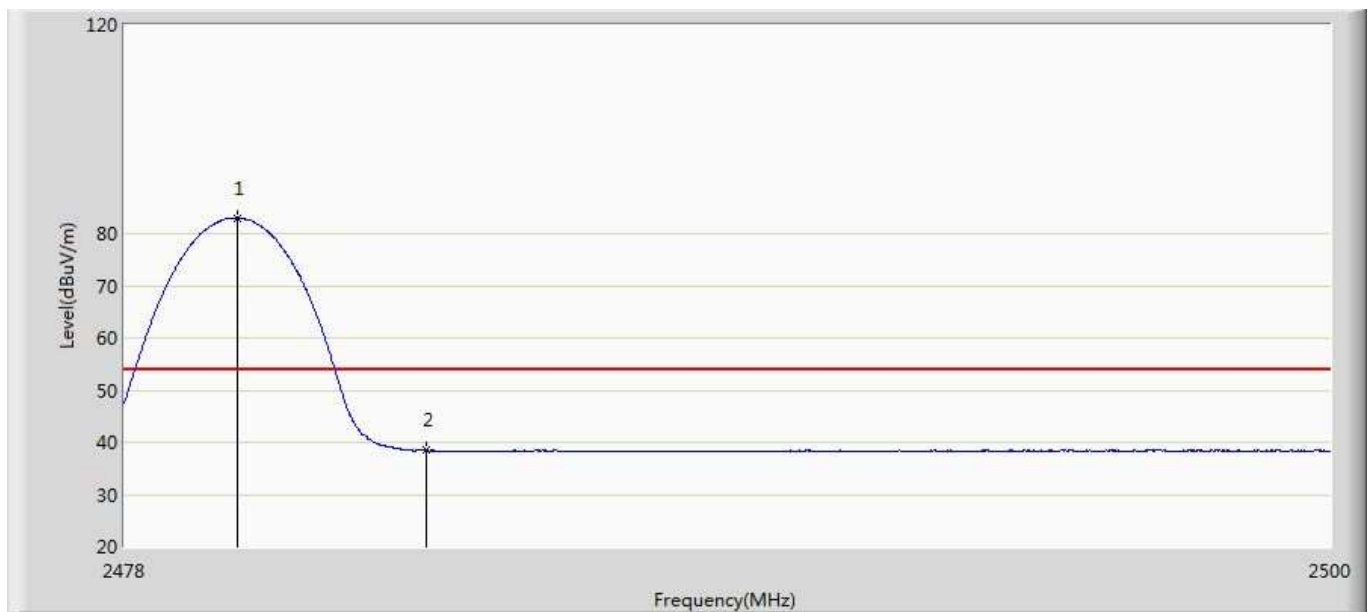
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	38.008	2.551	-15.992	54.000	35.458	AV
2	*	2402.055	81.134	45.664	N/A	N/A	35.469	AV

Profile: 19A2086R	Page No.: 21
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 21:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 3:Transmit at 2480MHz by 3DH5	



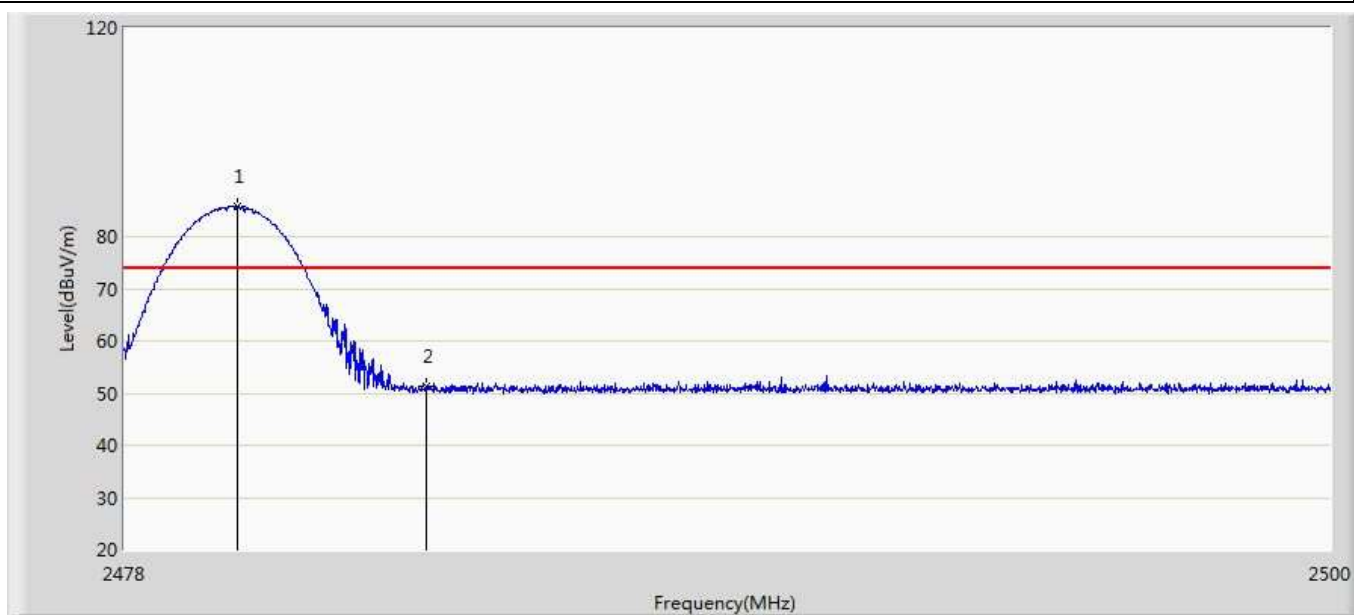
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.991	86.034	50.536	N/A	N/A	35.498	PK
2		2483.500	51.750	16.232	-22.250	74.000	35.517	PK

Profile: 19A2086R	Page No.: 22
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 21:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 3:Transmit at 2480MHz by 3DH5	



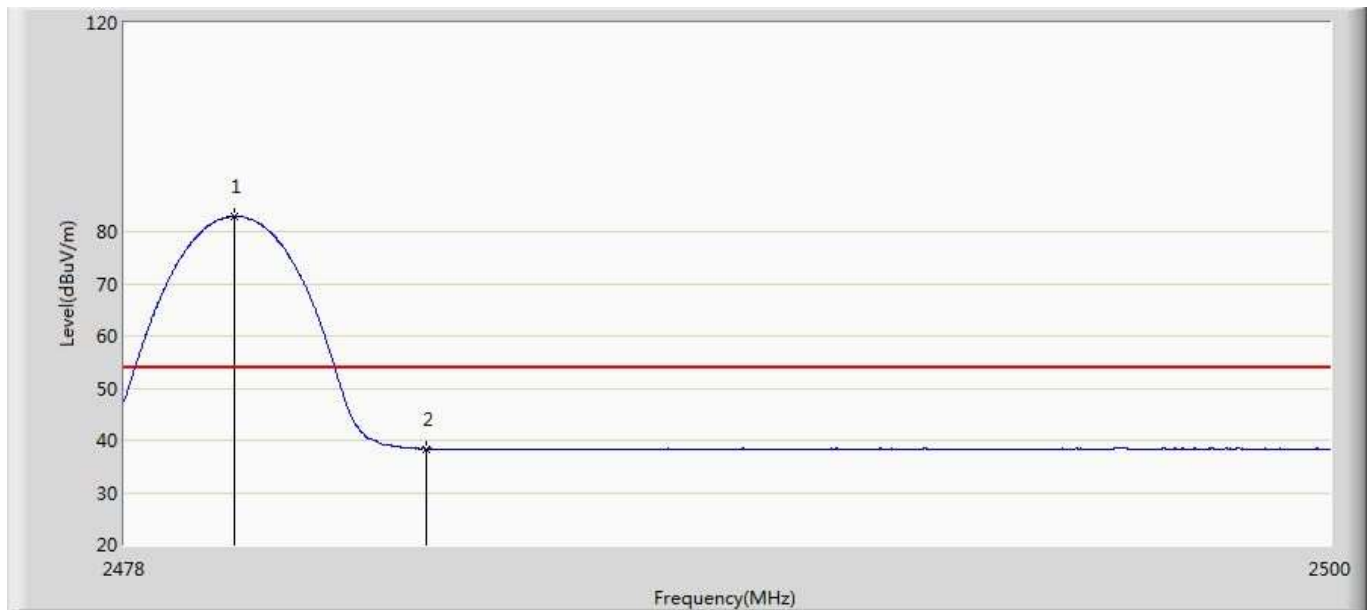
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.046	83.041	47.543	N/A	N/A	35.498	AV
2		2483.500	38.433	2.915	-15.567	54.000	35.517	AV

Profile: 19A2086R	Page No.: 23
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 22:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 3:Transmit at 2480MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.057	85.730	50.232	N/A	N/A	35.499	PK
2		2483.500	51.178	15.660	-22.822	74.000	35.517	PK

Profile: 19A2086R	Page No.: 24
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 22:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT Module	Power: DC 3.3V
Note: Mode 3:Transmit at 2480MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.013	82.994	47.496	N/A	N/A	35.498	AV
2		2483.500	38.316	2.798	-15.684	54.000	35.517	AV

12. Antenna Requirement

12.1. Limit

Antenna Requirement Limit	
<p>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.</p>	

12.2. Antenna Connector Construction

Antenna Connector Construction	
<input checked="" type="checkbox"/>	The use of a permanently attached antenna
<input type="checkbox"/>	The antenna use of a unique coupling to the intentional radiator
<input type="checkbox"/>	The use of a nonstandard antenna jack or electrical connector
Please refer to the attached document "Internal Photograph" to show the antenna connector.	

_____ The End _____