

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-P06V02
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-P06V02



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
ANSI C63.10:2013;
KDB 558074 D01v05
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 :



(Engineer Supervisor: Jack Zhang)

TABLE OF CONTENTS

Description	Page
1. General Information	6
1.1. EUT Description	6
1.2. Working Frequency of Each Channel:	6
1.3. Antenna information	7
1.4. Mode of Operation	8
1.5. Tested System Details	8
1.6. Configuration of Tested System	9
1.7. EUT Exercise Software	10
2. Technical Test	11
2.1. Summary of Test Result	11
2.2. Test Frequency configuration:	13
2.3. Test Environment	14
2.4. Measurement Uncertainty	14
3. AC Power Line Conducted Emission	15
3.1. Test Equipment	15
3.2. Test Setup	15
3.3. Limit	16
3.4. Test Procedure	16
3.5. Test Result	17
4. Emissions in restricted frequency bands	19
4.1. Test Equipment	19
4.2. Test Setup	20
4.3. Limit	21
4.4. Test Procedure	24
4.5. EUT test Axis definition	25
4.6. Test Result	26
5. Emissions in non-restricted frequency bands	40
5.1. Test Equipment	40
5.2. Test Setup	40
5.3. Limit	41
5.4. Test Procedure	42
5.5. EUT test Axis definition	43
5.6. Test Result	44
6. Radiated Emission Band Edge	47
6.1. Test Equipment	47
6.2. Test Setup	48
6.3. Limit	48

6.4. Test Procedure	49
6.5. EUT test definition	50
6.6. Duty Cycle	51
6.7. Test Result	53
7. Occupied Bandwidth	69
7.1. Test Equipment	69
7.2. Test Setup	69
7.3. Limit	70
7.4. Test Procedure	70
7.5. EUT test definition	71
7.6. Test Result	72
8. Fundamental emission output power	78
8.1. Test Equipment	78
8.2. Test Setup	78
8.3. Limit	79
8.4. Test Procedure	80
8.5. EUT test definition	81
8.6. Test Result	82
9. Power Spectral Density	86
9.1. Test Equipment	86
9.2. Test Setup	86
9.3. Limit	86
9.4. Test Procedure	87
9.5. EUT test definition	88
9.6. Test Result	89
10. Antenna Requirement	93
10.1. Limit	93
10.2. Antenna Connector Construction	93

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
19A2086R-RF-US-P06V02	V1.0	Initial Issued Report	Nov. 19, 2019
19A2086R-RF-US-P06V02	V2.0	Page 1&2 : Modify FCC ID and IC ID	Nov. 29, 2019
19A2086R-RF-US-P06V02	V2.1	Page 69 : 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	V5.0
Frequency Range	2402- 2480 MHz
Channel Number	V5.0: 40
Channel Separation	V5.0: 2MHz
Type of Modulation	V5.0: GFSK
Data Rate	LE 1M: 1Mbps, LE 2M:2Mbps
Antenna Type	Reference to Antenna List
Peak Antenna Gain	Reference to Antenna List

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 Fundamental emission output power; the test data of worse case is showed in other test items.

1.2. Working Frequency of Each Channel:

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

1.3. Antenna information

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

1.4. Mode of Operation

Test Mode
Mode 1: Transmit-1Mbps(GFSK_LE 1M)
Mode 2: Transmit-2Mbps(GFSK_LE 2M)

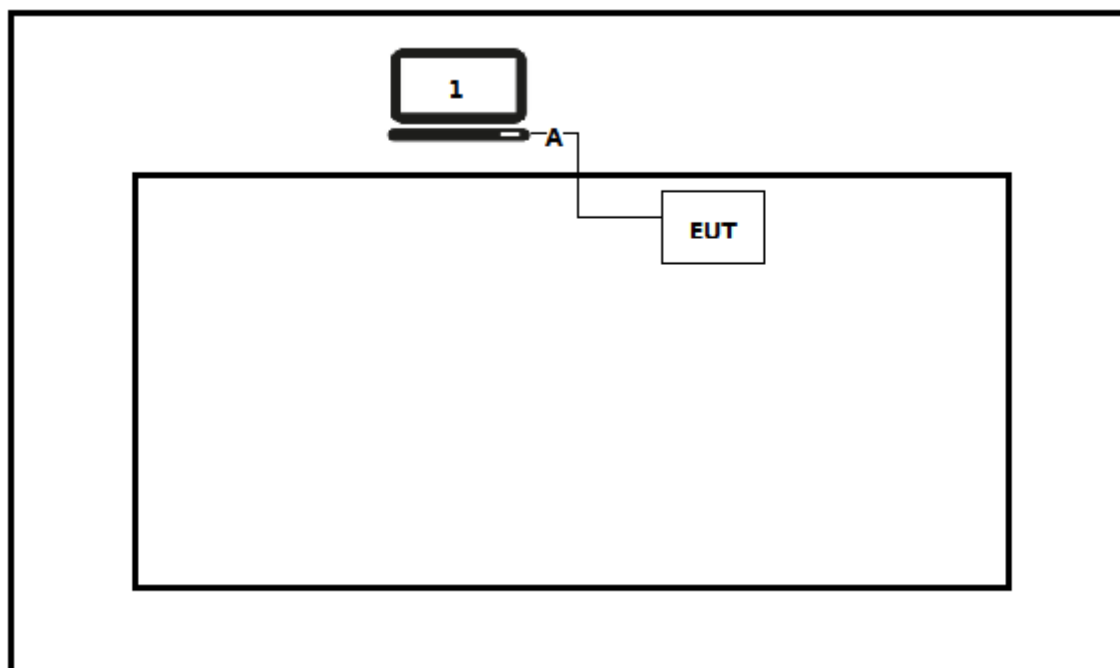
1.5. Tested System Details

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

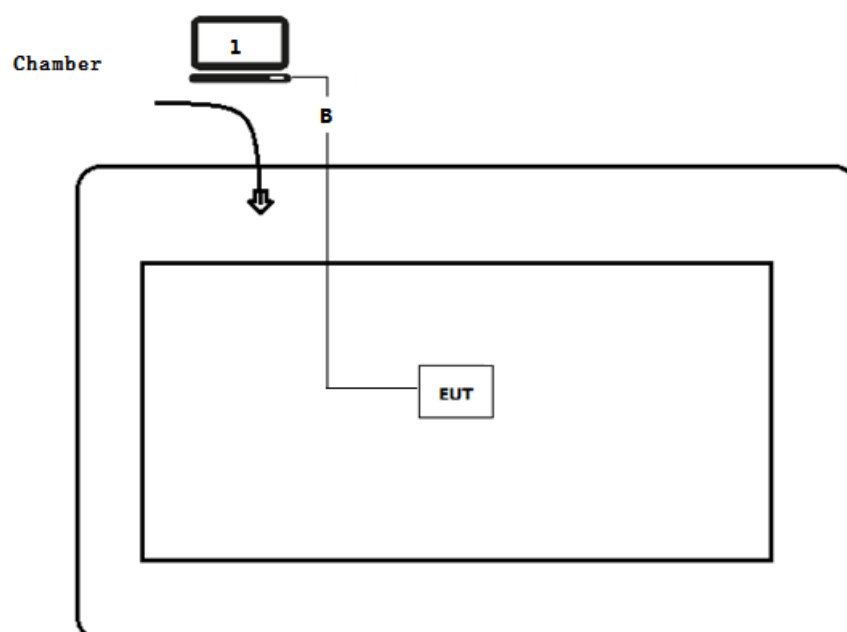
No.	Product	Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	Think Pad	2526	LV-A3285	Power by adapter
A	USB cable	N/A	N/A	N/A	Shielded,0.5m
B	USB cable	N/A	N/A	N/A	Shielded,10m

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

For FCC

Performed Test Item	Normative References	Limit	Result
AC Power Line Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.207	FCC 15.207	PASS
Emissions in restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.209	FCC 15.209	PASS
Emissions in non-restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(d)	$\geq 20\text{dBc}$	PASS
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2015 15.247(d)	FCC 15.209	PASS
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(2)	$\geq 500\text{kHz}$	PASS
Fundamental emission output power	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(b)(3)	$\leq 30\text{dBm}$	PASS
Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(e)	$\leq 8\text{dBm}/3\text{kHz}$	PASS
Antenna Requirement	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.203	FCC 15.203	PASS

For ISED

Performed Test Item	Normative References	Limit	Result
AC Power Line Conducted Emission	RSS-Gen Issue 5 Section 8.8	RSS-Gen	PASS
Emissions in restricted frequency bands	RSS-Gen Issue 5 Section 8.9	RSS-Gen	PASS
Emissions in non-restricted frequency bands	RSS-247 Issue 2 Section A5.5	$\geq 20\text{dBc}$	PASS
Radiated Emission Band Edge	RSS-247 Issue 2 Section A5.5	RSS-247	PASS
Occupied Bandwidth	RSS-Gen Issue 5 Section 6.6 RSS-247 Issue 2 Section A5.2(1)	$\geq 500\text{kHz}$	PASS
Fundamental emission output power	RSS-247 Issue 2 Section A5.4(4)	$\leq 30\text{dBm}$	PASS
Power Spectral Density	RSS-247 Issue 2 Section A5.2(2)	$\leq 8\text{dBm}/3\text{kHz}$	PASS
Antenna Requirement	RSS-Gen Issue 5 Section 8.3	RSS-Gen Issue 5	PASS

2.2. Test Frequency configuration:

Modulation Mode	Channel	Frequency	Channel	Frequency	Channel	Frequency
LE 1M/LE 2M	00	2402 MHz	19	2440 MHz	39	2480MHz

2.3. 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

2.4. Measurement Uncertainty

Test Items	Uncertainty
AC Power Line Conducted Emission	±2.02dB
Radiated Emission	Below 1GHz ±3.8 dB
	Above 1GHz ±3.9 dB
RF Antenna Port Conducted Emission	±1.27dB
Radiated Emission Band Edge	±3.9dB
Occupied Bandwidth	±1kHz
Power Spectral Density	±1.27dB

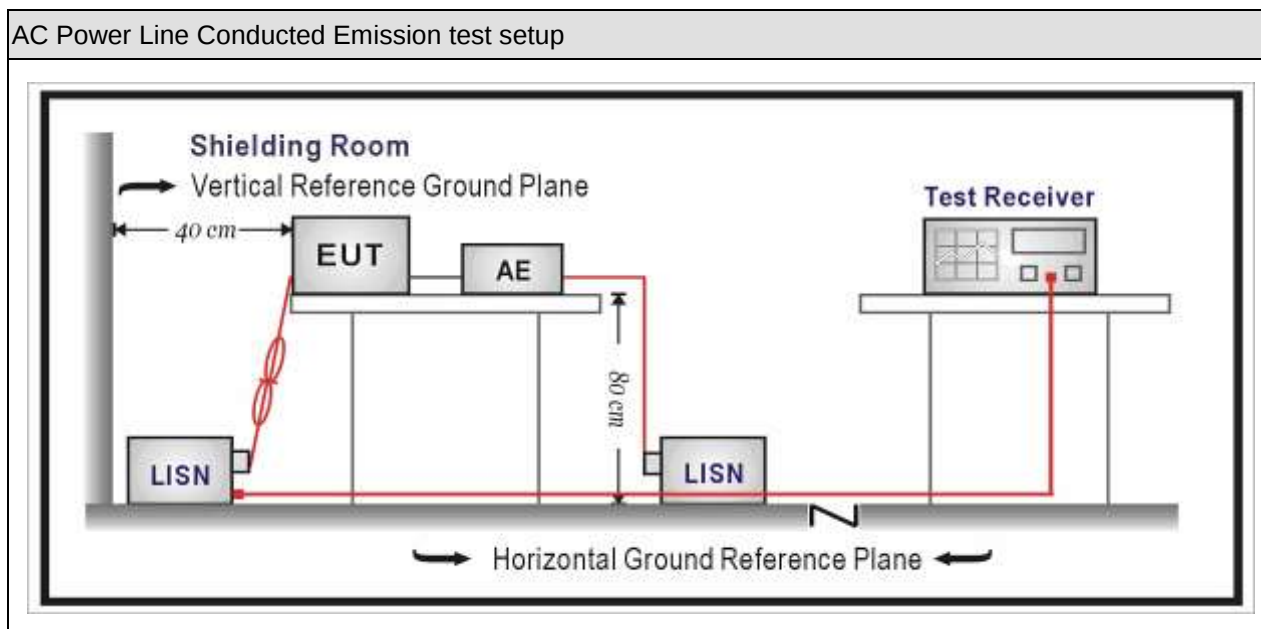
3. AC Power Line Conducted Emission

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

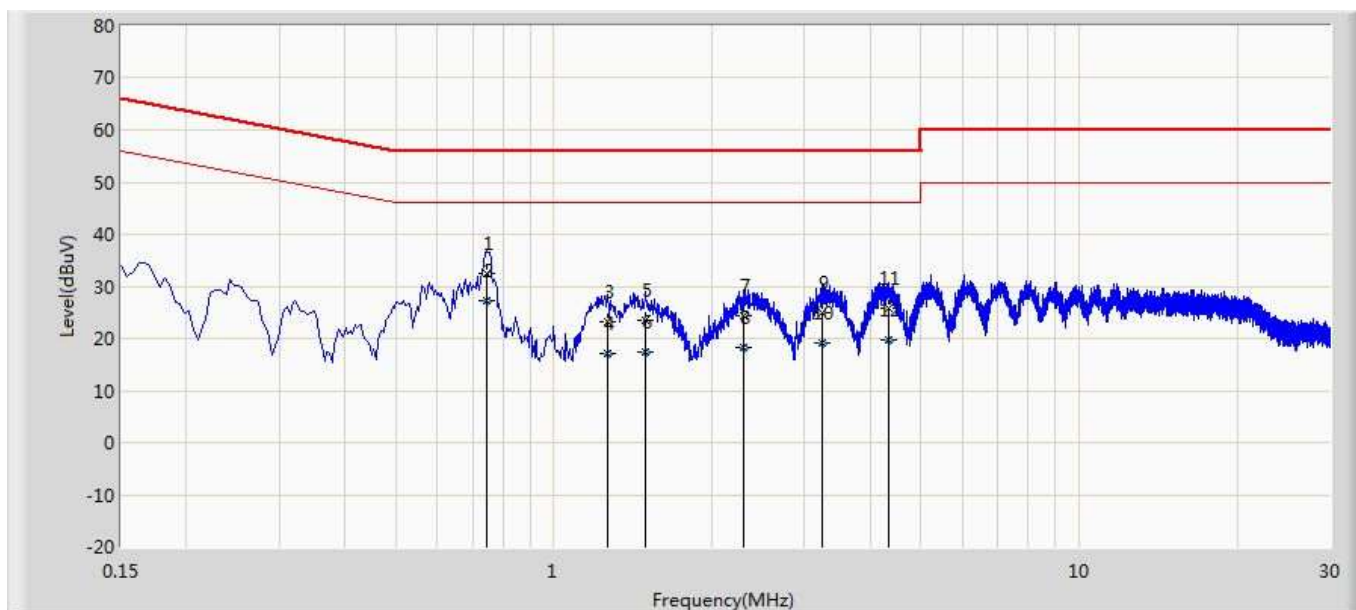
Frequency of Emission (MHz)	Conducted Limit	
	Quasi-peak (dB μ V)	Average(dB μ V)
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50
Note 1: The lower limit shall apply at the transition frequencies.		
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5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

3.4. Test Procedure

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

3.5. 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	

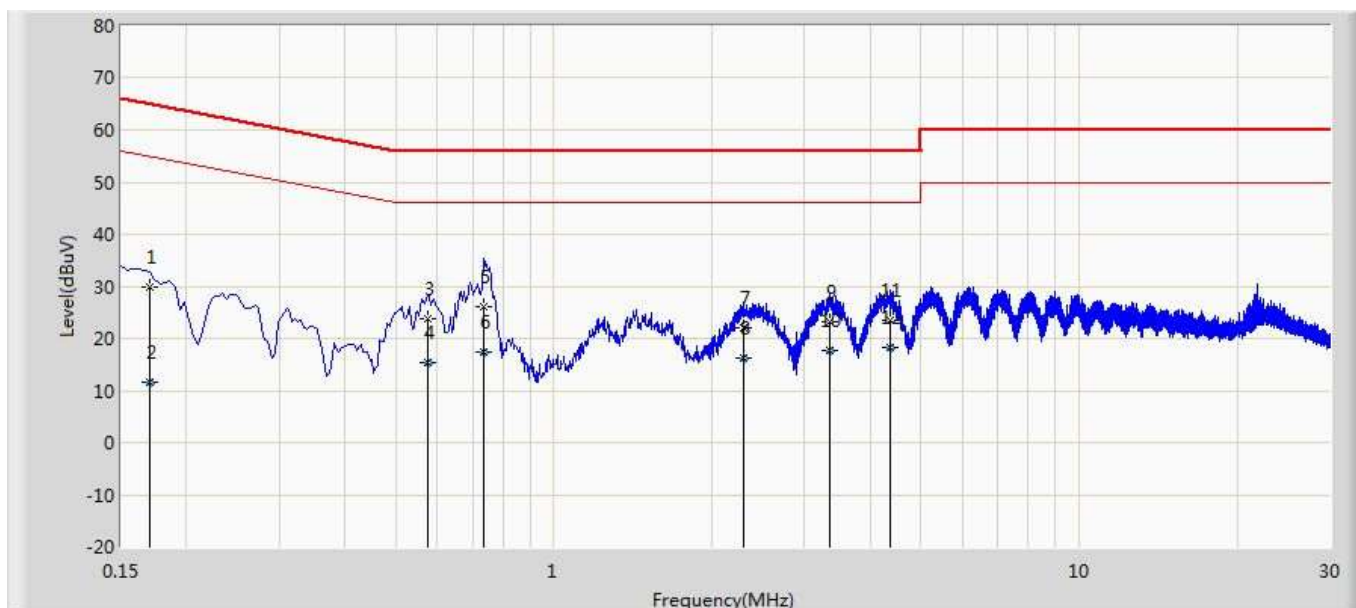


No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.746	32.598	22.686	-23.402	56.000	9.861	0.051	0.000	QP
2	*	0.746	27.151	17.239	-18.849	46.000	9.861	0.051	0.000	AV
3		1.262	23.204	13.365	-32.796	56.000	9.773	0.067	0.000	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

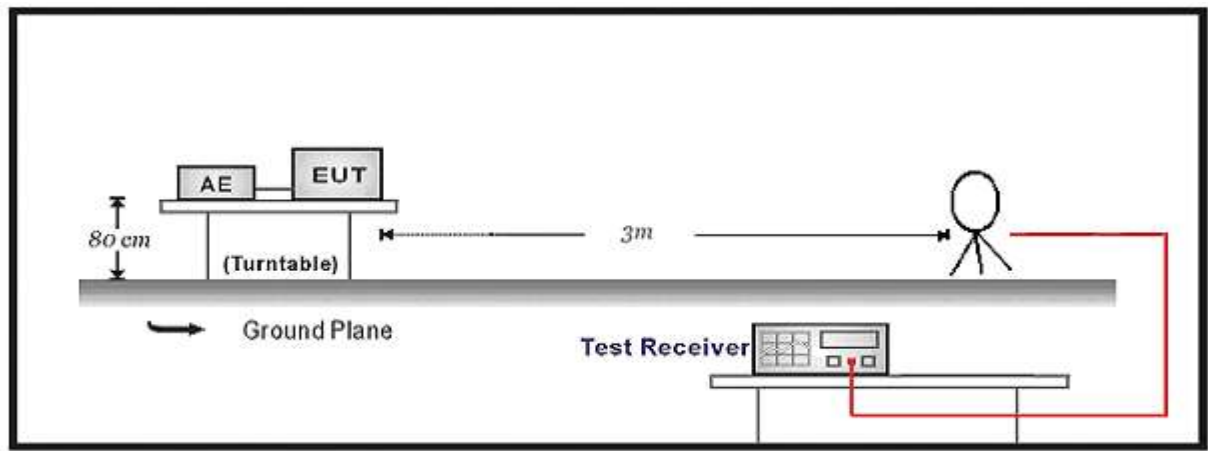
4.1. Test Equipment

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.					

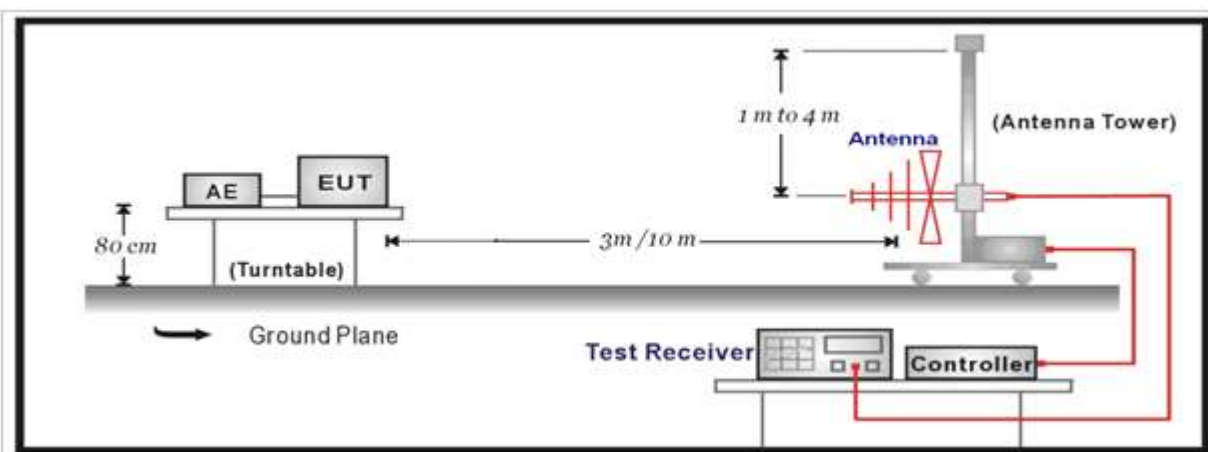
Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2020.05.07	2020.05.07
Preamplifier	Miteq	NSP1800-25	1364185	N/A	N/A
Preamplifier	Dekra	AP-040G	CHM-0906001	N/A	N/A
DRG Horn	ETS-Lindgren	3117	00123988	2020.09.24	2020.09.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2020.04.17	2020.04.17
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	N/A	N/A
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2020.04.12	2020.04.12
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	N/A	N/A
EMI Receiver	Agilent	N9038A	MY51210196	2020.05.24	2020.05.24
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2020.09.01	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

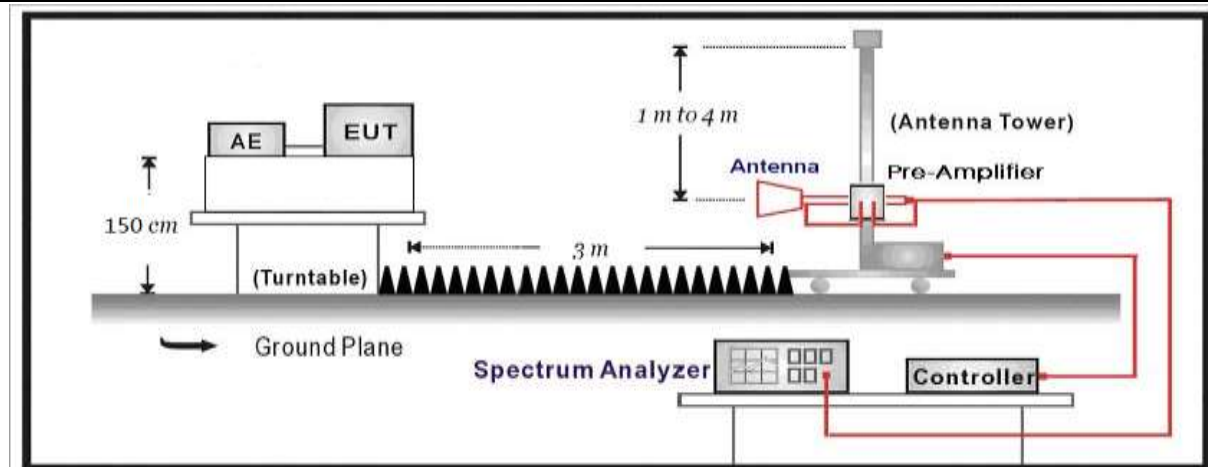
Below 30MHz Test Setup:



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

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)

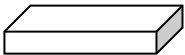
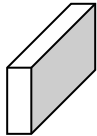
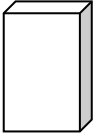
Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed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

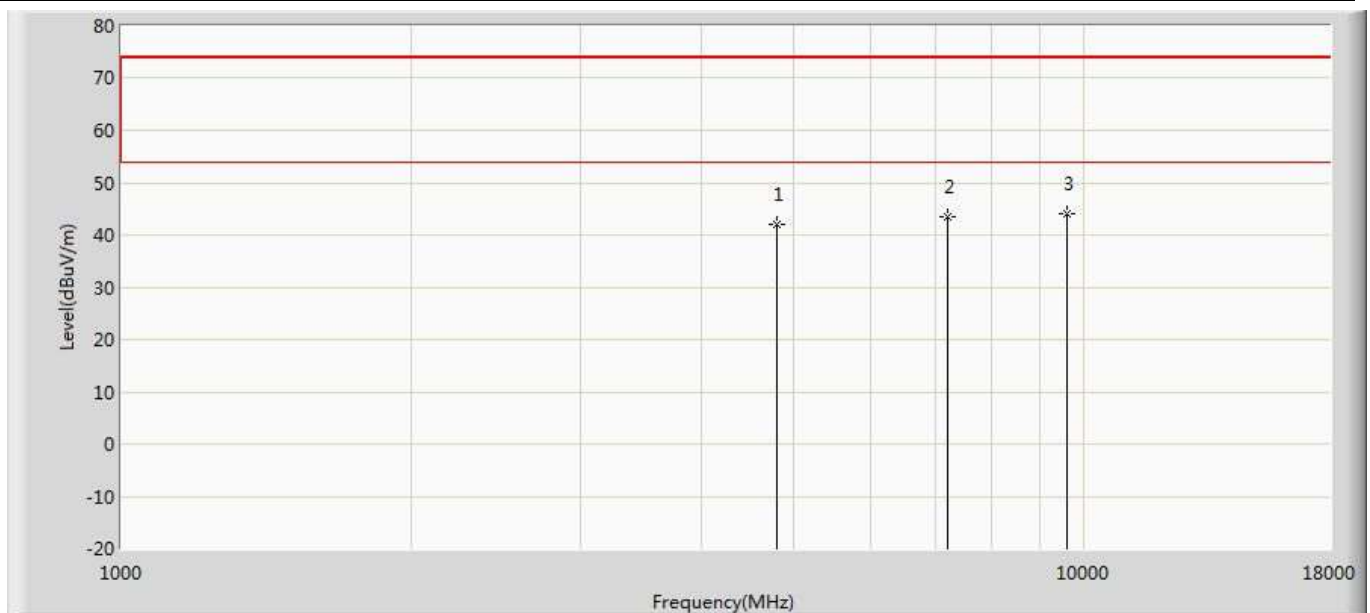
Test Method				
	References Rule		Chapter	Description
☐	ANSI C63.10		11.11	Emissions in non-restricted frequency bands
	☐	ANSI C63.10	11.11.2	Reference level measurement
	☐	ANSI C63.10	11.11.3	Emission level measurement
☒	ANSI C63.10		11.12	Emissions in restricted frequency bands
	☒	ANSI C63.10	11.12.1	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
	☐	ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure
		ANSI C63.10	11.12.2.4	Peak power measurement procedure
		ANSI C63.10	11.12.2.5	Average power measurement procedures
	☐	ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission at full power
		ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
		ANSI C63.10	11.12.2.5.3	Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold

4.5. EUT test Axis definition

Item	Emissions in restricted frequency bands			
Device Category	☐	Fixed point-to-point		
	☐	Emit multiple directional beams, simultaneously or sequentially		
	☒	Other cases		
Test mode	Mode 1~2			
Test method	☒	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☒	Worst Axis ☐	Worst Axis ☐
	☐	Conducted		
	☐	Chain 1		
				
	☐	Chain 1	Chain 2	
				
	☐	Chain 1	Chain 2	Chain 3
				

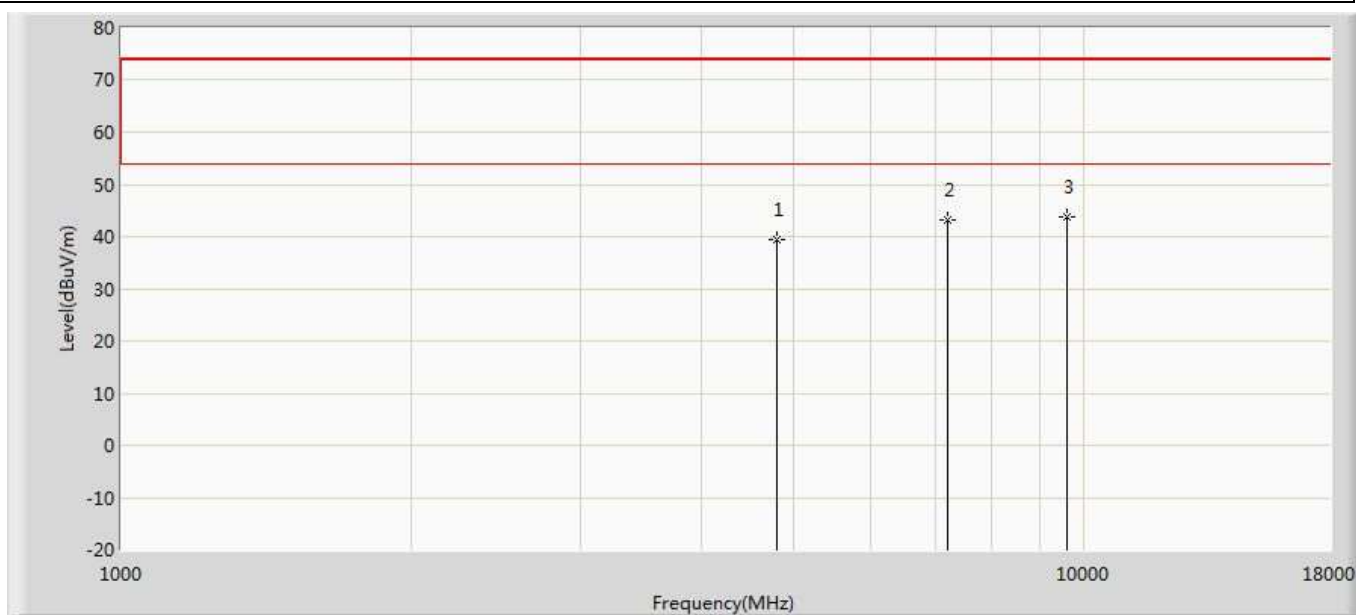
4.6. Test Result

Profile: 19A2086R	Page No.: 29
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:12
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 LE_1Mbps	



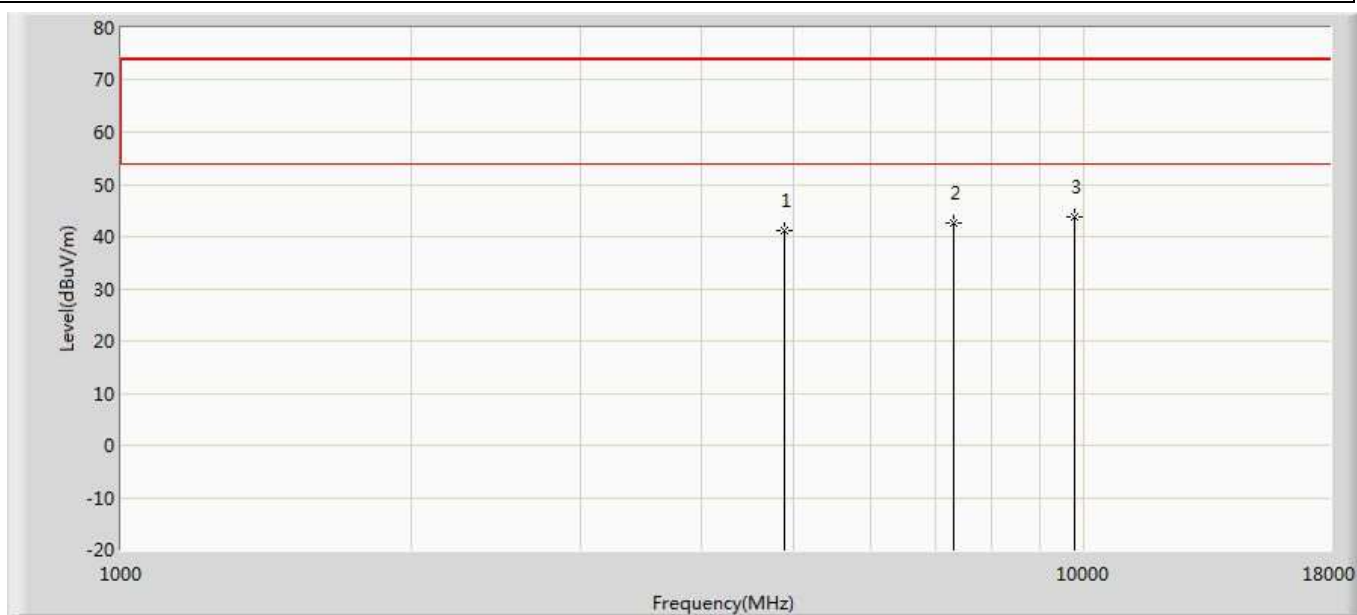
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.958	37.327	-32.042	74.000	4.631	PK
2		7206.000	43.609	35.585	-30.391	74.000	8.024	PK
3	*	9608.000	43.970	34.653	-30.030	74.000	9.318	PK

Profile: 19A2086R	Page No.: 30
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:12
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 LE_1Mbps	



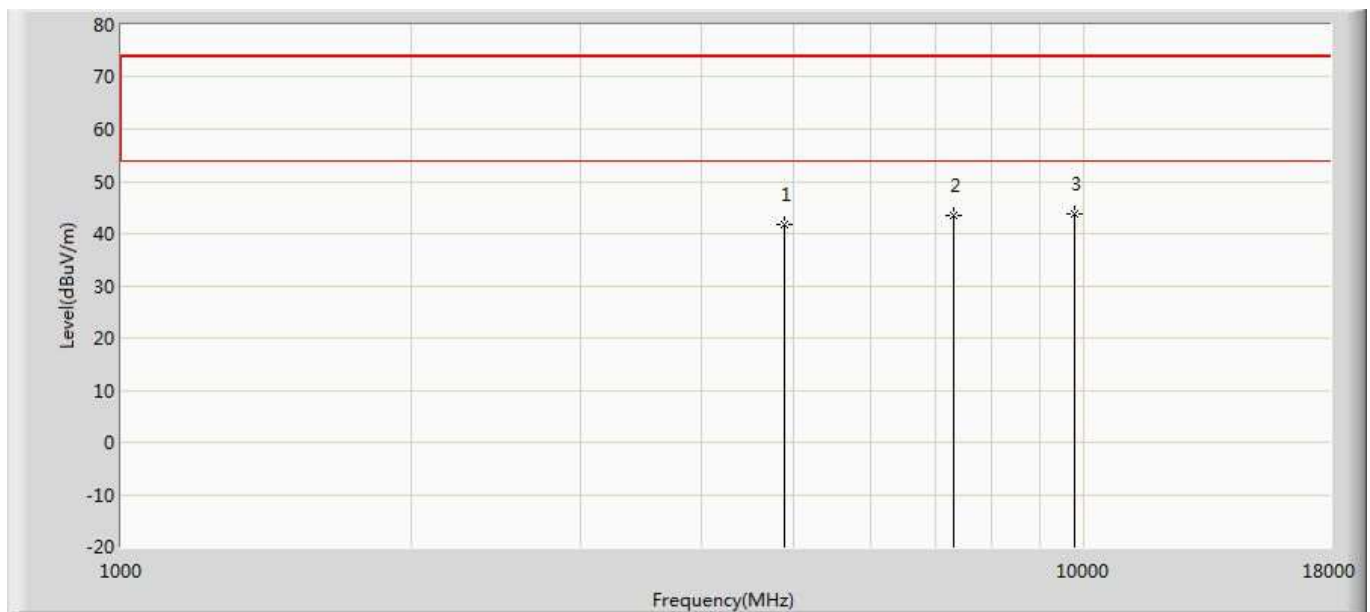
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	39.499	34.868	-34.501	74.000	4.631	PK
2		7206.000	43.057	35.033	-30.943	74.000	8.024	PK
3	*	9608.000	43.801	34.484	-30.199	74.000	9.318	PK

Profile: 19A2086R	Page No.: 31
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:12
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 2440MHz by LE_1Mbps	



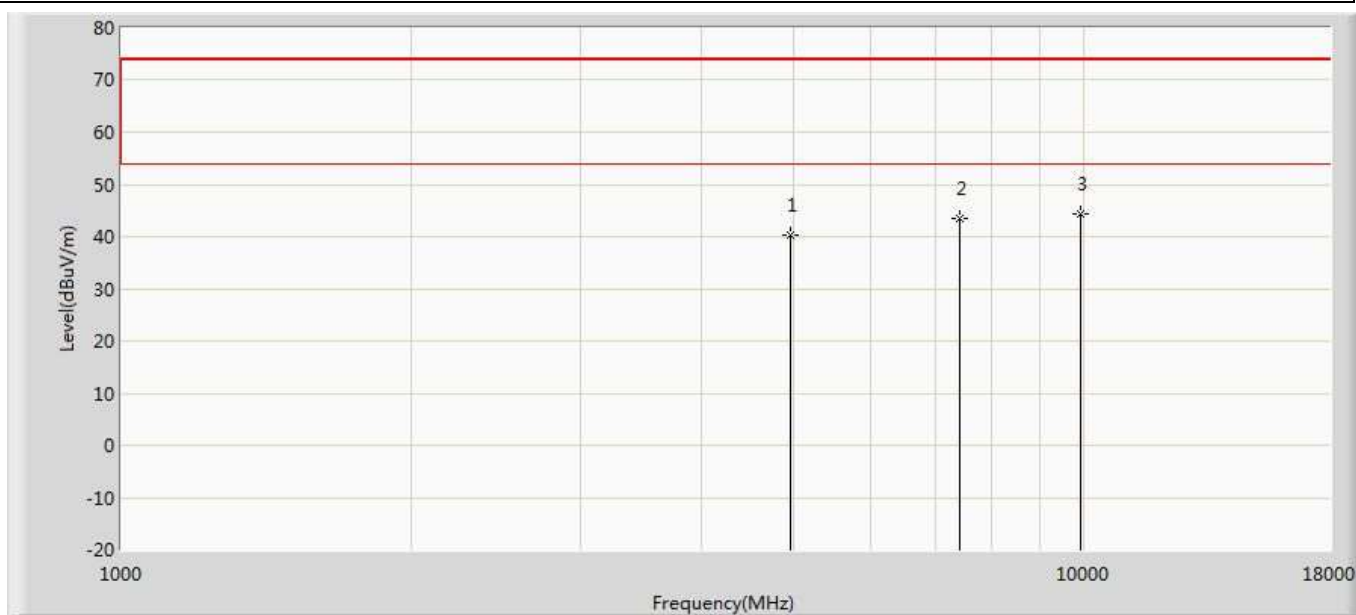
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	41.268	36.489	-32.732	74.000	4.778	PK
2		7320.000	42.673	34.603	-31.327	74.000	8.071	PK
3	*	9760.000	43.788	33.884	-30.212	74.000	9.904	PK

Profile: 19A2086R	Page No.: 32
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:12
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 2440MHz by LE_1Mbps	



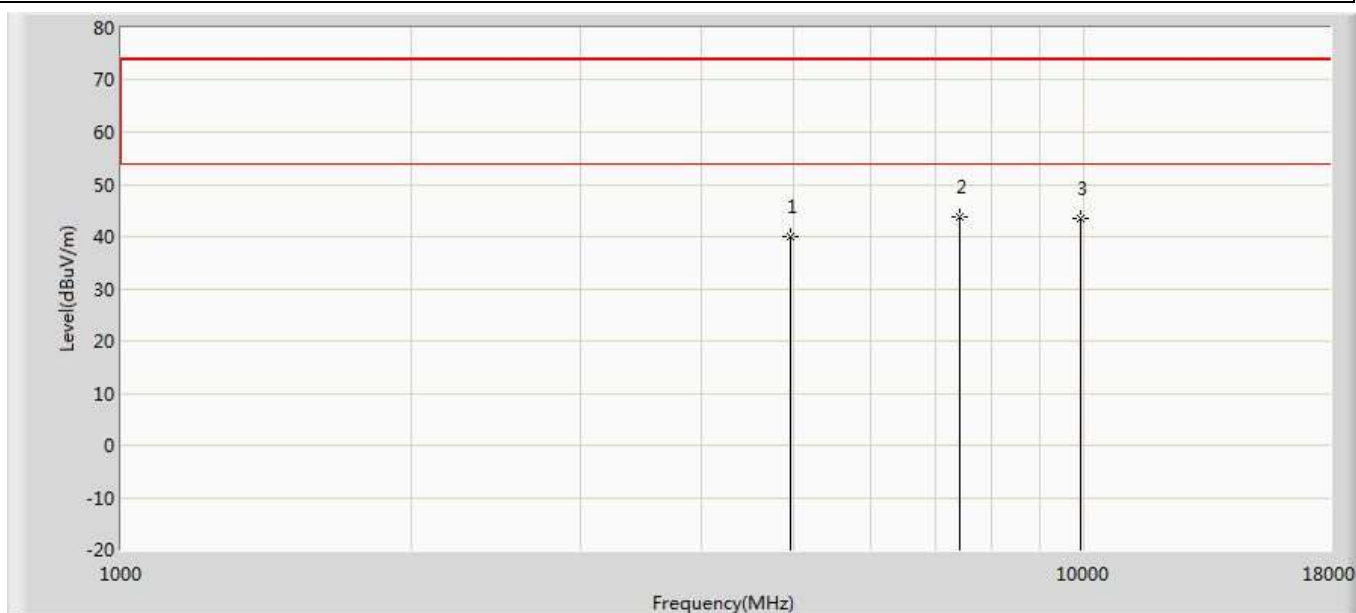
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	41.844	37.065	-32.156	74.000	4.778	PK
2		7320.000	43.502	35.432	-30.498	74.000	8.071	PK
3	*	9760.000	43.644	33.740	-30.356	74.000	9.904	PK

Profile: 19A2086R	Page No.: 33
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:12
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 LE_1Mbps	



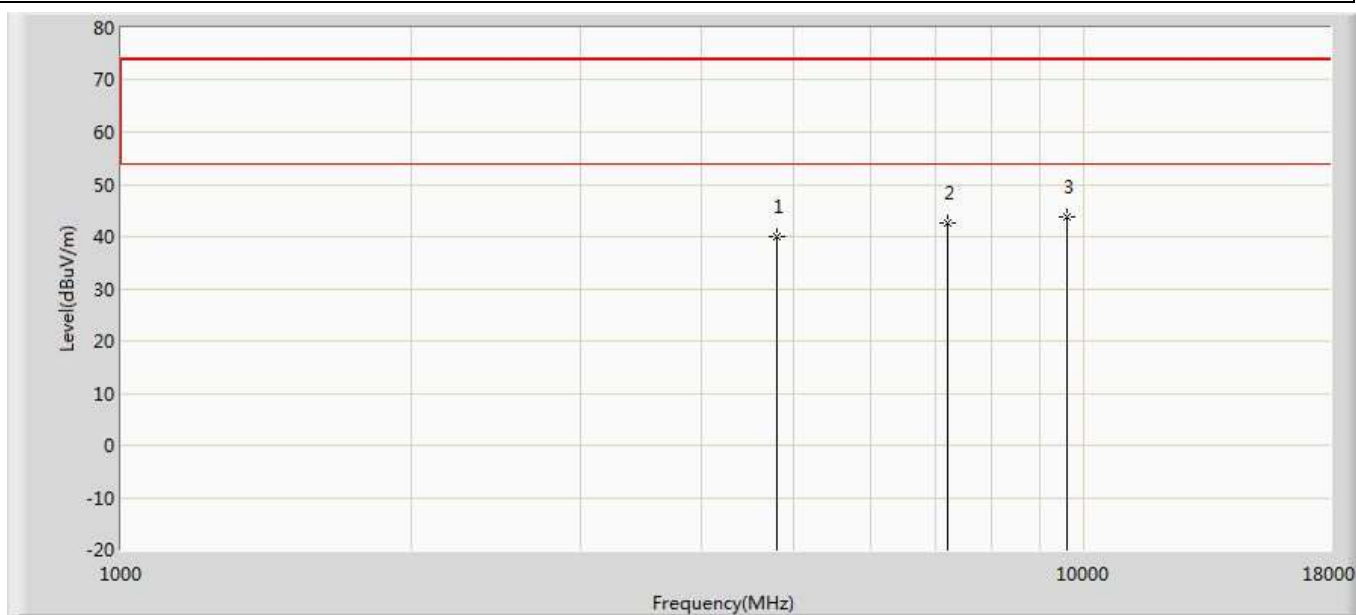
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.147	35.362	-33.853	74.000	4.784	PK
2		7440.000	43.617	35.566	-30.383	74.000	8.051	PK
3	*	9920.000	44.488	34.593	-29.512	74.000	9.894	PK

Profile: 19A2086R	Page No.: 34
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:12
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 LE_1Mbps	



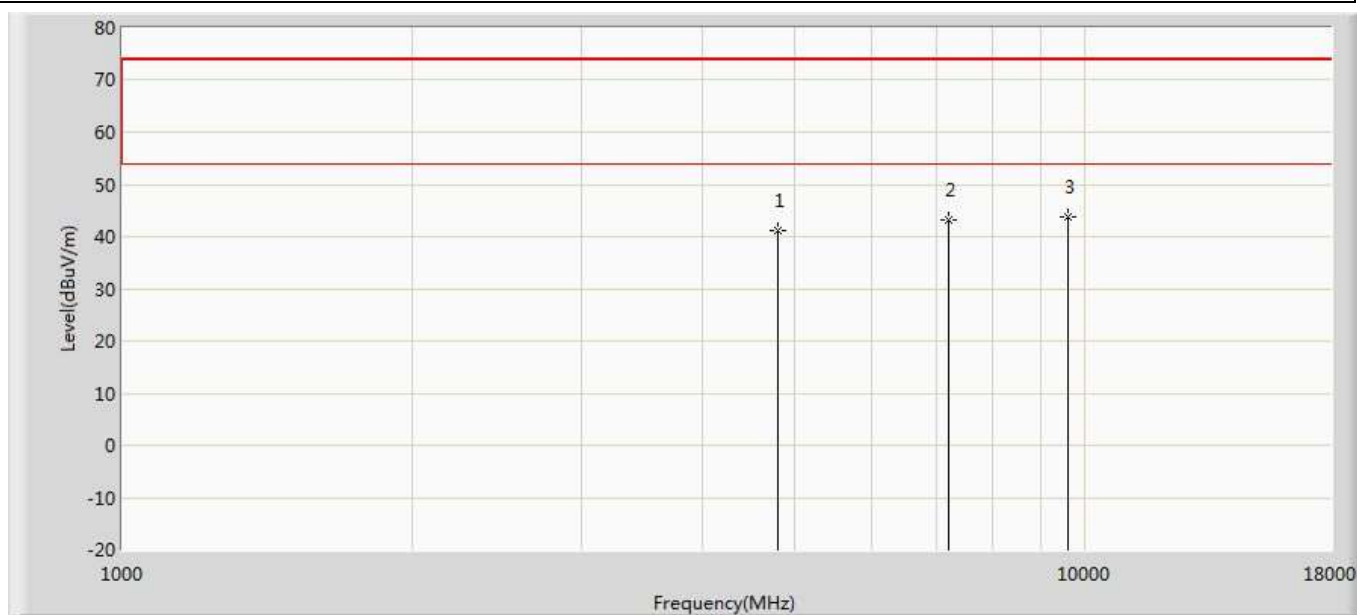
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.042	35.257	-33.958	74.000	4.784	PK
2	*	7440.000	43.626	35.575	-30.374	74.000	8.051	PK
3		9920.000	43.464	33.569	-30.536	74.000	9.894	PK

Profile: 19A2086R	Page No.: 35
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:12
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 LE_2Mbps	



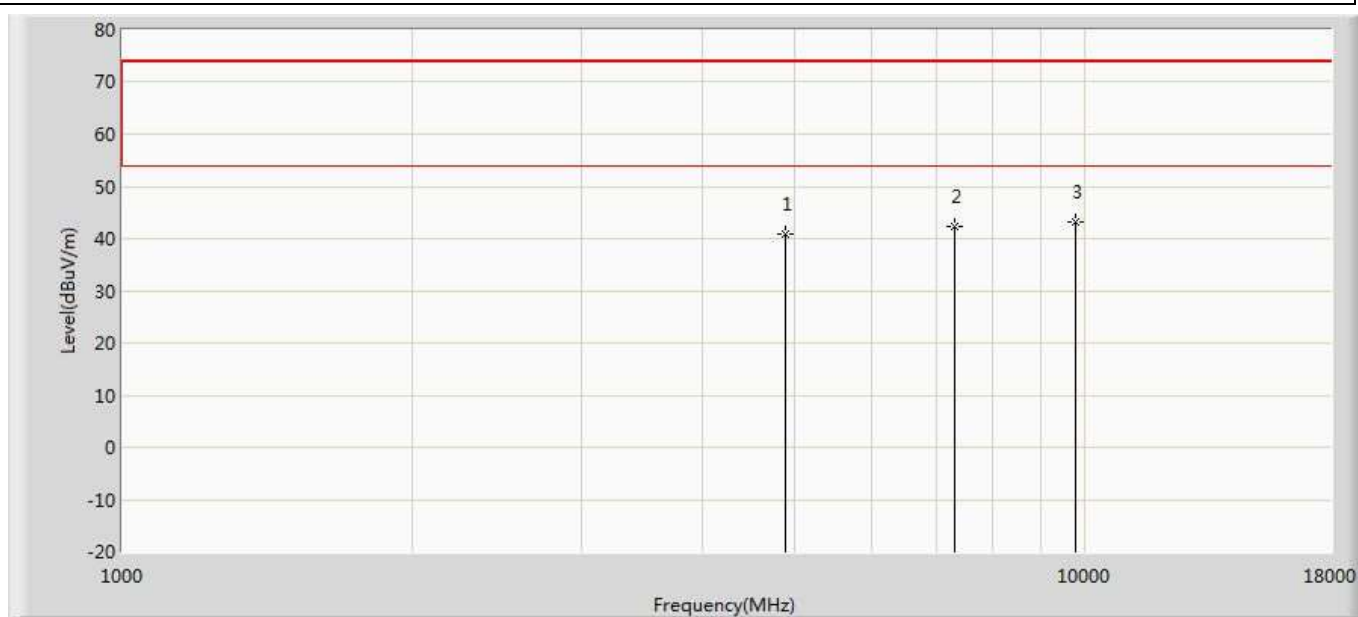
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	39.981	35.350	-34.019	74.000	4.631	PK
2		7206.000	42.683	34.659	-31.317	74.000	8.024	PK
3	*	9608.000	43.636	34.319	-30.364	74.000	9.318	PK

Profile: 19A2086R	Page No.: 36
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:12
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 LE_2Mbps	



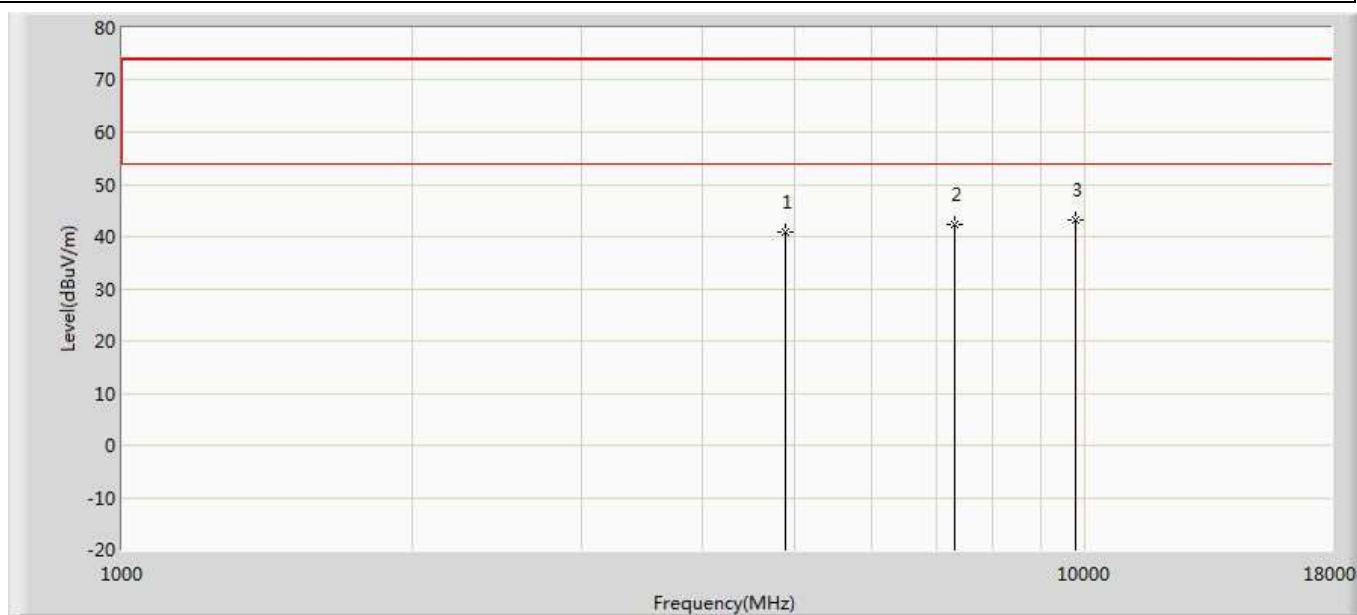
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.076	36.445	-32.924	74.000	4.631	PK
2		7206.000	43.201	35.177	-30.799	74.000	8.024	PK
3	*	9608.000	43.639	34.322	-30.361	74.000	9.318	PK

Profile: 19A2086R	Page No.: 37
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:12
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 2440MHz by LE_2Mbps	



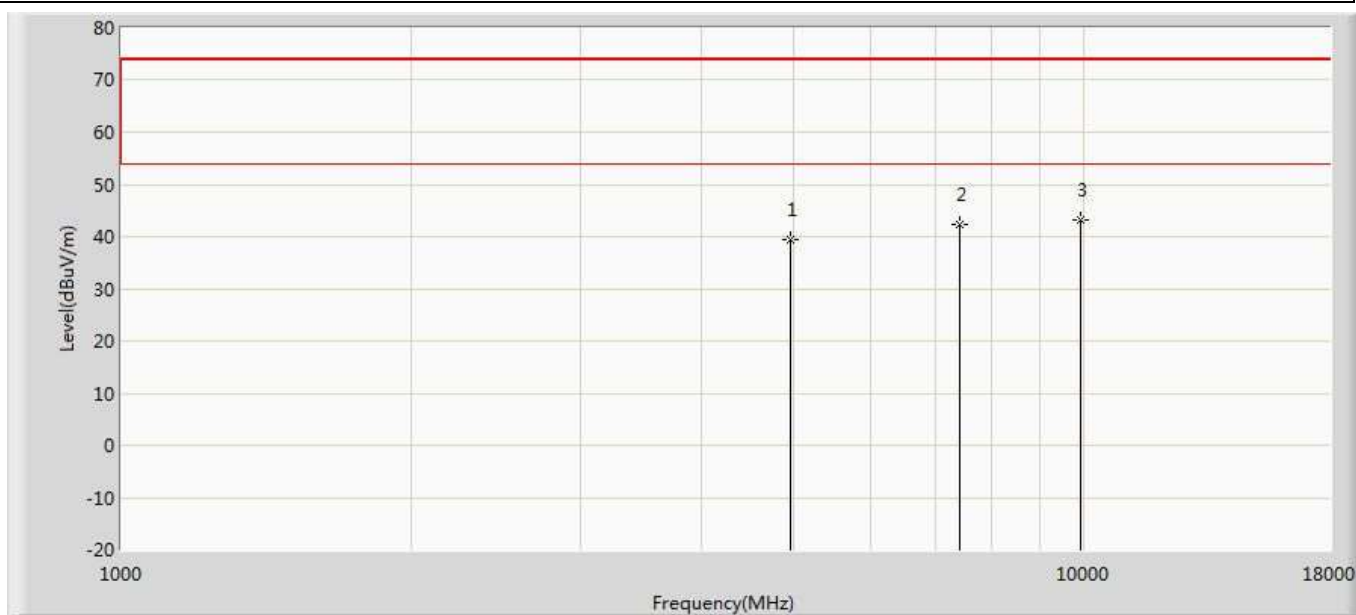
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	40.794	36.015	-33.206	74.000	4.778	PK
2		7320.000	42.368	34.298	-31.632	74.000	8.071	PK
3	*	9760.000	43.239	33.335	-30.761	74.000	9.904	PK

Profile: 19A2086R	Page No.: 38
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:13
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 2440MHz by LE_2Mbps	



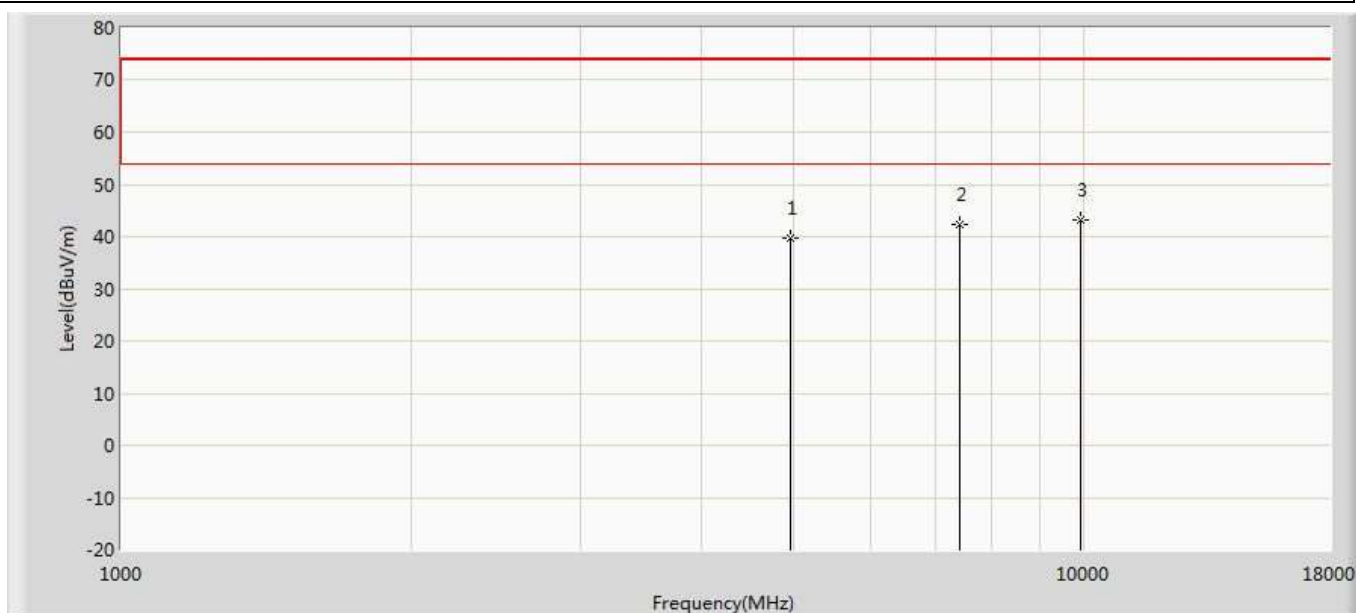
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	40.732	35.953	-33.268	74.000	4.778	PK
2		7320.000	42.418	34.348	-31.582	74.000	8.071	PK
3	*	9760.000	43.100	33.196	-30.900	74.000	9.904	PK

Profile: 19A2086R	Page No.: 39
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:13
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 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	39.345	34.560	-34.655	74.000	4.784	PK
2		7440.000	42.202	34.151	-31.798	74.000	8.051	PK
3	*	9920.000	43.286	33.391	-30.714	74.000	9.894	PK

Profile: 19A2086R	Page No.: 40
Engineer: Simon Lu	
Site: AC5	Time: 2019/11/02 - 16:13
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 LE_2Mbps	



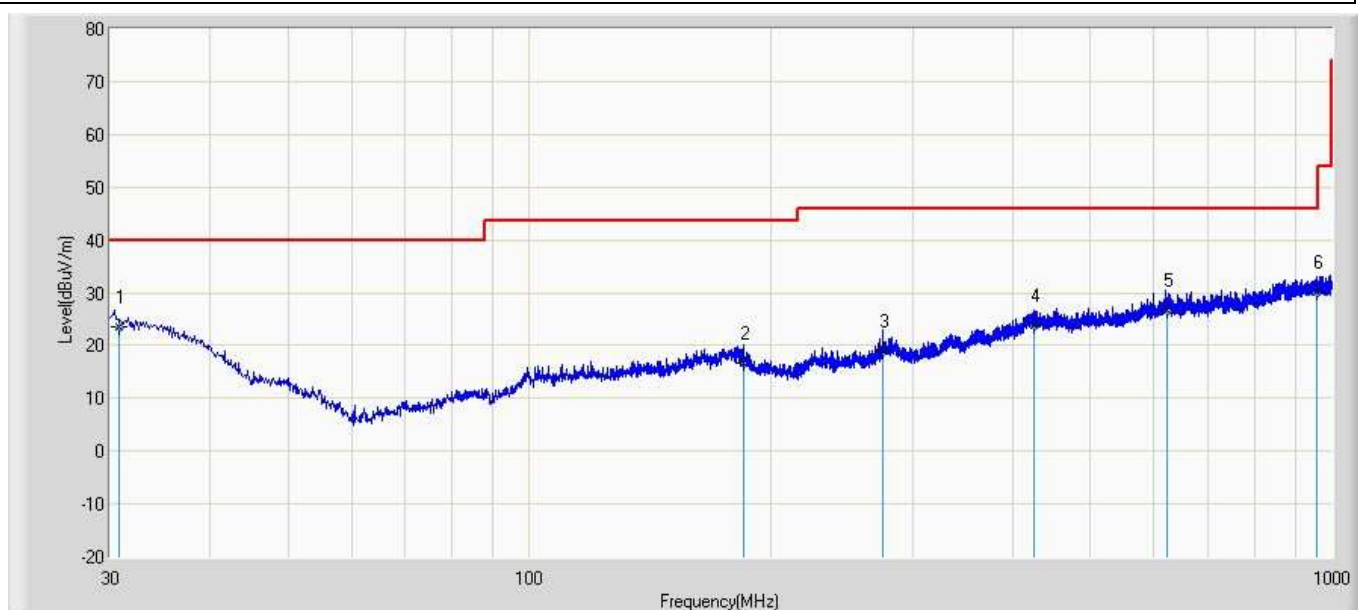
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	39.752	34.967	-34.248	74.000	4.784	PK
2		7440.000	42.180	34.129	-31.820	74.000	8.051	PK
3	*	9920.000	43.324	33.429	-30.676	74.000	9.894	PK

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	

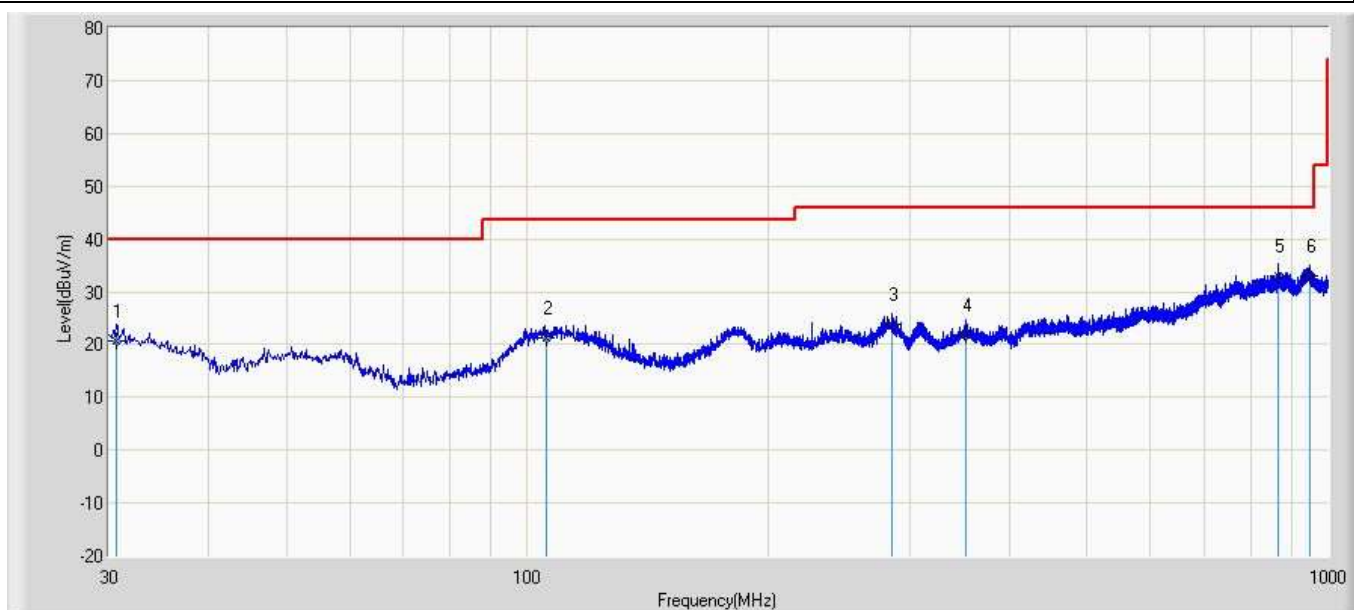


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		30.814	23.458	-4.034	-16.542	40.000	21.033	6.459	0.000	200	111	QP
2		184.611	16.760	-0.612	-26.740	43.500	10.149	7.222	0.000	200	326	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:

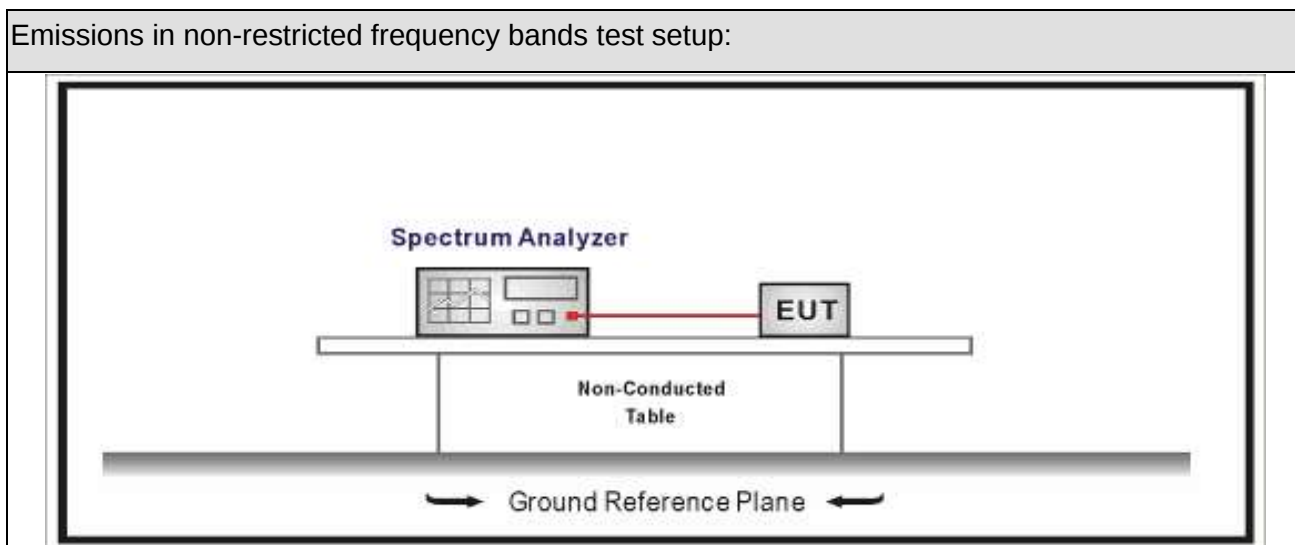
1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

5. Emissions in non-restricted frequency bands

5.1. 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.					

5.2. Test Setup



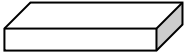
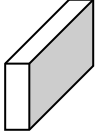
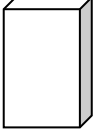
5.3. Limit

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)
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).	

5.4. Test Procedure

Test Method					
	References Rule			Chapter	Description
☒	ANSI C63.10			11.11	Emissions in non-restricted frequency bands
	☒	ANSI C63.10		11.11.2	Reference level measurement
	☒	ANSI C63.10		11.11.3	Emission level measurement
☐	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
	☒	ANSI C63.10		11.12.2	Antenna-port conducted measurements
		☐	ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure
		☒	ANSI C63.10	11.12.2.4	Peak power measurement procedure
		☐	ANSI C63.10	11.12.2.5	Average power measurement procedures
		☐	ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission at full power
		☐	ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
		☐	ANSI C63.10	11.12.2.5.3	Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold

5.5. EUT test Axis definition

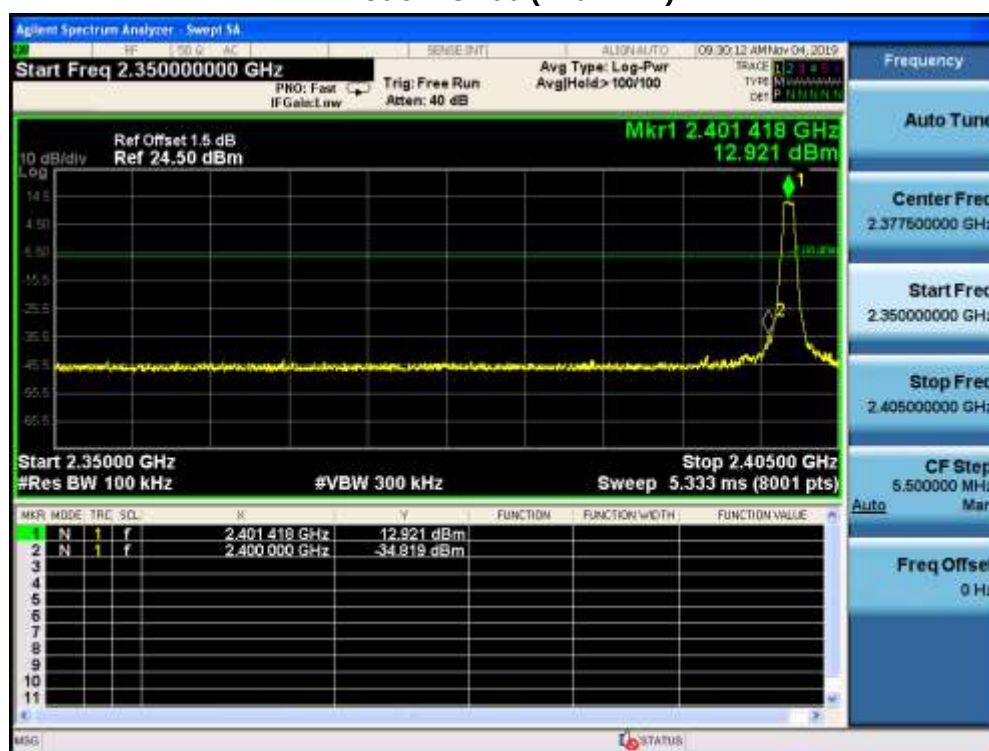
Item	Emissions in non-restricted frequency bands			
Device Category	☐	Fixed point-to-point		
	☐	Emit multiple directional beams, simultaneously or sequentially		
	☒	Other cases		
Test mode	Mode 1			
Test method	☐	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☐
	☒	Conducted		
	☒	Chain 1		
				
	☐	Chain 1	Chain 2	
				
	☐	Chain 1	Chain 2	Chain 3
				

5.6. Test Result

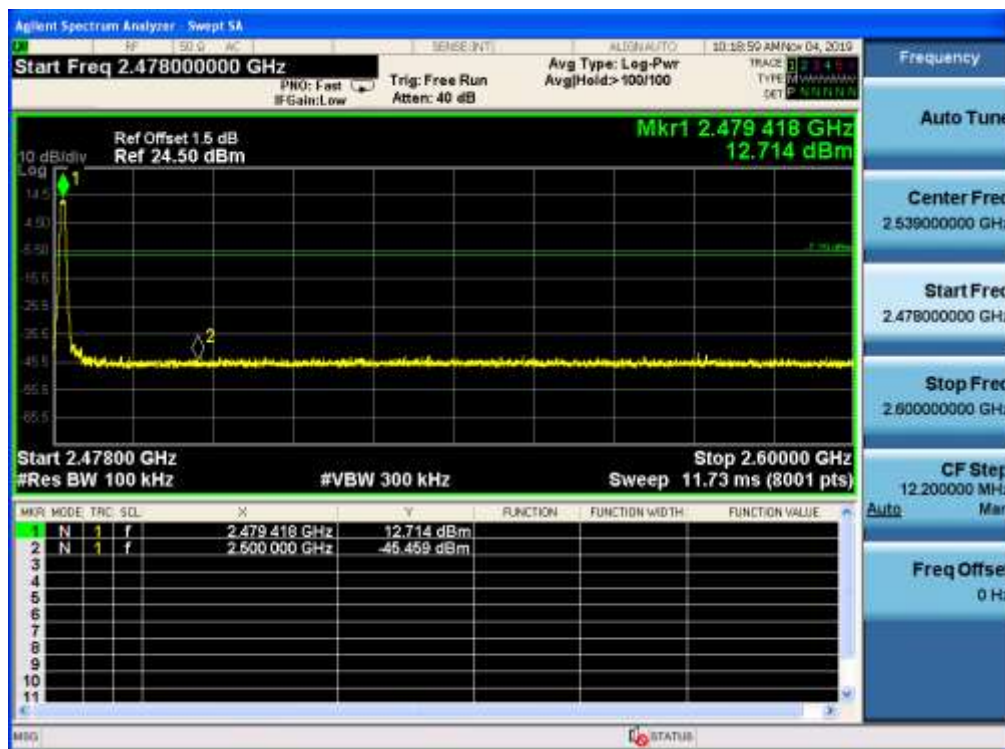
Product Name	: EZ-BT Module	Test Voltage	: DC 3.3V
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2019.11.04	Test Engineer	: Tim

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	12.921	2400.00	-34.919	47.84	>20	Pass
1	39	2480	12.714	2500.00	-45.459	58.173	>20	Pass
2	00	2402	12.963	2400.00	-20.337	33.3	>20	Pass
2	39	2480	12.960	2500.00	-46.626	59.586	>20	Pass

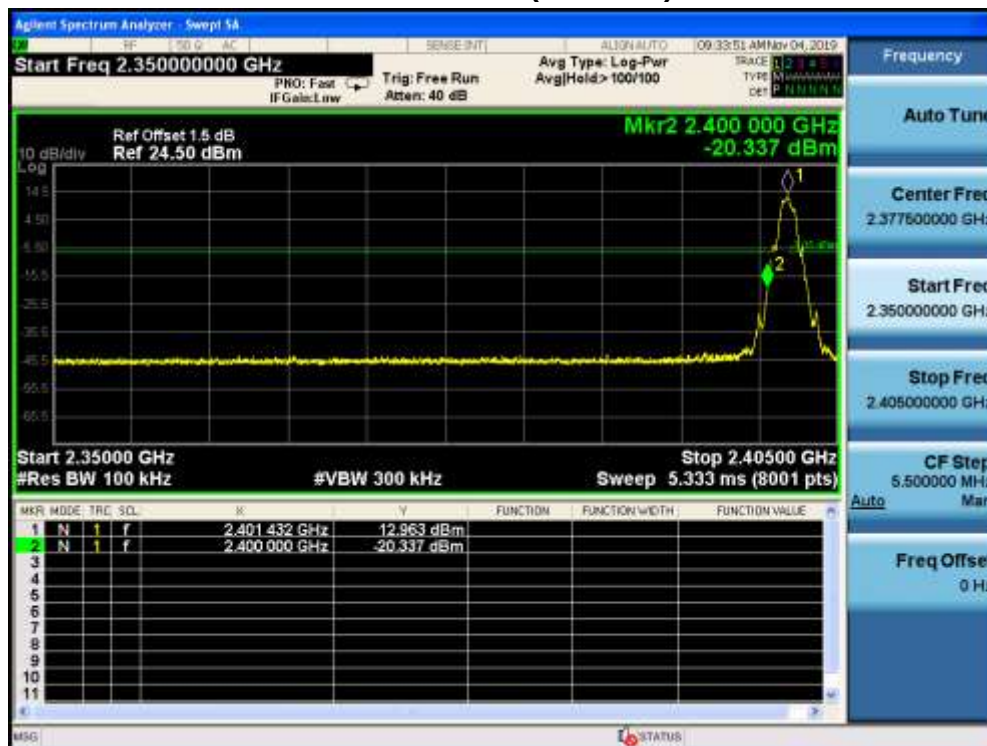
Mode 1 CH00 (2402MHz)



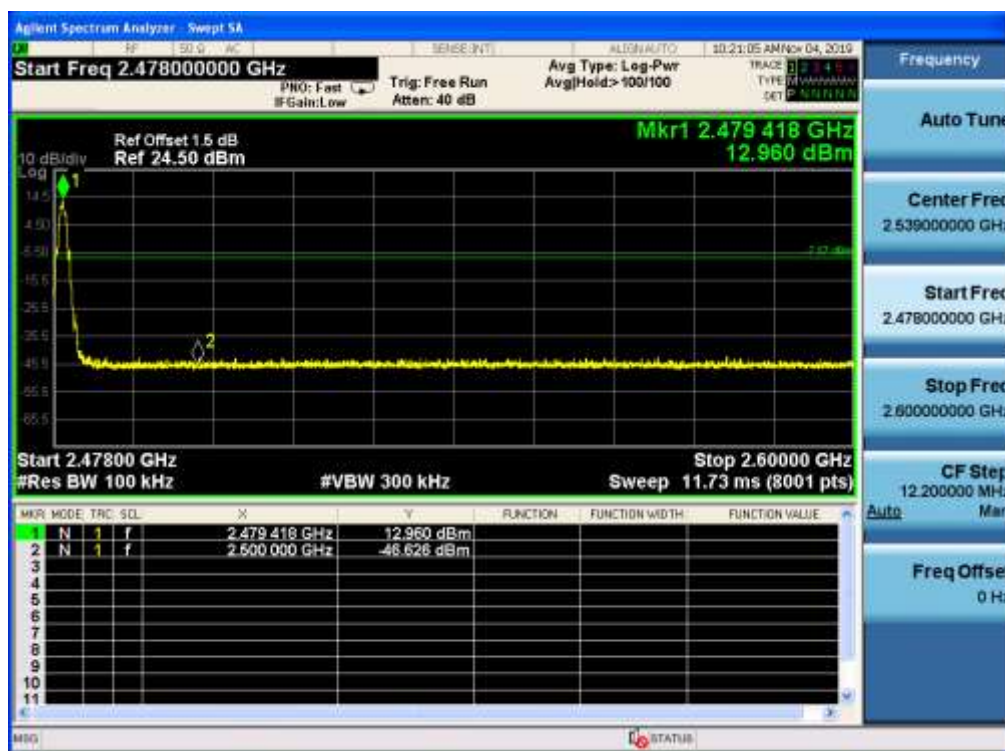
Mode 1 CH39 (2480MHz)



Mode 2 CH00 (2402MHz)



Mode 2 CH39 (2480MHz)



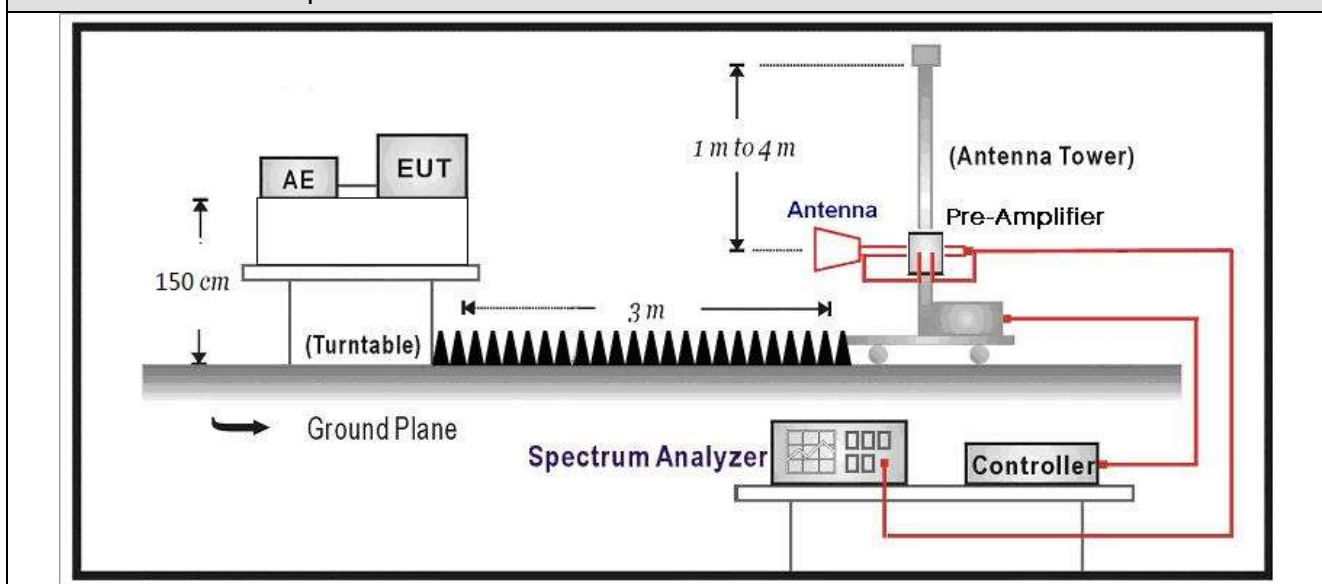
6. Radiated Emission Band Edge

6.1. 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

6.2. Test Setup

Above 1GHz Test Setup:



6.3. Limit

Band edge Limit

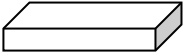
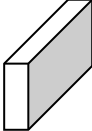
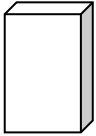
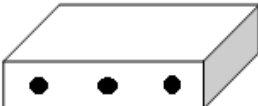
Frequency bands (MHz)	Detector	Limit (dB μ V/m)	RBW (MHz)	Distance (m)
2310-2390	PK	74	1	3
2483.5-2500	AV	54	1	3

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

6.4. Test Procedure

Test Method						
	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	
		☐	ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure	
		☒	ANSI C63.10	11.12.2.4	Peak power measurement procedure	
		☒	ANSI C63.10	11.12.2.5	Average power measurement procedures	
			☐	ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission at full power
			☐	ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
			☒	ANSI C63.10	11.12.2.5.3	Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold

6.5. EUT test definition

Item	Radiated Emission Band Edge			
Device Category	☐	Fixed point-to-point		
	☐	Emit multiple directional beams, simultaneously or sequentially		
	☒	Other cases		
Test mode	Mode 1~2			
Test method	☒	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☒	Worst Axis ☐	Worst Axis ☐
	☐	Conducted		
	☐	Chain 1		
				
	☐	Chain 1	Chain 2	
				
	☐	Chain 1	Chain 2	Chain 3
				

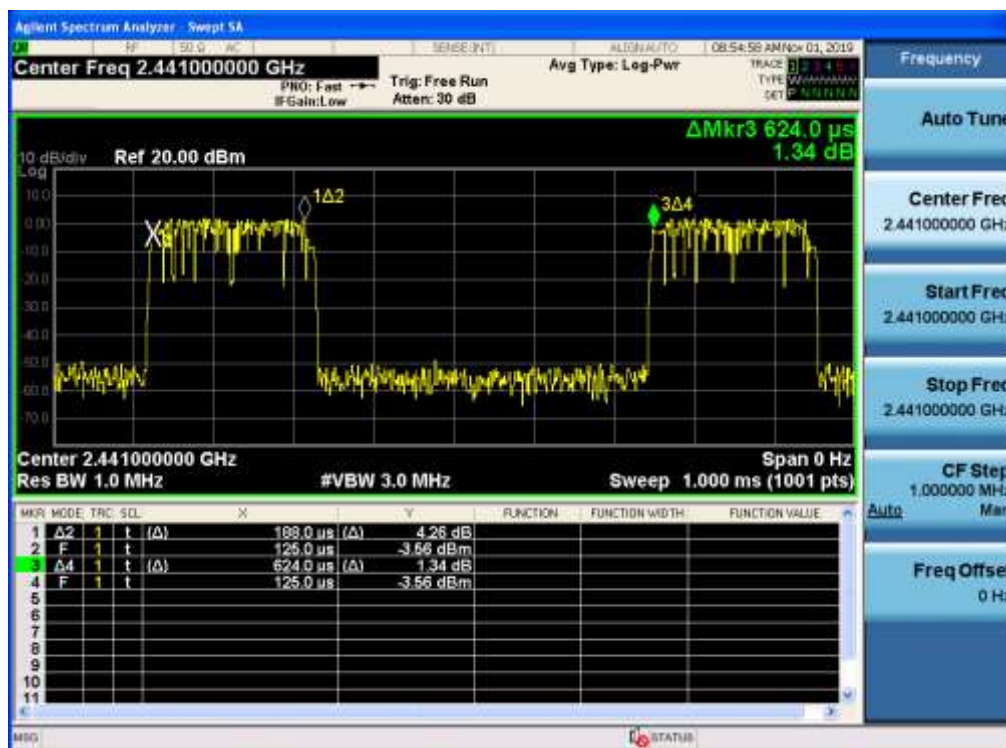
6.6. Duty Cycle

Test Mode	Tx On (ms)	Tx Off (ms)	Reduced VBW (Hz)	Tx On + Tx Off (ms)	Duty Cycle
Mode 1	2.110	0.395	470	2.505	84.23%
Mode 2	0.188	0.436	5319	0.624	30.13%

Mode 1: LE_1Mbps

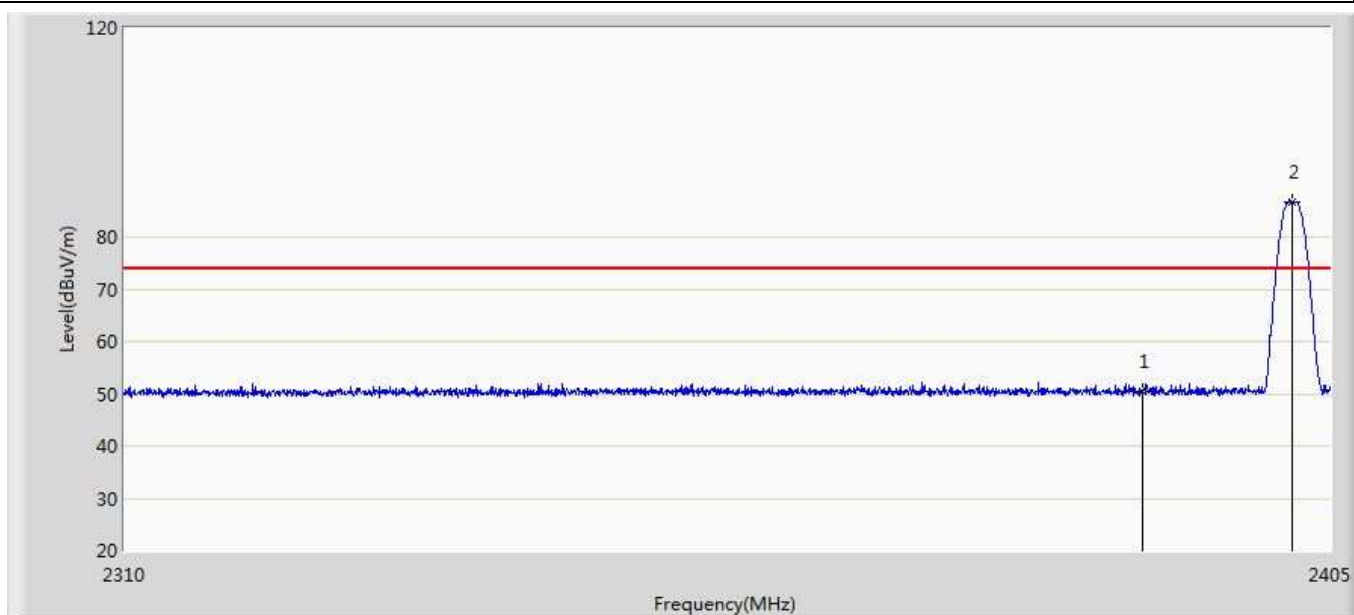


Mode 2: LE_2Mbps



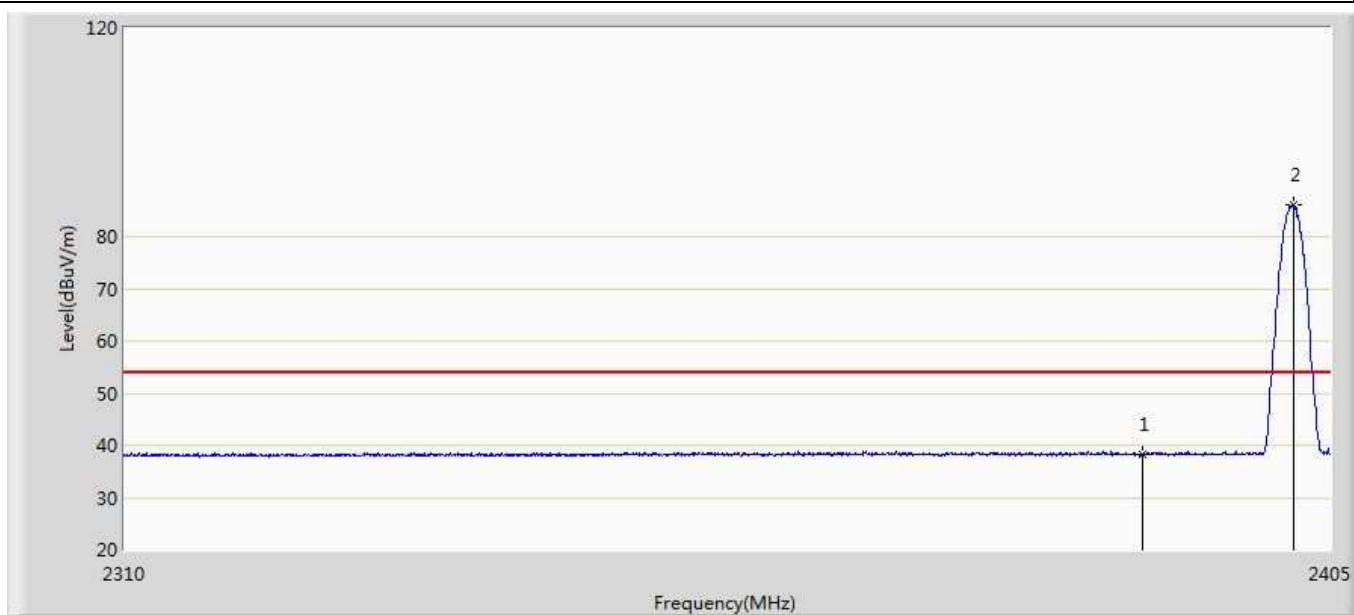
6.7. Test Result

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 LE_1Mbps	



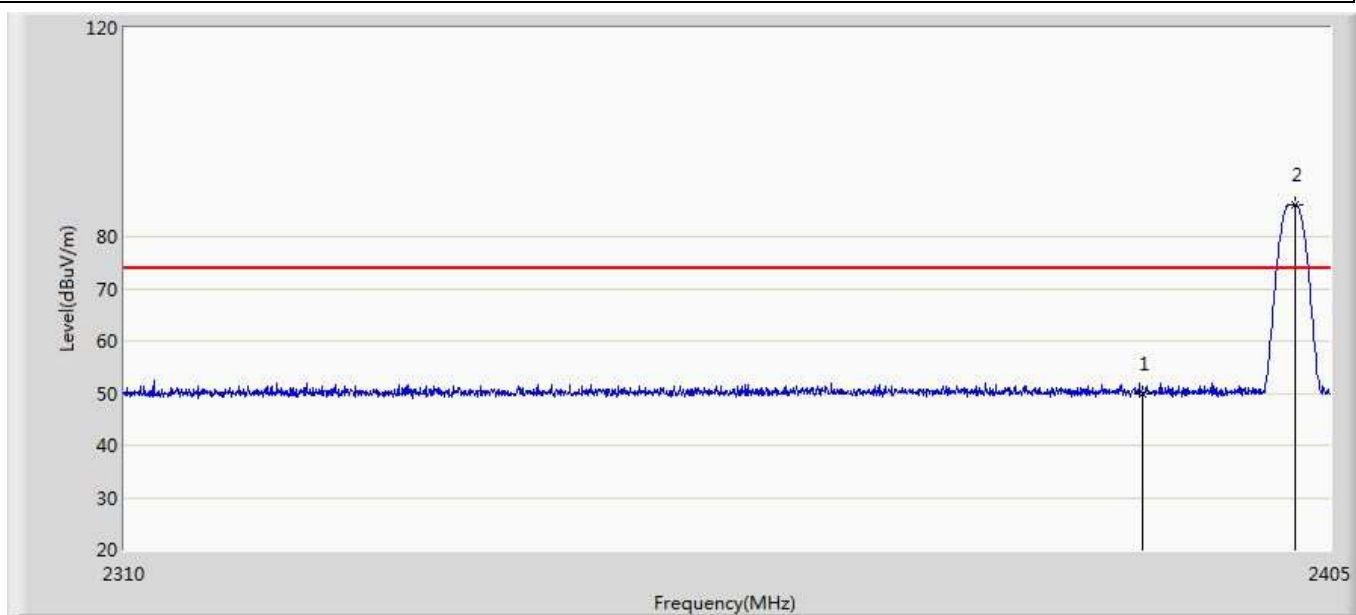
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.475	15.018	-23.525	74.000	35.458	PK
2	*	2401.913	86.699	51.230	N/A	N/A	35.469	PK

Profile: 19A2086R	Page No.: 2
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 22:19
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 1:Transmit at 2402MHz by LE_1Mbps	



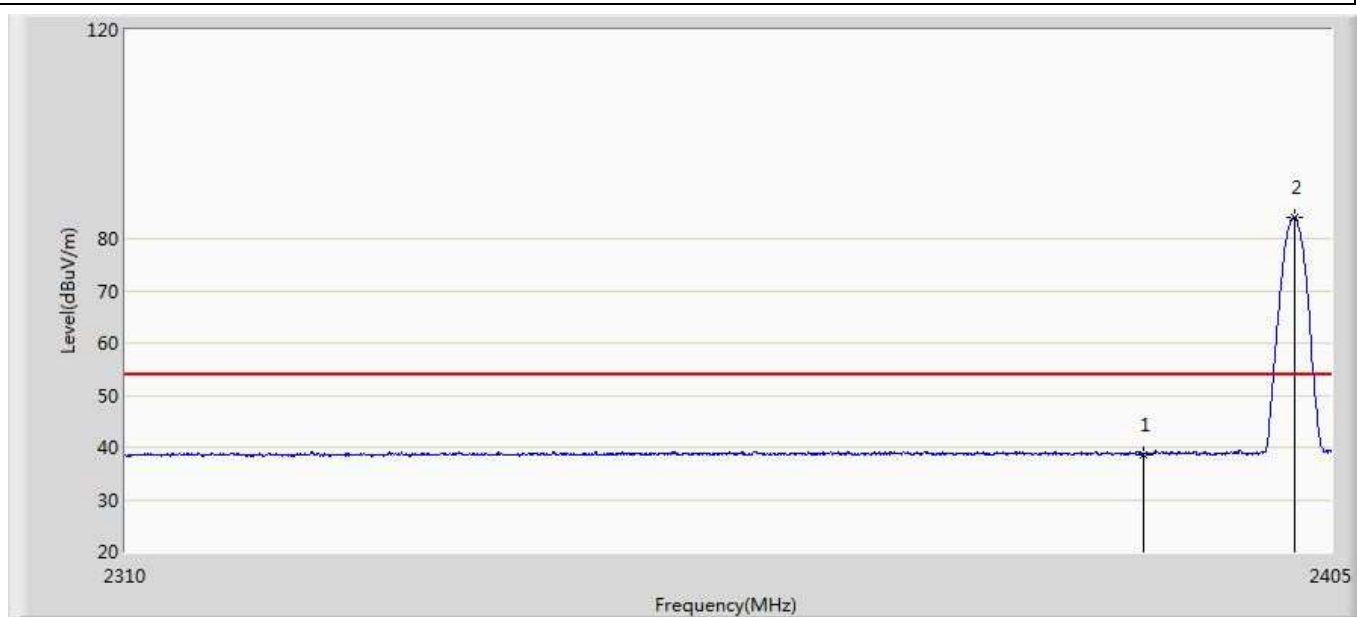
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	38.310	2.853	-15.690	54.000	35.458	AV
2	*	2402.055	86.142	50.672	N/A	N/A	35.469	AV

Profile: 19A2086R	Page No.: 3
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 22:21
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 LE_1Mbps	



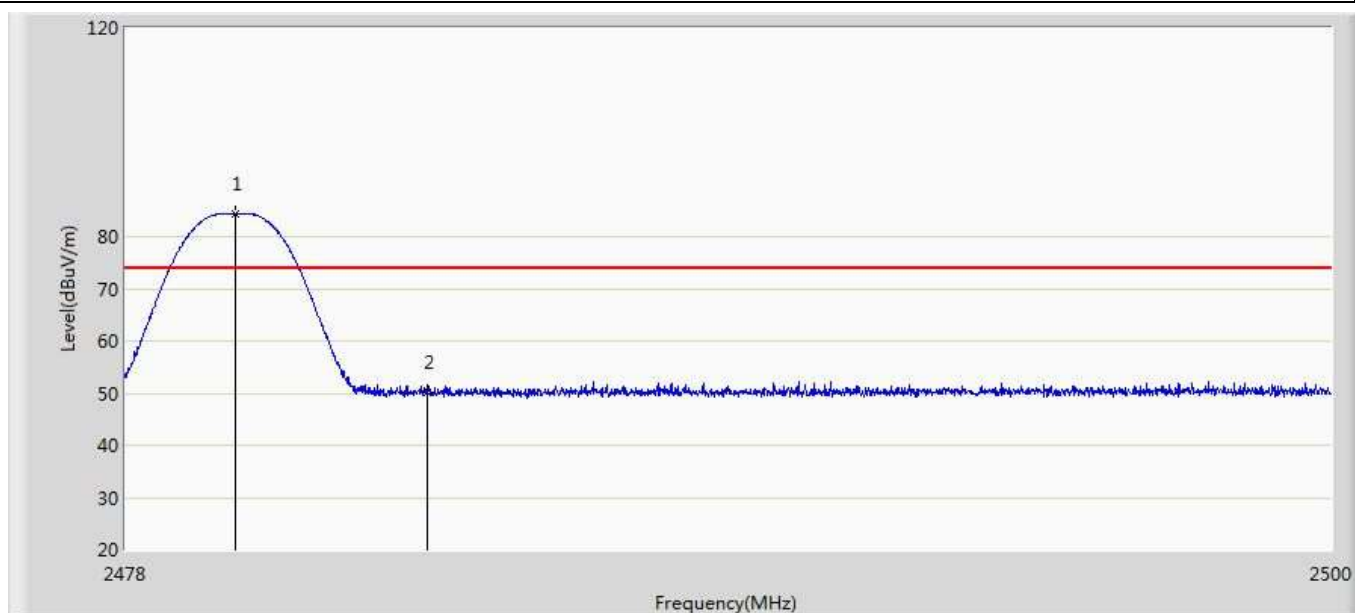
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	49.857	14.399	-24.143	74.000	35.458	PK
2	*	2402.198	86.120	50.650	N/A	N/A	35.470	PK

Profile: 19A2086R	Page No.: 4
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 22:21
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 BLE	



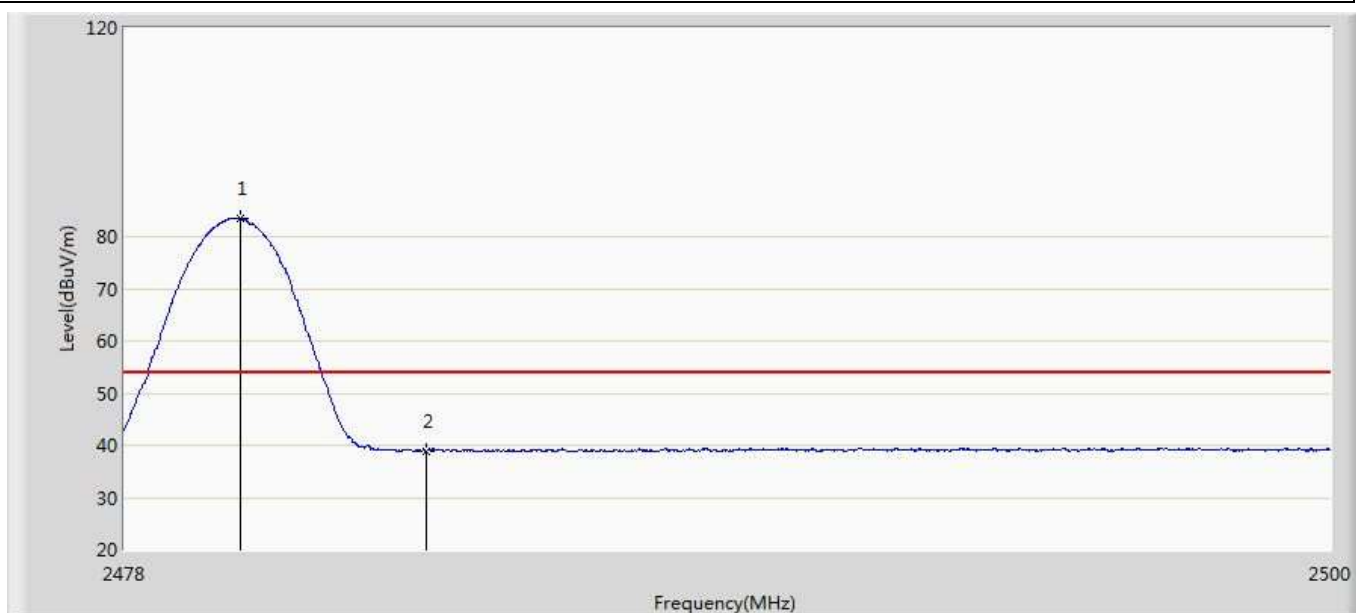
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	38.573	3.116	-15.427	54.000	35.458	AV
2	*	2402.055	84.098	48.628	N/A	N/A	35.469	AV

Profile: 19A2086R	Page No.: 5
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 22:23
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 LE_1Mbps	



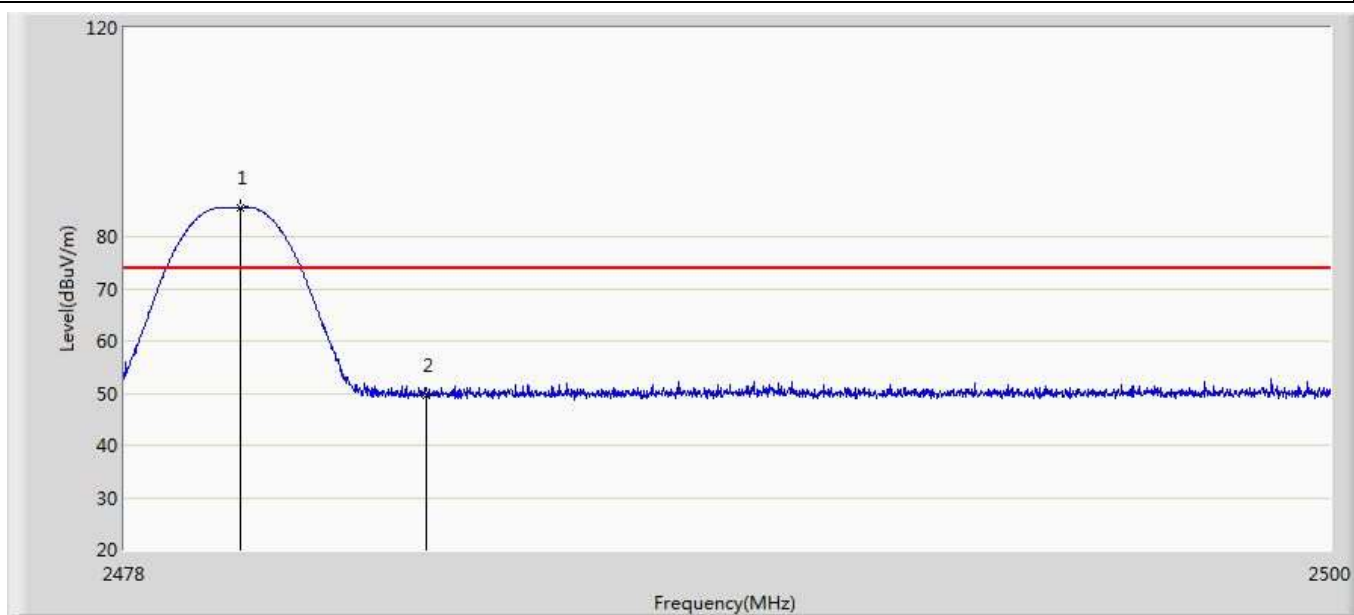
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.013	84.336	48.838	N/A	N/A	35.498	PK
2		2483.500	50.167	14.649	-23.833	74.000	35.517	PK

Profile: 19A2086R	Page No.: 6
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 22:24
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 LE_1Mbps	



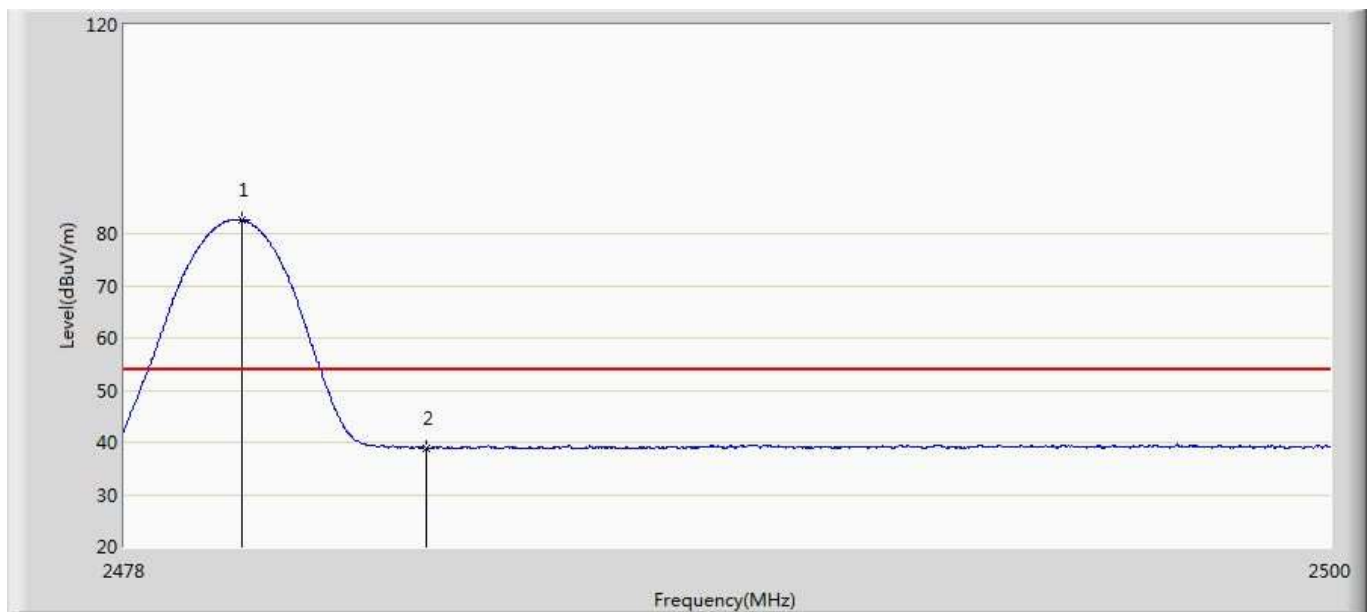
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.112	83.579	48.081	N/A	N/A	35.499	AV
2		2483.500	38.964	3.446	-15.036	54.000	35.517	AV

Profile: 19A2086R	Page No.: 7
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 22:24
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 LE_1Mbps	



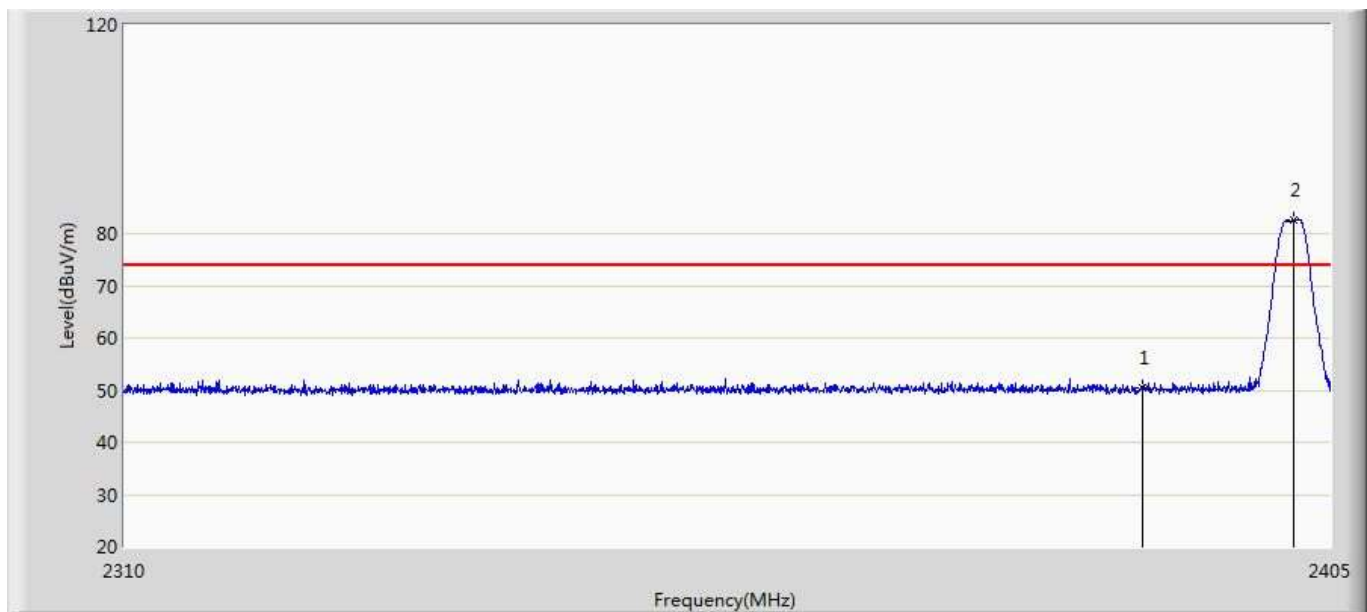
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.112	85.584	50.086	N/A	N/A	35.499	PK
2		2483.500	49.463	13.945	-24.537	74.000	35.517	PK

Profile: 19A2086R	Page No.: 8
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 22:25
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 LE_1Mbps	



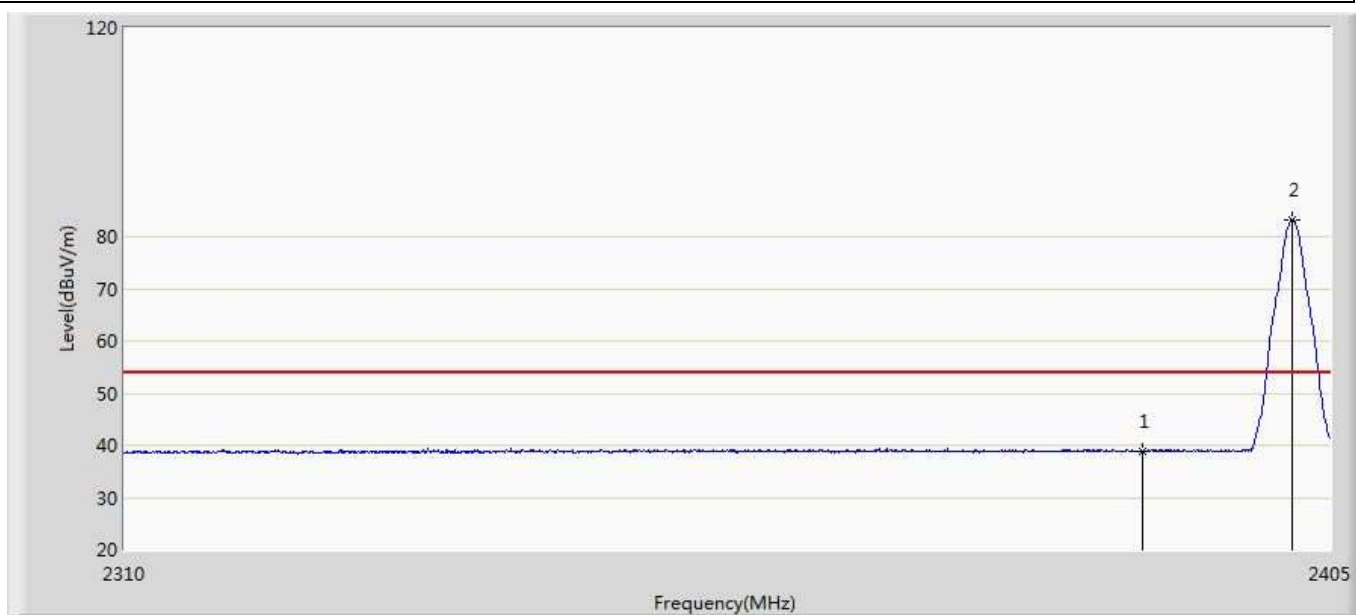
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.145	82.629	47.130	N/A	N/A	35.499	AV
2		2483.500	38.945	3.427	-15.055	54.000	35.517	AV

Profile: 19A2086R	Page No.: 9
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 22:26
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 LE_2Mbps	



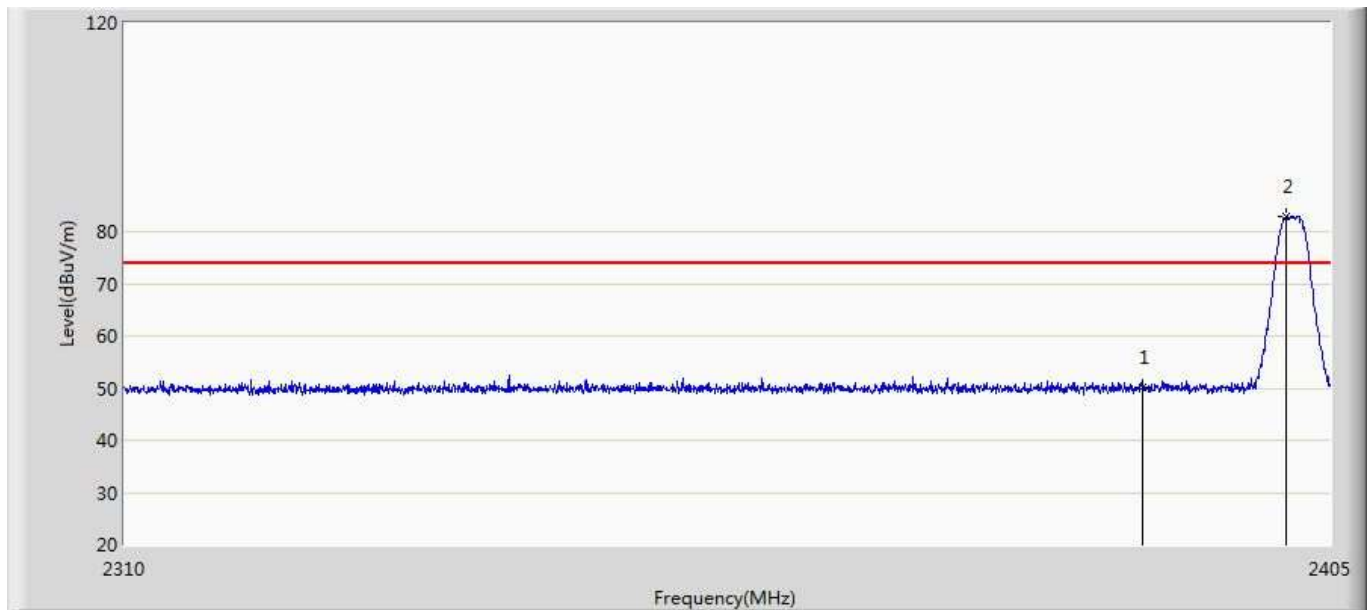
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.541	15.084	-23.459	74.000	35.458	PK
2	*	2402.055	82.597	47.127	N/A	N/A	35.469	PK

Profile: 19A2086R	Page No.: 10
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 22:28
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 LE_2Mbps	



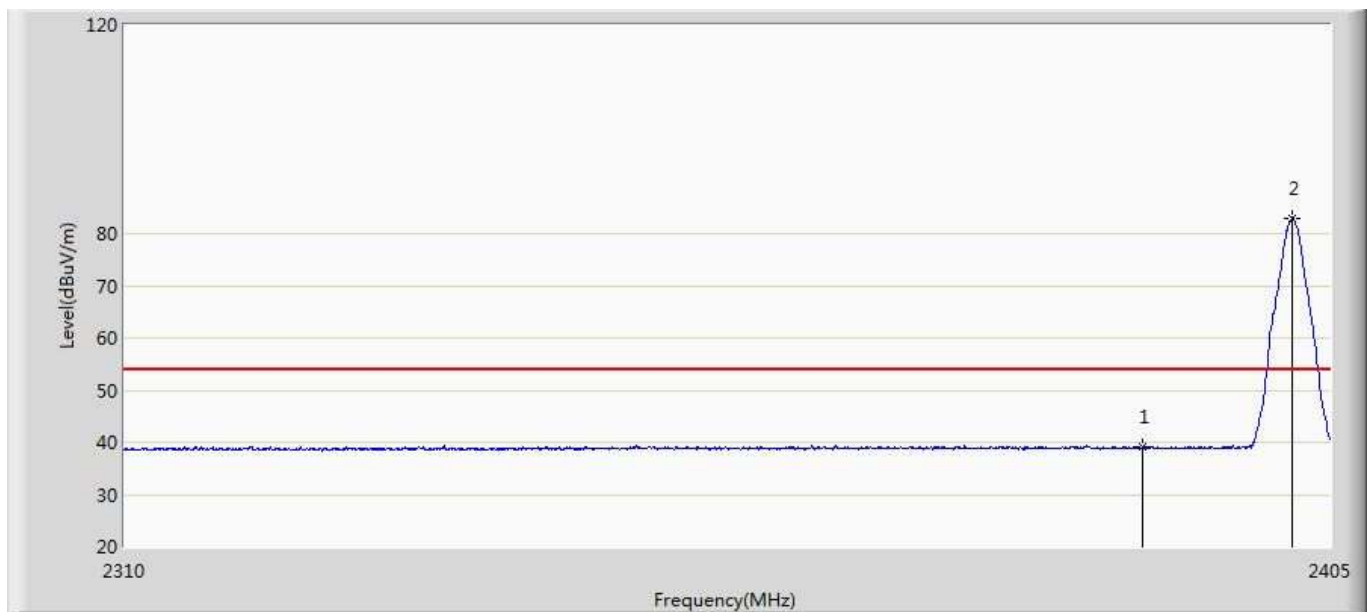
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	38.840	3.383	-15.160	54.000	35.458	AV
2	*	2401.960	83.307	47.838	N/A	N/A	35.469	AV

Profile: 19A2086R	Page No.: 11
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 22:29
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 LE_2Mbps	



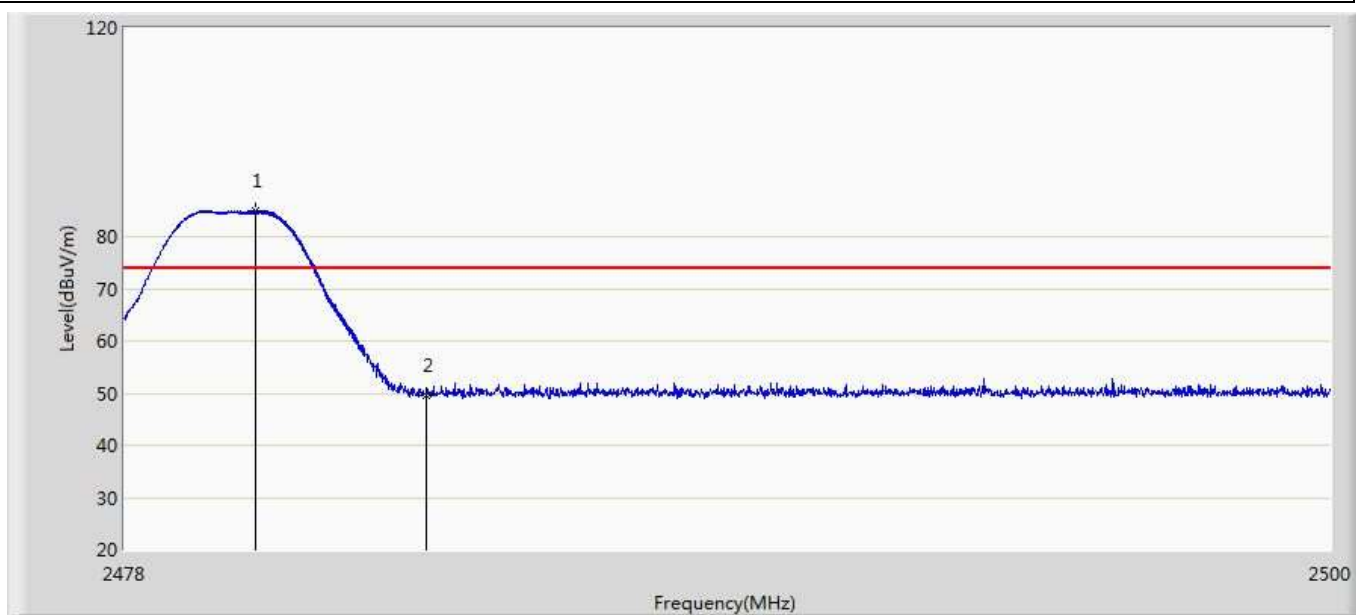
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.129	14.672	-23.871	74.000	35.458	PK
2	*	2401.437	82.893	47.424	N/A	N/A	35.468	PK

Profile: 19A2086R	Page No.: 12
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 22:29
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 LE_2Mbps	



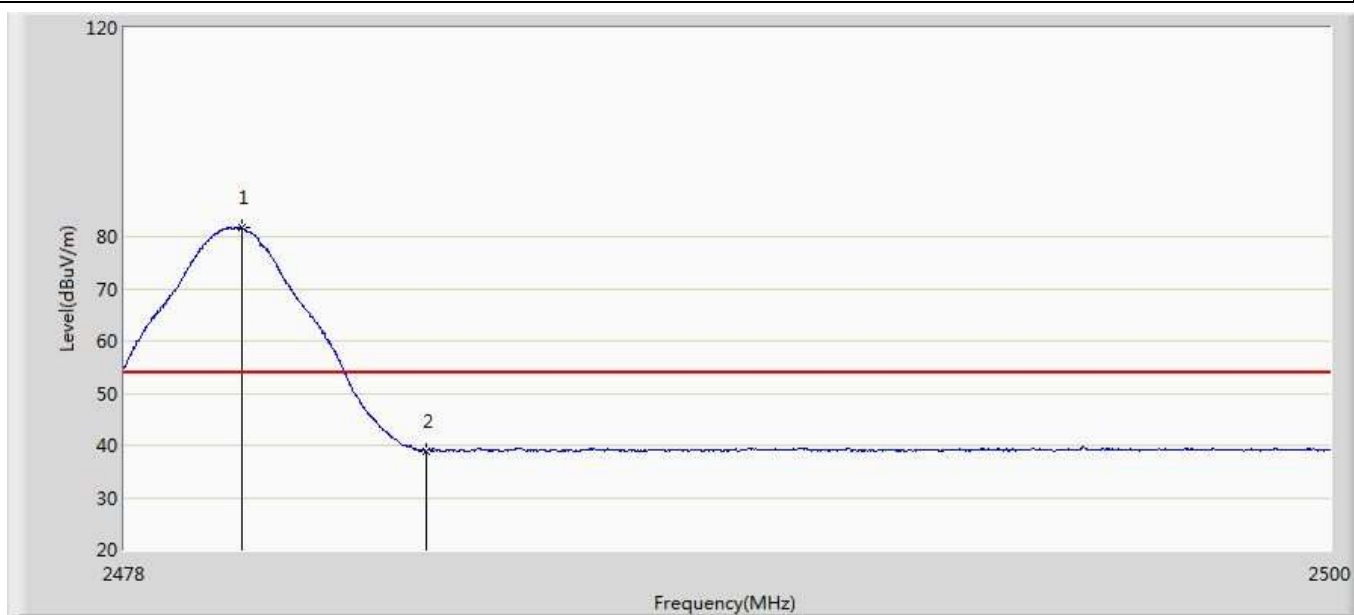
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	39.006	3.549	-14.994	54.000	35.458	AV
2	*	2401.913	82.891	47.422	N/A	N/A	35.469	AV

Profile: 19A2086R	Page No.: 13
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 22:30
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 LE_2Mbps	



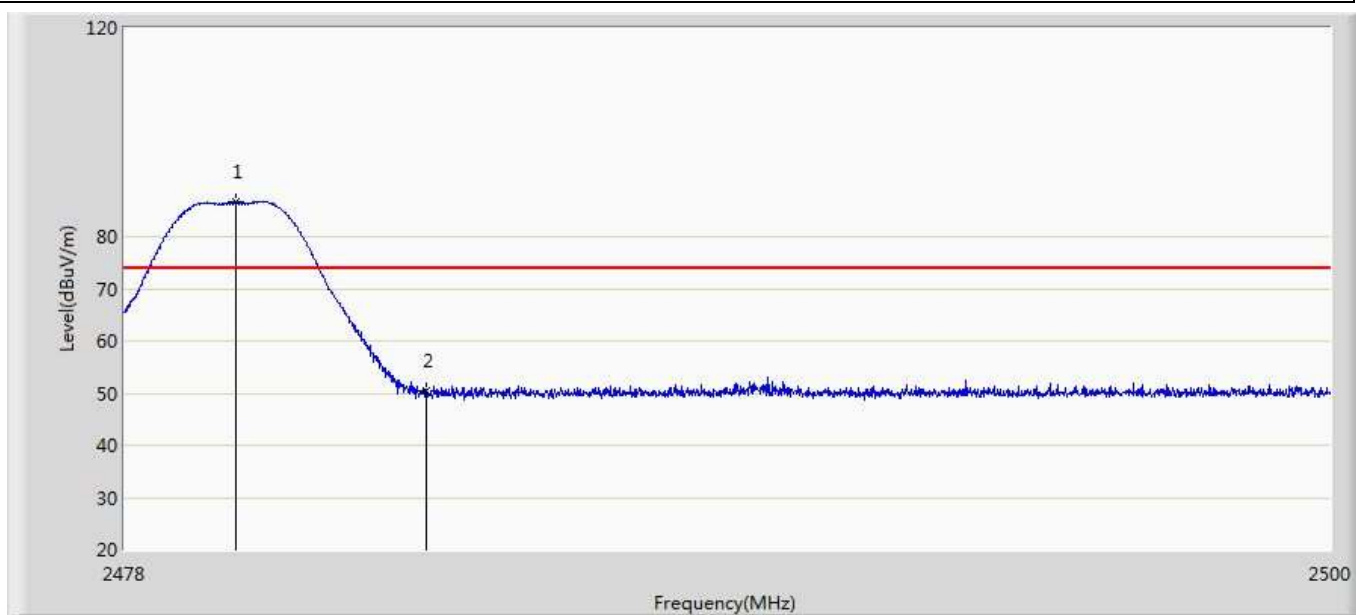
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.398	84.898	49.398	N/A	N/A	35.501	PK
2		2483.500	49.664	14.146	-24.336	74.000	35.517	PK

Profile: 19A2086R	Page No.: 14
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 22:32
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 LE_2Mbps	



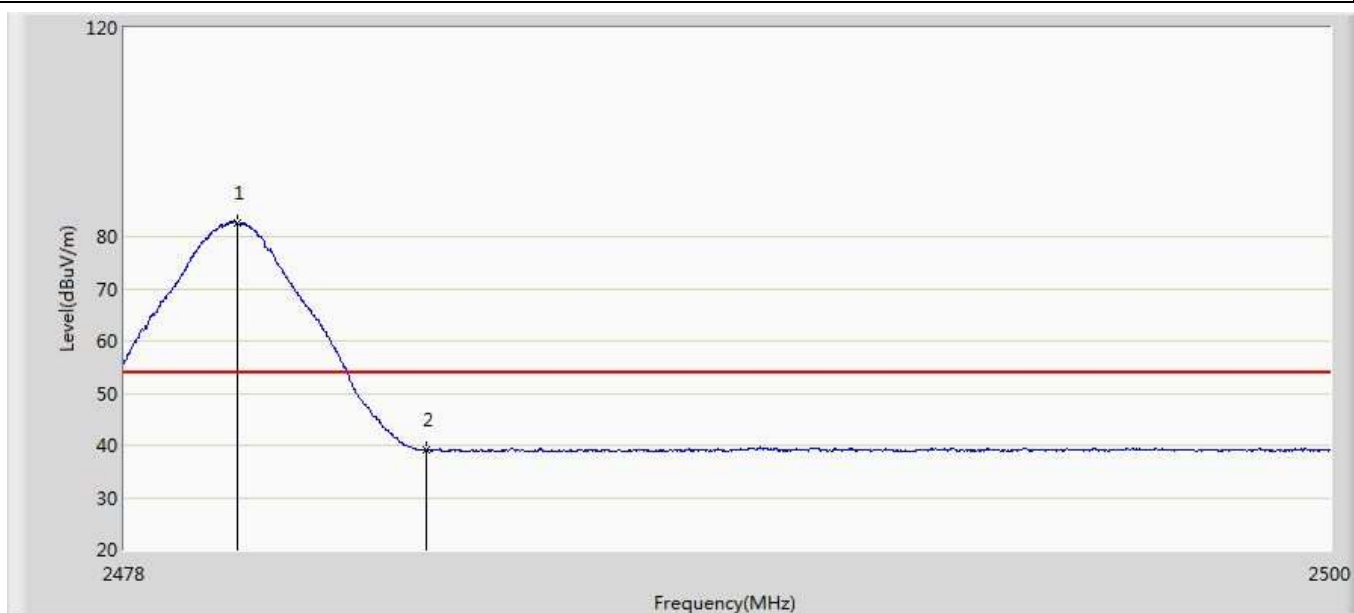
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.145	81.648	46.149	N/A	N/A	35.499	AV
2		2483.500	38.919	3.401	-15.081	54.000	35.517	AV

Profile: 19A2086R	Page No.: 15
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 22:34
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 LE_2Mbps	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.035	86.650	51.152	N/A	N/A	35.498	PK
2		2483.500	50.382	14.864	-23.618	74.000	35.517	PK

Profile: 19A2086R	Page No.: 16
Engineer: Simon Lu	
Site: AC5	Time: 2019/10/31 - 22:34
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 LE_2Mbps	



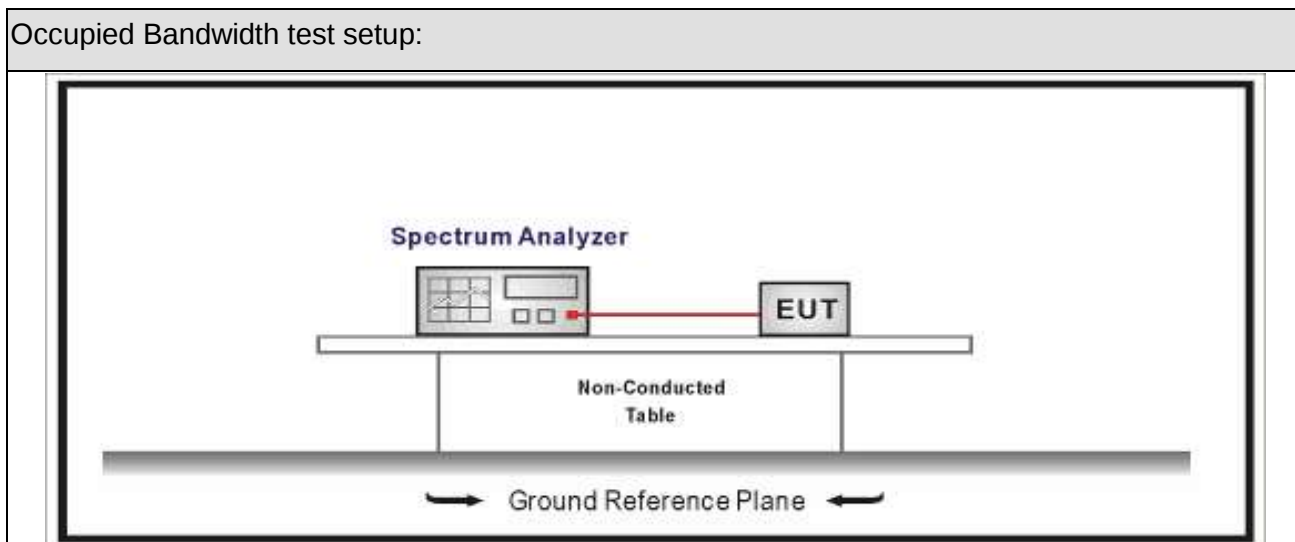
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.046	82.613	47.115	N/A	N/A	35.498	AV
2		2483.500	39.145	3.627	-14.855	54.000	35.517	AV

7. Occupied Bandwidth

7.1. Test Equipment

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.					

7.2. Test Setup



7.3. Limit

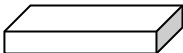
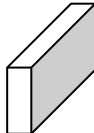
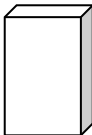
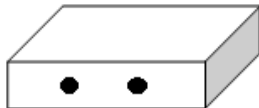
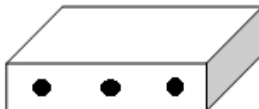
Occupied Bandwidth

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

7.4. Test Procedure

Test Method				
	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

7.5. EUT test definition

Item	Occupied Bandwidth			
Device Category	☐	Fixed point-to-point		
	☐	Emit multiple directional beams, simultaneously or sequentially		
	☒	Other cases		
Test mode	Mode 1			
Test method	☐	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☐
	☒	Conducted		
	☒	Chain 1		
				
	☐	Chain 1	Chain 2	
				
	☐	Chain 1	Chain 2	Chain 3
				

7.6. Test Result

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

Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (kHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result
1	00	2402	1094.9	782.6	>500	Pass
1	19	2440	1133.5	792.2	>500	Pass
1	39	2480	1157.5	789.7	>500	Pass

Mode 1 CH00 (2402MHz)



Mode 1 CH19 (2440MHz)



Mode 1 CH39 (2480MHz)



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

Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (kHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result
2	00	2402	2086.3	1022	>500	Pass
2	19	2440	2170.9	1112	>500	Pass
2	39	2480	2142.2	1027	>500	Pass

Mode 2 CH00 (2402MHz)



Mode 2 CH19 (2440MHz)



Mode 2 CH39 (2480MHz)



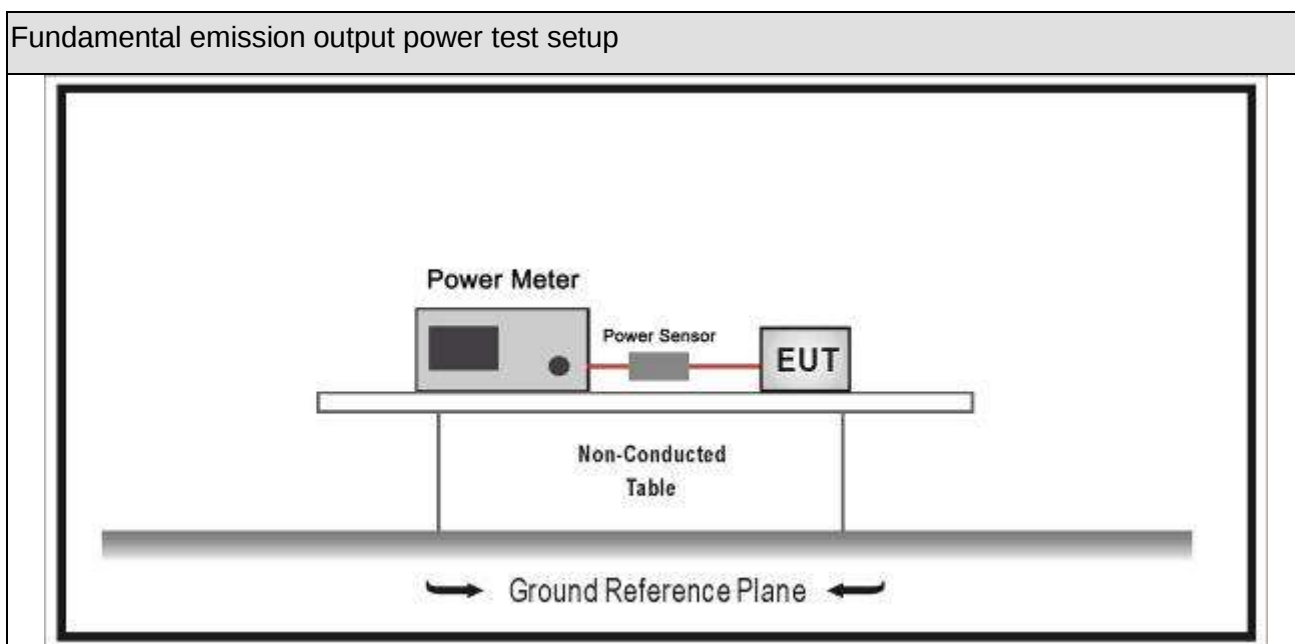
8. Fundamental emission output power

8.1. Test Equipment

Fundamental emission output power/ TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2019.05.08	2020.05.07
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
Wideband Peak Power Meter	Anritsu	ML2495A	0905006	2019.10.14	2020.10.13
Power Sensor	Anritsu	MA2411B	0846014	2019.10.28	2020.10.27
Temperature/Humidity Meter	zhicheng	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



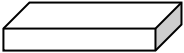
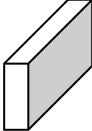
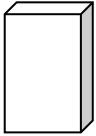
8.3. Limit

Fundamental emission output power Limit		
☒	$G_{TX} < 6\text{dBi}$	$P_{out} \leq 30\text{dBm}$
☐	$G_{TX} > 6\text{dBi}$	
☐	Non-Fix point-point	$P_{out} \leq 30 - (G_{TX} - 6)$
☐	Fix point-point	$P_{out} \leq 30 - [(G_{TX} - 6)]/3$
☐	Point-to-multipoint	$P_{out} \leq 30 - (G_{TX} - 6)$
☐	Overlap Beams	$P_{out} \leq 30 - [(G_{TX} - 6)]/3$
☐	Aggregate power transmitted simultaneously on all beams	$P_{out} \leq 30 - [(G_{TX} - 6)]/3$
☐	single directional beam	$P_{out} \leq 30 - [(G_{TX} - 6)]/3 + 8\text{dB}$
Note 1 : G_{TX} directional gain of transmitting antennas. Note 2 : P_{out} is maximum peak conducted output power .		

8.4. Test Procedure

Fundamental emission output power Test Method						
	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

8.5. EUT test definition

Item	Fundamental emission output power			
Device Category	☐	Fixed point-to-point		
	☐	Emit multiple directional beams, simultaneously or sequentially		
	☒	Other cases		
Test mode	Mode 1~2			
Test method	☐	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☐
	☒	Conducted		
	☒	Chain 1		
				
	☐	Chain 1	Chain 2	
				
	☐	Chain 1	Chain 2	Chain 3
				

8.6. 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	:	Tim

Mode	Channel	Test Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
1	00	2402	2.92	30	Pass
1	19	2440	3.85	30	Pass
1	39	2480	3.02	30	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	:	Tim

Mode	Channel	Test Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
2	00	2402	4.98	30	Pass
2	19	2440	4.95	30	Pass
2	39	2480	4.95	30	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	:	Tim

Mode	Channel	Test Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
1	00	2402	10.89	30	Pass
1	19	2440	10.28	30	Pass
1	39	2480	10.64	30	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	:	Tim

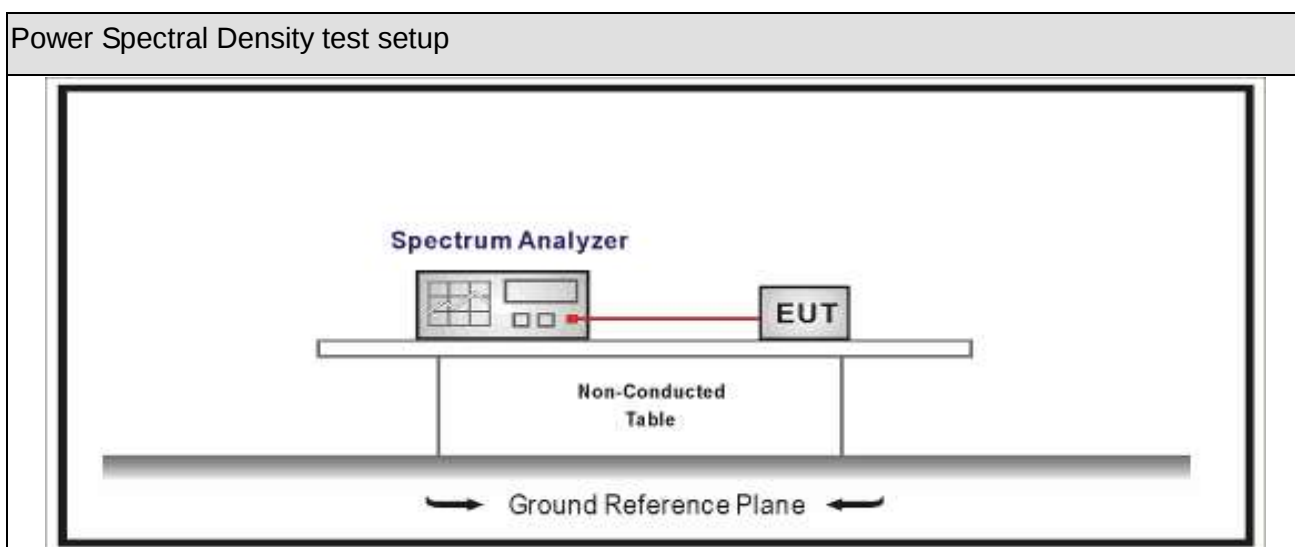
Mode	Channel	Test Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
2	00	2402	10.44	30	Pass
2	19	2440	10.69	30	Pass
2	39	2480	10.68	30	Pass

9. Power Spectral Density

9.1. Test Equipment

Power Spectral Density / 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



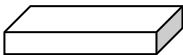
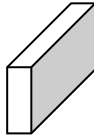
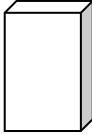
9.3. Limit

Power Spectral Density Limit
Power Spectral Density $\leq 8\text{dBm}/3\text{kHz}$

9.4. Test Procedure

Power Spectral Density Test Method				
	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

9.5. EUT test definition

Item	Power Spectral Density Test Method			
Device Category	☐	Fixed point-to-point		
	☐	Emit multiple directional beams, simultaneously or sequentially		
	☒	Other cases		
Test mode	Mode 1			
Test method	☐	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☐
	☒	Conducted		
	☒	Chain 1		
				
	☐	Chain 1	Chain 2	
				
	☐	Chain 1	Chain 2	Chain 3
				

9.6. 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	Test Engineer	: Tim

Mode	Channel	Test Frequency (MHz)	Measurement PSD (dBm/3kHz)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	00	2402	-3.414	-3.414	8	Pass
1	19	2440	-2.708	-2.708	8	Pass
1	39	2480	-2.451	-2.451	8	Pass

Mode 1 CH00(2402MHz)



Mode 1 CH19(2440MHz)



Mode 1 CH39(2480MHz)



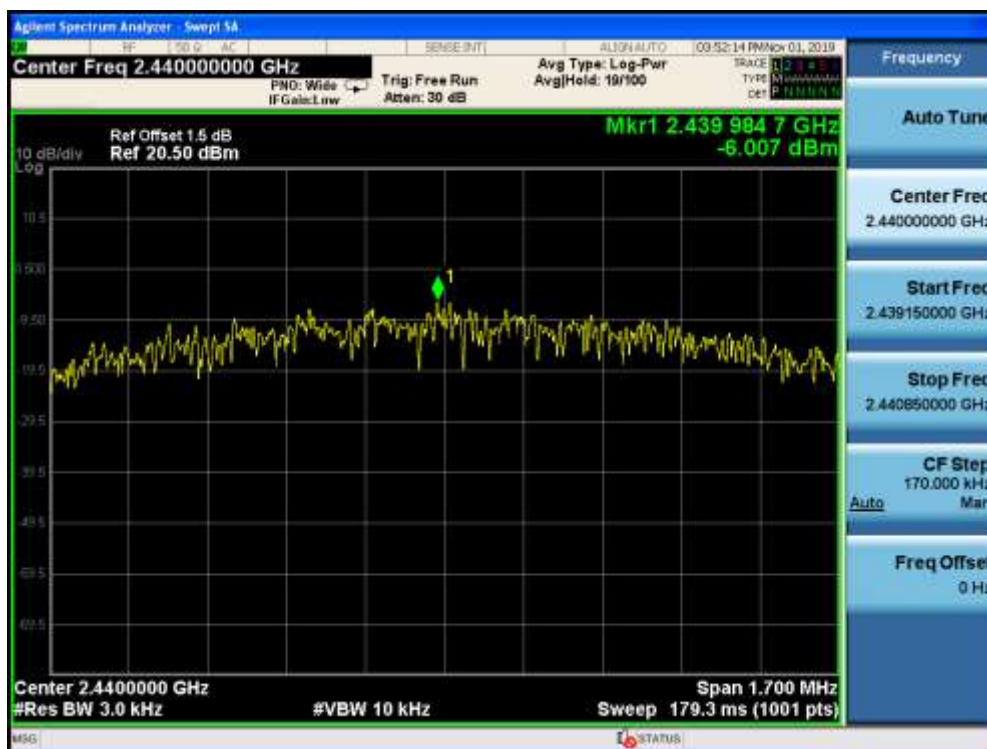
Product Name	: EZ-BT Module	Test Voltage	: DC 3.3V
Test Mode	: Mode 2	Test Site	: TR-8
Test Date	: 2019.11.01	Test Engineer	: Tim

Mode	Channel	Test Frequency (MHz)	Measurement PSD (dBm/3kHz)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	00	2402	-5.826	-5.826	8	Pass
1	19	2440	-6.007	-6.007	8	Pass
1	39	2480	-7.231	-7.231	8	Pass

Mode 2 CH00(2402MHz)



Mode 2 CH19(2440MHz)



Mode 2 CH39(2480MHz)



10. Antenna Requirement

10.1. Limit

Antenna Requirement Limit	
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.	

10.2. Antenna Connector Construction

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.	

_____ The End _____