



Test Report

FCC Part15 Subpart C & RSS-247 Issue 2

Product Name : EZ-BT WICED XR Module with Mesh
Model No. : CYBT-483039-02
FCC ID : WAP3039
IC : 7922A-3039

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

Date of Receipt : Mar. 29, 2018
Test Date : Mar. 29, 2018~ May. 23, 2018
Issued Date : May. 24, 2018
Report No. : 1832171R-RF-US-P06V02
Report Version : V1.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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Test Report Certification

Issued Date : May. 24, 2018
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 Applicant : Cypress Semiconductor
 Address : 198 Champion Ct, San Jose, California 95134
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 Manufacturer : Cypress Semiconductor
 Address : 198 Champion Ct, San Jose, California 95134
 United States
 Model No. : CYBT-483039-02
 FCC ID : WAP3039
 IC : 7922A-3039
 EUT Voltage : DC 2.0~3.6V
 Test Voltage : AC 120V/60Hz
 Applicable Standard : FCC CFR Title 47 Part 15 Subpart C
 ANSI C63.10:2013;
 KDB 558074 D01v04
 RSS-Gen Issue 4 / 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 Lab Code: 4075B

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1832171R-RF-US-P06V02	V1.0	Initial Issued Report	May. 24, 2018

1. General Information

1.1. EUT Description

Product Name	EZ-BT WICED XR Module with Mesh
Model No.	CYBT-483039-02
EUT Voltage	DC 2.0~3.6V
Test Voltage	AC 120V/60Hz
Bluetooth Specification	V4.0
Frequency Range	2402- 2480 MHz
Channel Number	V4.0: 40
Channel Separation	V4.0: 2MHz
Type of Modulation	V4.0: GFSK
Data Rate	V4.0: 1Mbps(GFSK)
Antenna Type	Reference to Antenna List
Peak Antenna Gain	Reference to Antenna List

1.2. Working Frequency of Each Channel:

Bluetooth Working Frequency of Each Channel: (For V4.0)							
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

Model No.	N/A			
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"/> Sectorized		
Antenna Type	<input type="checkbox"/> External	<input type="checkbox"/> Dipole		
		<input type="checkbox"/> Sectorized		
	<input checked="" type="checkbox"/> Internal	<input type="checkbox"/> PIFA		
		<input type="checkbox"/> PCB		
		<input checked="" type="checkbox"/> Ceramic Chip Antenna		
		<input type="checkbox"/> Monopole Antenna		
Antenna Technology	Ant Gain (dBi)			
<input checked="" type="checkbox"/> SISO	2.3			

1.4. Mode of Operation

Test Mode
Mode 1: Transmit-1Mbps(GFSK_BLE)

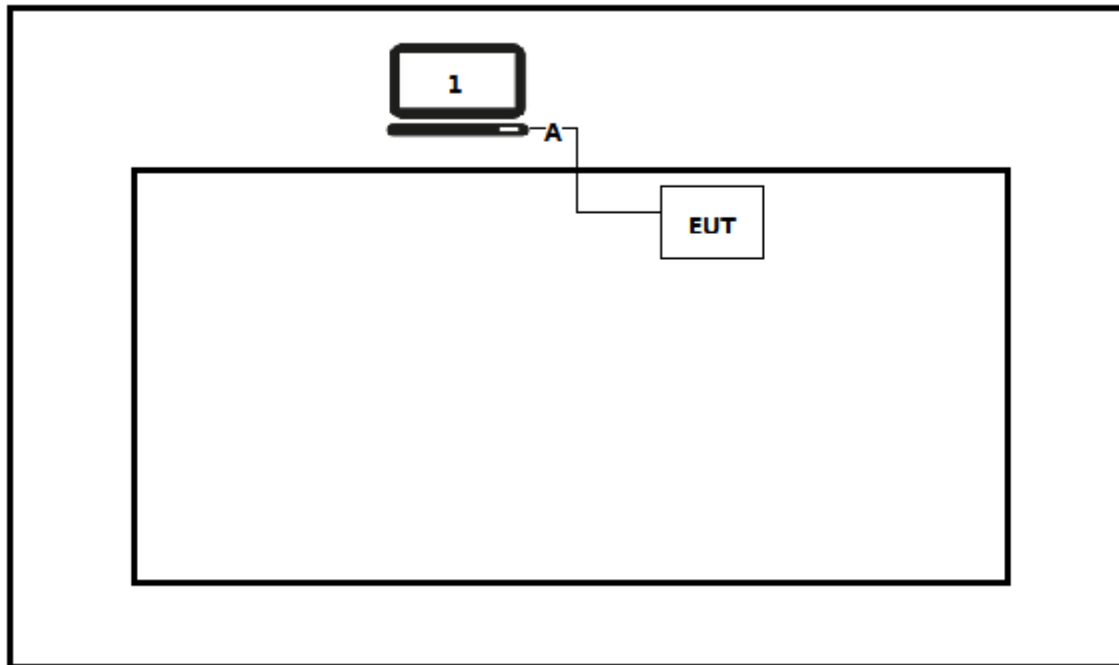
1.5. Tested System Details

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

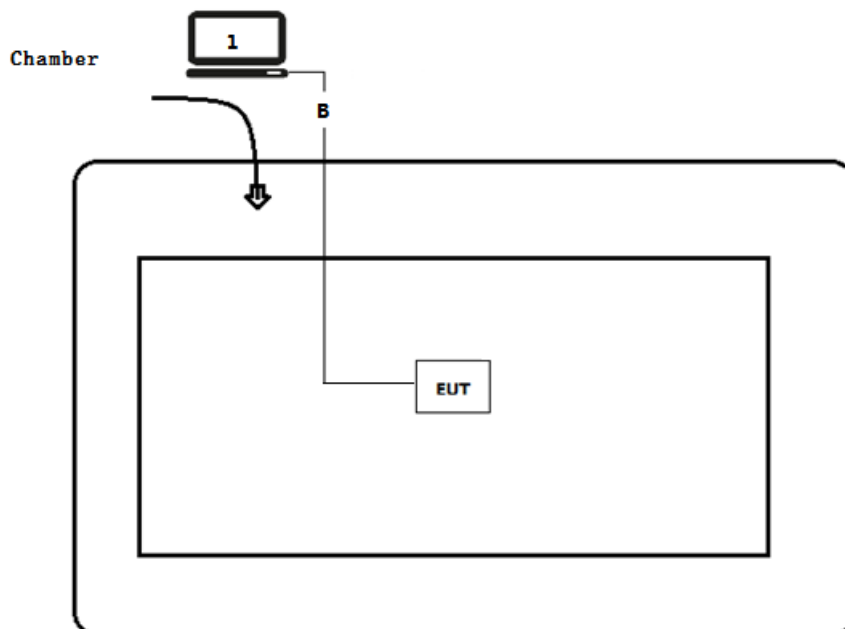
No.	Product	Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	Think Pad	2526	LV-A3285	Power by adapter
A	USB cable	N/A	N/A	N/A	Shielded,0.5m
B	USB cable	N/A	N/A	N/A	Shielded,10m

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)	20dBc	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)	500kHz	PASS
Fundamental emission output power	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(b)(3)	30dBm	PASS
Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(e)	8dBm/3kHz	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 4 Section 8.8	RSS-Gen	PASS
Emissions in restricted frequency bands	RSS-Gen Issue 4 Section 8.9	RSS-Gen	PASS
Emissions in non-restricted frequency bands	RSS-247 Issue 2 Section A5.5	20dBc	PASS
Radiated Emission Band Edge	RSS-247 Issue 2 Section A5.5	RSS-247	PASS
Occupied Bandwidth	RSS-Gen Issue 4 Section 6.6 RSS-247 Issue 2 Section A5.2(1)	500kHz	PASS
Fundamental emission output power	RSS-247 Issue 2 Section A5.4(4)	30dBm	PASS
Power Spectral Density	RSS-247 Issue 2 Section A5.2(2)	8dBm/3kHz	PASS
Antenna Requirement	RSS-Gen Issue 4 Section 8.3	RSS-Gen Issue 4	PASS

2.2. Test Frequency configuration:

Modulation Mode	Channel	Frequency	Channel	Frequency	Channel	Frequency
BLE	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	$\pm 2.02\text{dB}$
Radiated Emission	Below 1GHz $\pm 3.8\text{ dB}$
	Above 1GHz $\pm 3.9\text{ dB}$
RF Antenna Port Conducted Emission	$\pm 1.27\text{dB}$
Radiated Emission Band Edge	$\pm 3.9\text{dB}$
Occupied Bandwidth	$\pm 1\text{kHz}$
Power Spectral Density	$\pm 1.27\text{dB}$

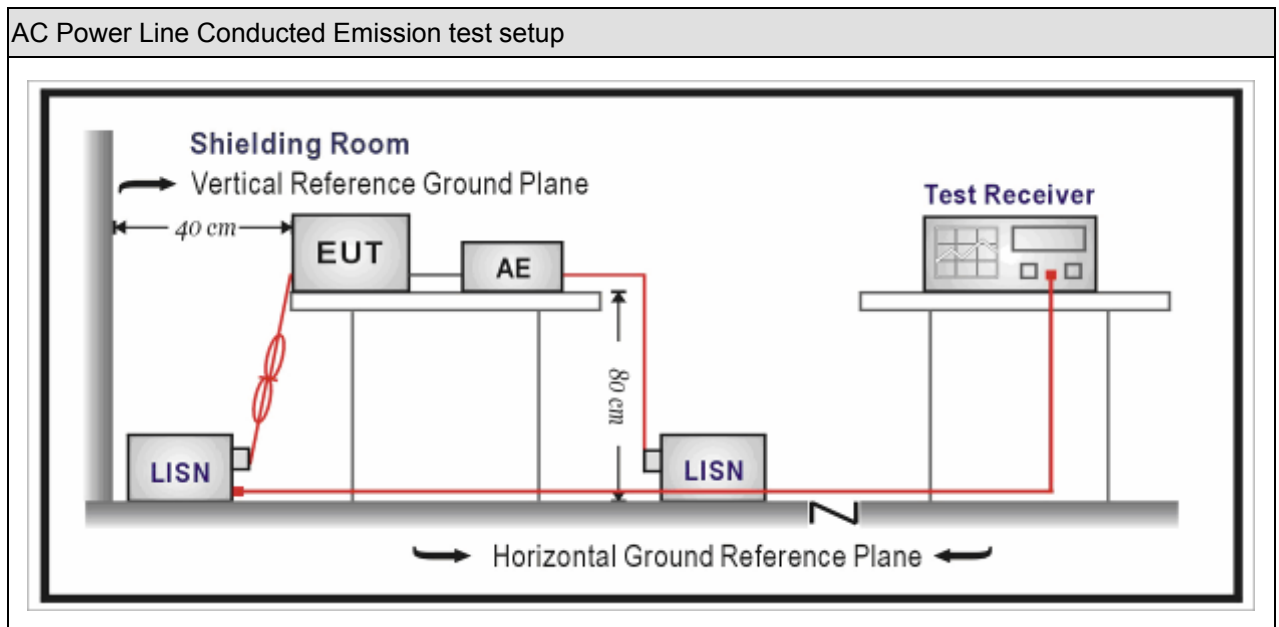
3. AC Power Line Conducted Emission

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	2018.03.05	2019.03.04
Two-Line V-Network	R&S	ENV 216	101189	2017.07.16	2018.07.15
Two-Line V-Network	R&S	ENV 216	101044	2017.09.16	2018.09.15
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
50ohm Termination	SHX	TF2	07081402	2017.09.16	2018.09.15
Temperature/Humidity Meter	Zhichen	ZC1-2	TR1-TH	2018.01.04	2019.01.03
Quietek EMI V3(test software)	Quietek	N/A	N/A	N/A	N/A

Note: All equipment are 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

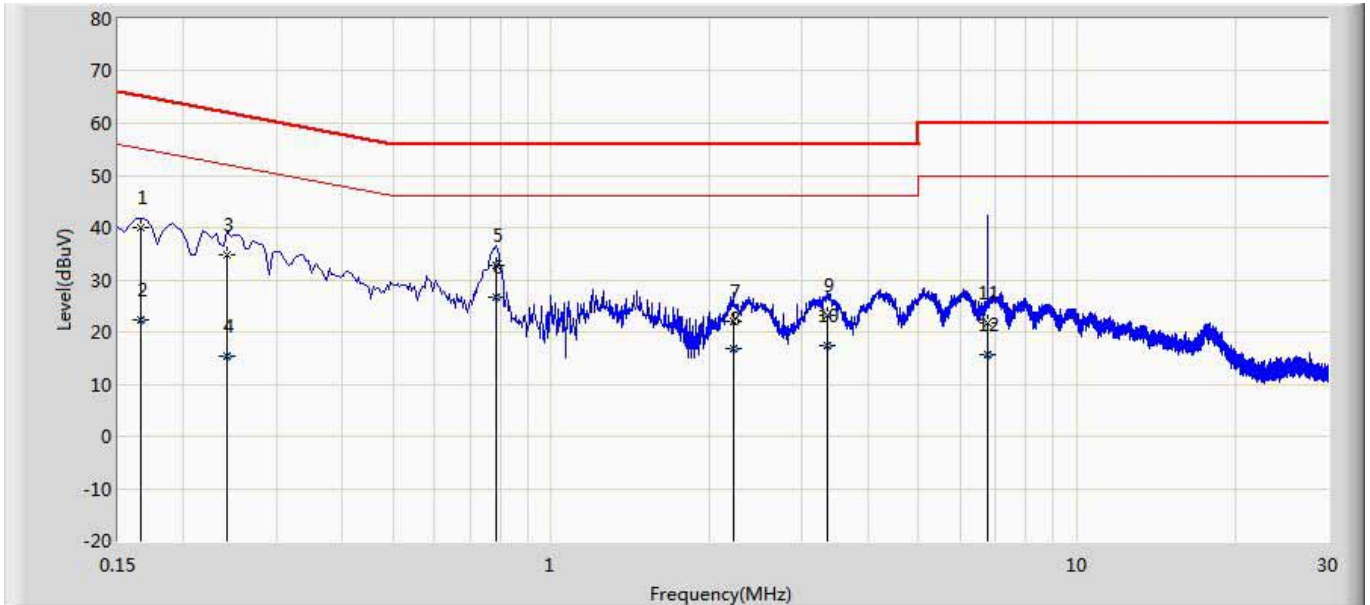
Note 1: The lower limit shall apply at the transition frequencies.
 Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

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

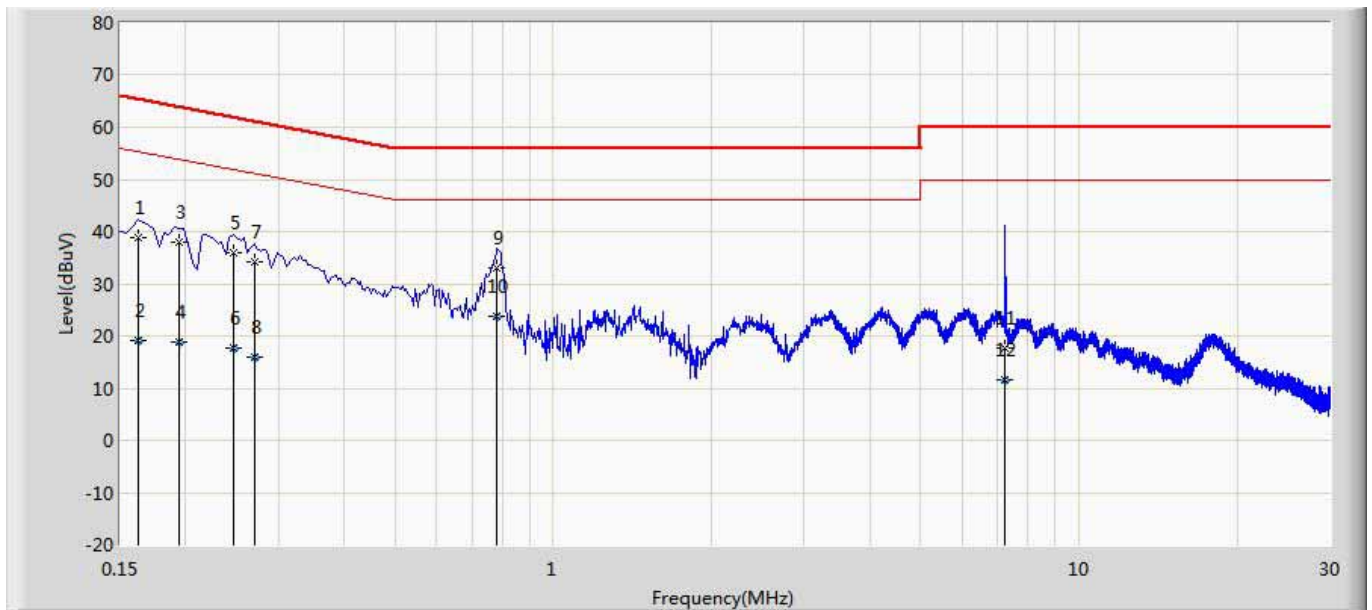
3.5. Test Result

Site: TR1	Time: 2018/04/09
Limit: FCC_Part15.207_CE	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Line
EUT: EZ-BT WICED XR Module with Mesh	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.166	39.891	30.257	-25.268	65.158	9.607	0.027	0.000	QP
2		0.166	22.186	12.553	-32.972	55.158	9.607	0.027	0.000	AV
3		0.242	34.827	25.196	-27.201	62.027	9.600	0.030	0.000	QP
4		0.242	15.337	5.706	-36.691	52.027	9.600	0.030	0.000	AV
5		0.786	32.728	23.072	-23.272	56.000	9.603	0.052	0.000	QP
6	*	0.786	26.739	17.084	-19.261	46.000	9.603	0.052	0.000	AV
7		2.218	22.066	12.360	-33.934	56.000	9.614	0.093	0.000	QP
8		2.218	16.759	7.053	-29.241	46.000	9.614	0.093	0.000	AV
9		3.358	23.271	13.523	-32.729	56.000	9.633	0.115	0.000	QP
10		3.358	17.441	7.693	-28.559	46.000	9.633	0.115	0.000	AV
11		6.770	21.862	12.001	-38.138	60.000	9.695	0.165	0.000	QP
12		6.770	15.721	5.861	-34.279	50.000	9.695	0.165	0.000	AV

Site: TR1	Time: 2018/04/09
Limit: FCC_Part15.207_CE	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Neutral
EUT: EZ-BT WICED XR Module with Mesh	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.162	38.860	29.241	-26.501	65.361	9.593	0.026	0.000	QP
2		0.162	19.223	9.604	-36.137	55.361	9.593	0.026	0.000	AV
3		0.194	38.004	28.377	-25.860	63.864	9.598	0.028	0.000	QP
4		0.194	18.951	9.325	-34.912	53.864	9.598	0.028	0.000	AV
5		0.246	36.078	26.449	-25.813	61.891	9.598	0.031	0.000	QP
6		0.246	17.681	8.053	-34.210	51.891	9.598	0.031	0.000	AV
7		0.270	34.127	24.496	-26.991	61.118	9.597	0.033	0.000	QP
8		0.270	15.908	6.277	-35.210	51.118	9.597	0.033	0.000	AV
9		0.782	33.040	23.397	-22.960	56.000	9.590	0.052	0.000	QP
10	*	0.782	23.674	14.032	-22.326	46.000	9.590	0.052	0.000	AV
11		7.246	17.825	7.947	-42.175	60.000	9.707	0.171	0.000	QP
12		7.246	11.605	1.727	-38.395	50.000	9.707	0.171	0.000	AV

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	2018.03.29	2019.03.28
Loop Antenna	R&S	HFH2-Z2	833799/003	2017.11.16	2018.11.15
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2017.10.16	2018.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2018.03.02	2019.03.01
Temperature/Humidity Meter	Zhichen	ZC1-2	AC2-TH	2018.01.03	2019.01.02
Quietek EMI V3(test software)	Quietek	N/A	N/A	N/A	N/A

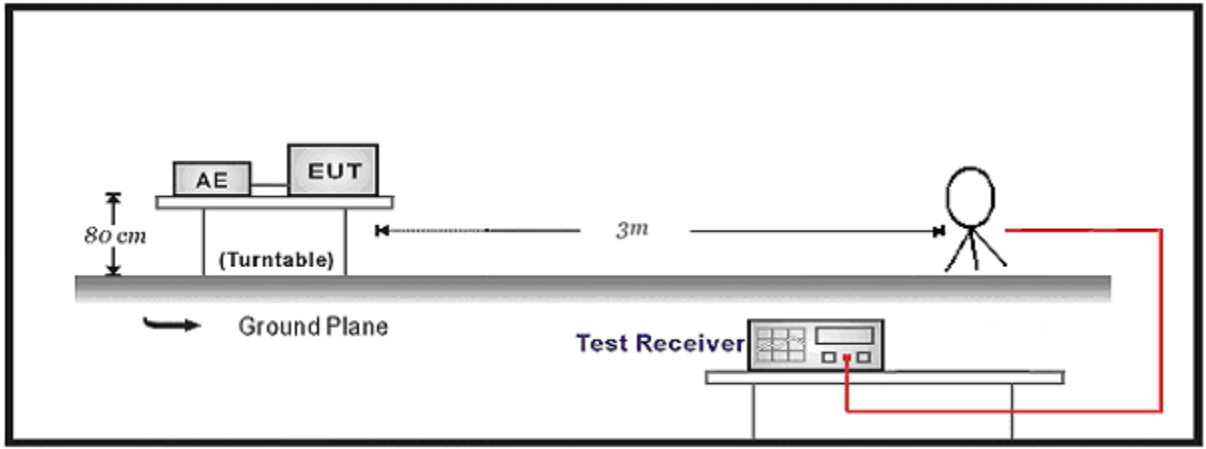
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2018.01.04	2019.01.03
Preamplifier	Miteq	NSP1800-25	1364185	2017.05.06	2019.05.05
Preamplifier	Quietek	AP-040G	CHM-0906001	2017.05.06	2019.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2018.01.22	2019.01.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2017.11.25	2018.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2018.03.02	2019.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2018.03.02	2019.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2018.03.02	2019.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2017.06.10	2018.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2018.01.04	2019.01.03
Quietek EMI V3(test software)	Quietek	N/A	N/A	N/A	N/A

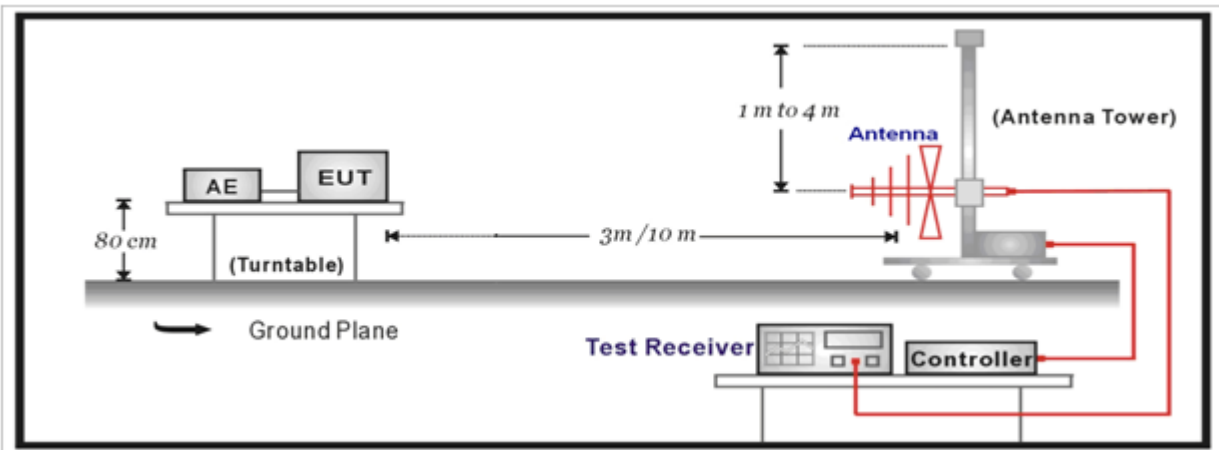
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

4.2. Test Setup

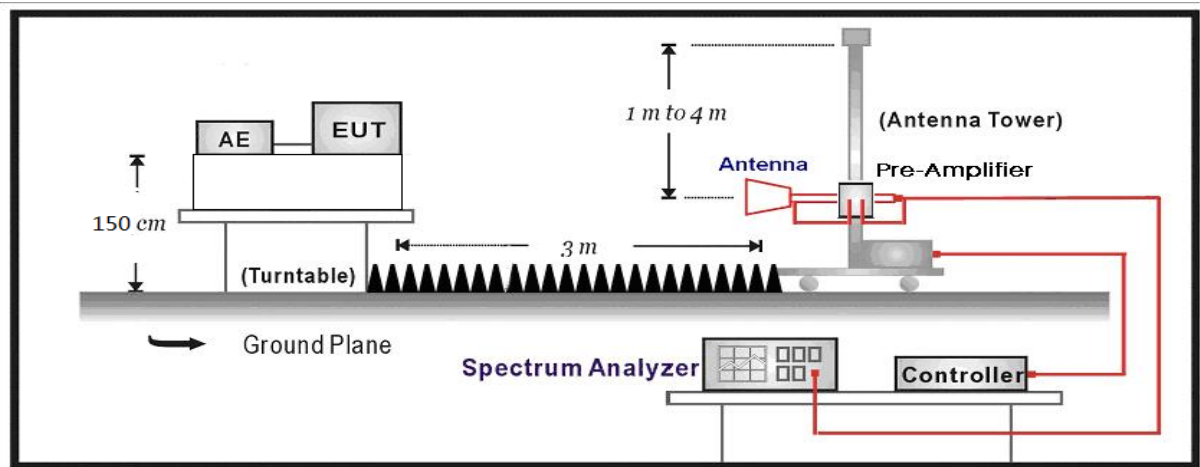
Below 30MHz Test Setup:



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 (μ V/m)	Field strength (dB μ 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)

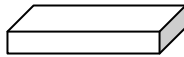
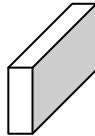
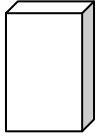
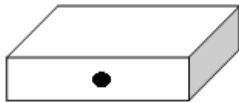
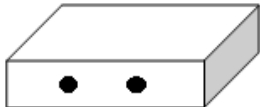
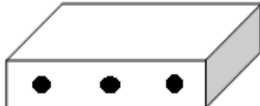
Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed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

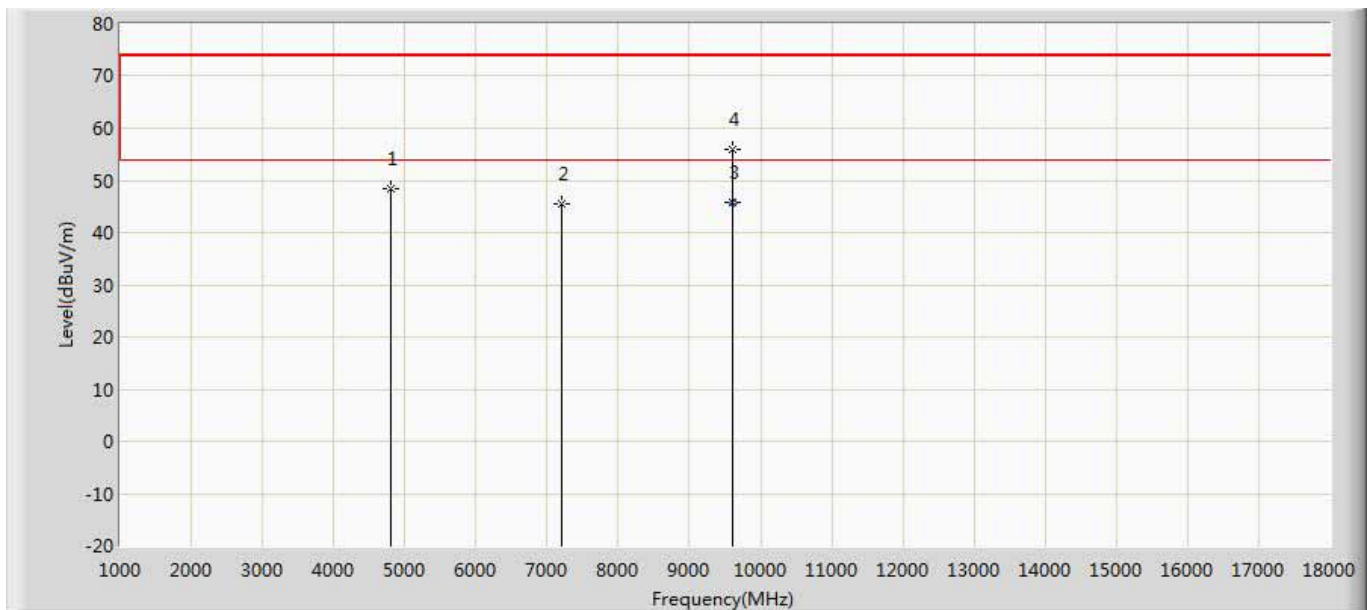
Test Method			
	References Rule	Chapter	Description
<input type="checkbox"/>	ANSI C63.10	11.11	Emissions in non-restricted frequency bands
	<input type="checkbox"/> ANSI C63.10	11.11.2	Reference level measurement
	<input type="checkbox"/> ANSI C63.10	11.11.3	Emission level measurement
<input checked="" type="checkbox"/>	ANSI C63.10	11.12	Emissions in restricted frequency bands
	<input checked="" type="checkbox"/> ANSI C63.10	11.12.1	Radiated emission measurements
	<input checked="" type="checkbox"/> ANSI C63.10	11.12.2.7	Radiated spurious emission test
	<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
	<input type="checkbox"/> ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure
	<input checked="" type="checkbox"/> ANSI C63.10	11.12.2.4	Peak power measurement procedure
	<input checked="" type="checkbox"/> ANSI C63.10	11.12.2.5	Average power measurement procedures
	<input type="checkbox"/> ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission at full power
	<input type="checkbox"/> ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
	<input checked="" type="checkbox"/> 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	<input type="checkbox"/>	Fixed point-to-point		
	<input type="checkbox"/>	Emit multiple directional beams, simultaneously or sequentially		
	<input checked="" type="checkbox"/>	Other cases		
Test mode	Mode 1			
Test method	<input checked="" type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input checked="" type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>
	<input type="checkbox"/>	Conducted		
	<input type="checkbox"/>	Chain 1		
				
	<input type="checkbox"/>	Chain 1	Chain 2	
				
	<input type="checkbox"/>	Chain 1	Chain 2	Chain 3
				

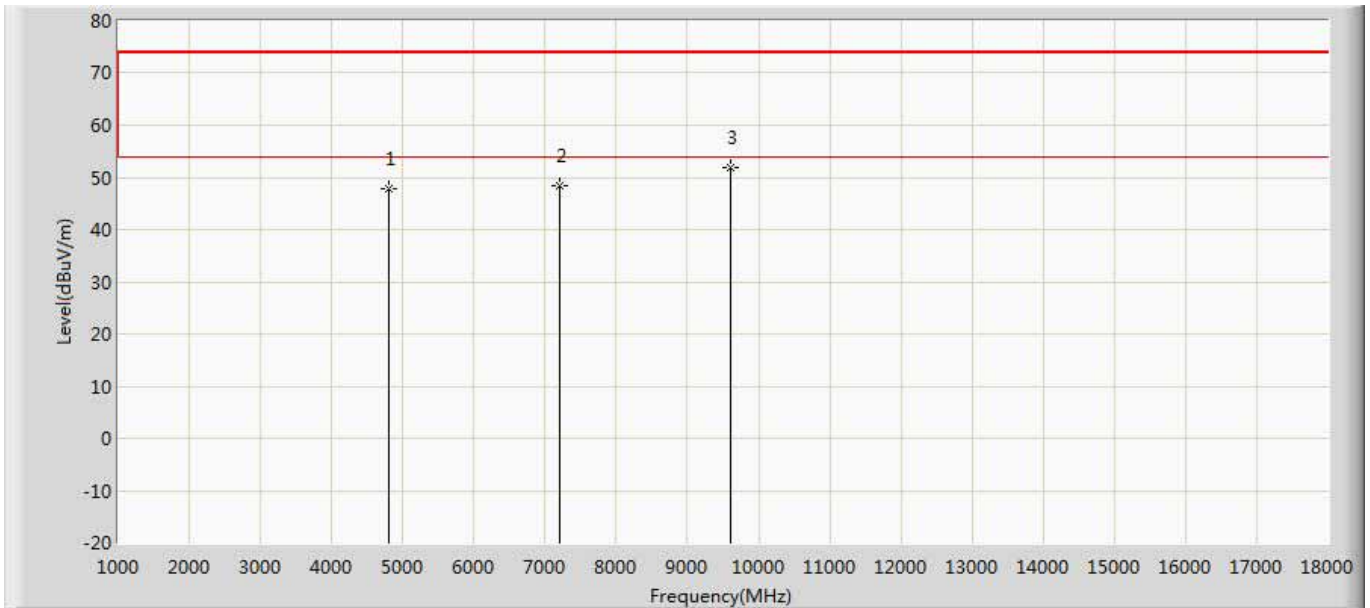
4.6. Test Result

Engineer: Slark	
Site: AC5	Time: 2018/05/23 - 16:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT WICED XR Module with Mesh	Power: 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by BLE	



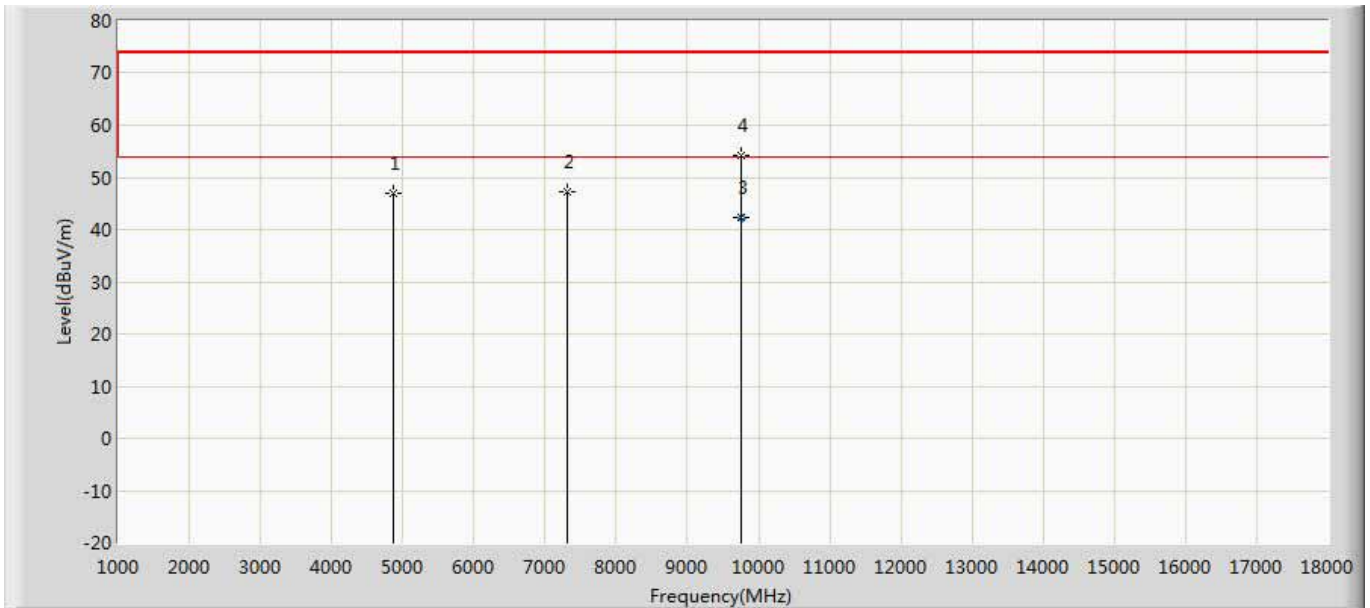
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4799.500	48.463	50.071	-25.537	74.000	-1.608	PK
2		7205.000	45.591	42.688	-28.409	74.000	2.903	PK
3	*	9608.675	45.815	40.971	-8.185	54.000	4.844	AV
4		9610.500	55.822	50.932	-18.178	74.000	4.891	PK

Engineer: Slark	
Site: AC5	Time: 2018/05/23 - 16:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT WICED XR Module with Mesh	Power: 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by BLE	



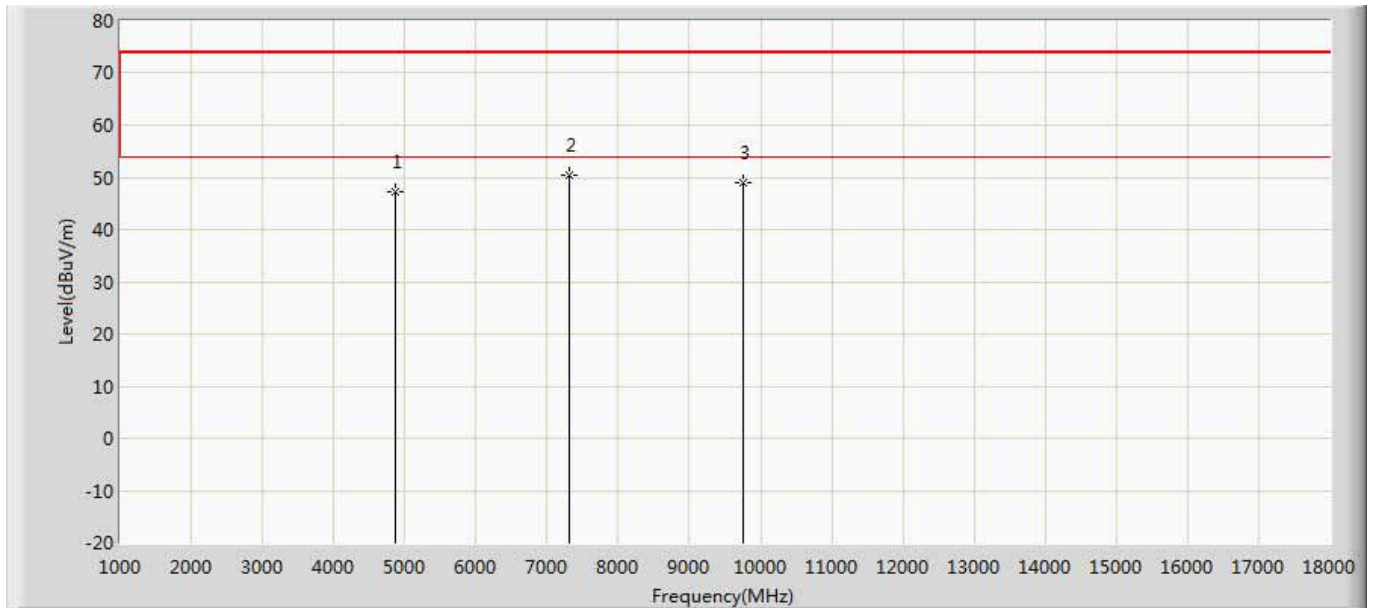
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4808.000	47.823	49.514	-26.177	74.000	-1.691	PK
2		7205.000	48.441	45.538	-25.559	74.000	2.903	PK
3	*	9610.500	51.824	46.934	-22.176	74.000	4.891	PK

Engineer: Slark	
Site: AC5	Time: 2018/05/23 - 16:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT WICED XR Module with Mesh	Power: 120V/60Hz
Note: Mode 1:Transmit at 2440MHz by BLE	



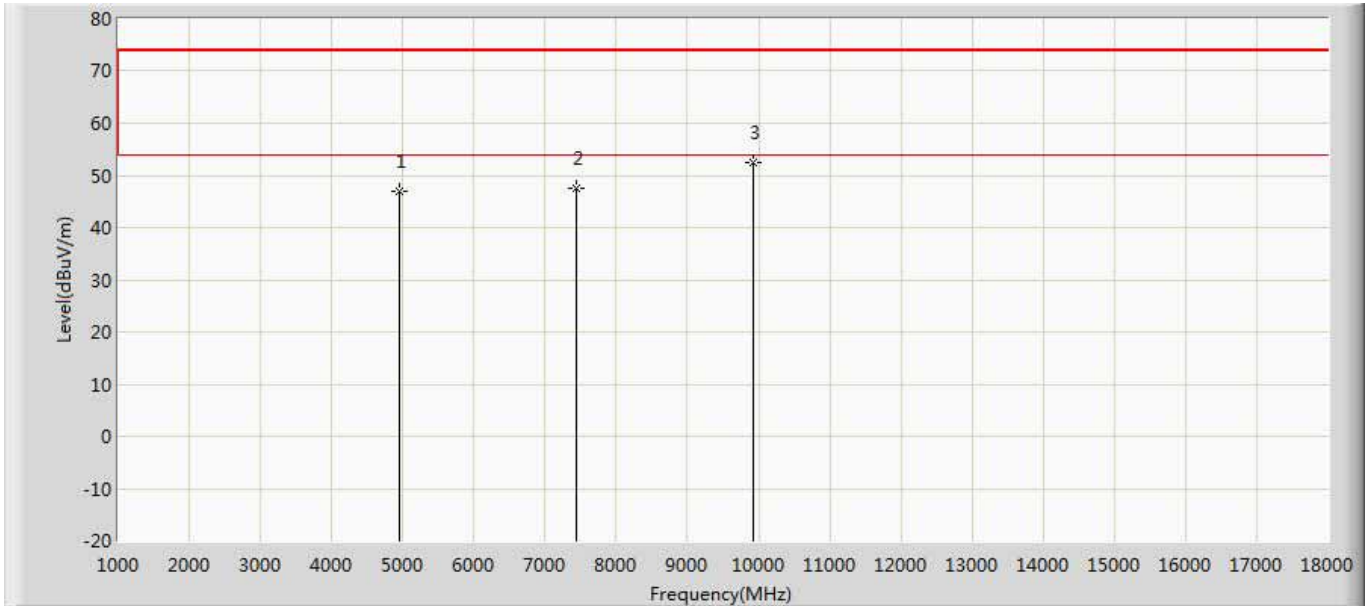
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4876.000	46.940	48.522	-27.060	74.000	-1.582	PK
2		7315.500	47.329	44.482	-26.671	74.000	2.847	PK
3	*	9760.840	42.295	38.193	-11.705	54.000	4.102	AV
4		9763.500	54.170	49.928	-19.830	74.000	4.242	PK

Engineer: Slark	
Site: AC5	Time: 2018/05/23 - 16:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT WICED XR Module with Mesh	Power: 120V/60Hz
Note: Mode 1:Transmit at 2440MHz by BLE	



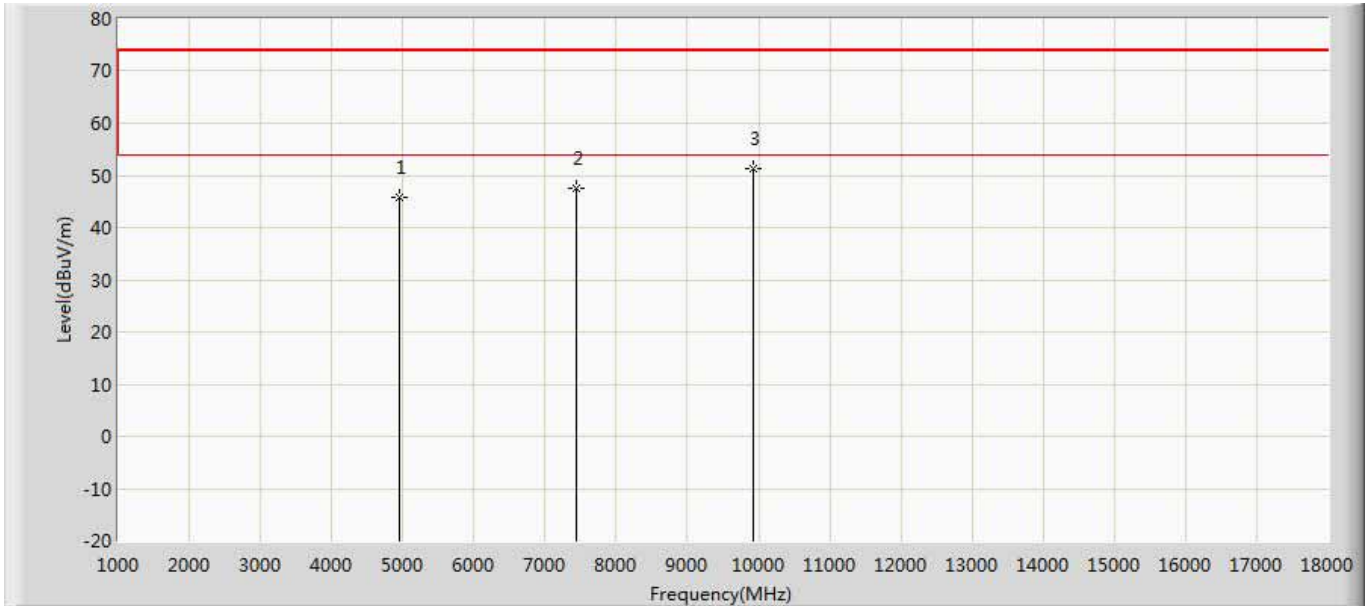
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4876.000	47.270	48.852	-26.730	74.000	-1.582	PK
2	*	7315.500	50.462	47.615	-23.538	74.000	2.847	PK
3		9763.500	48.884	44.642	-25.116	74.000	4.242	PK

Engineer: Slark	
Site: AC5	Time: 2018/05/23 - 16:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT WICED XR Module with Mesh	Power: 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4961.000	46.961	48.912	-27.039	74.000	-1.951	PK
2		7443.000	47.562	44.902	-26.438	74.000	2.660	PK
3	*	9916.500	52.398	47.188	-21.602	74.000	5.210	PK

Engineer: Slark	
Site: AC5	Time: 2018/05/23 - 16:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT WICED XR Module with Mesh	Power: 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by BLE	



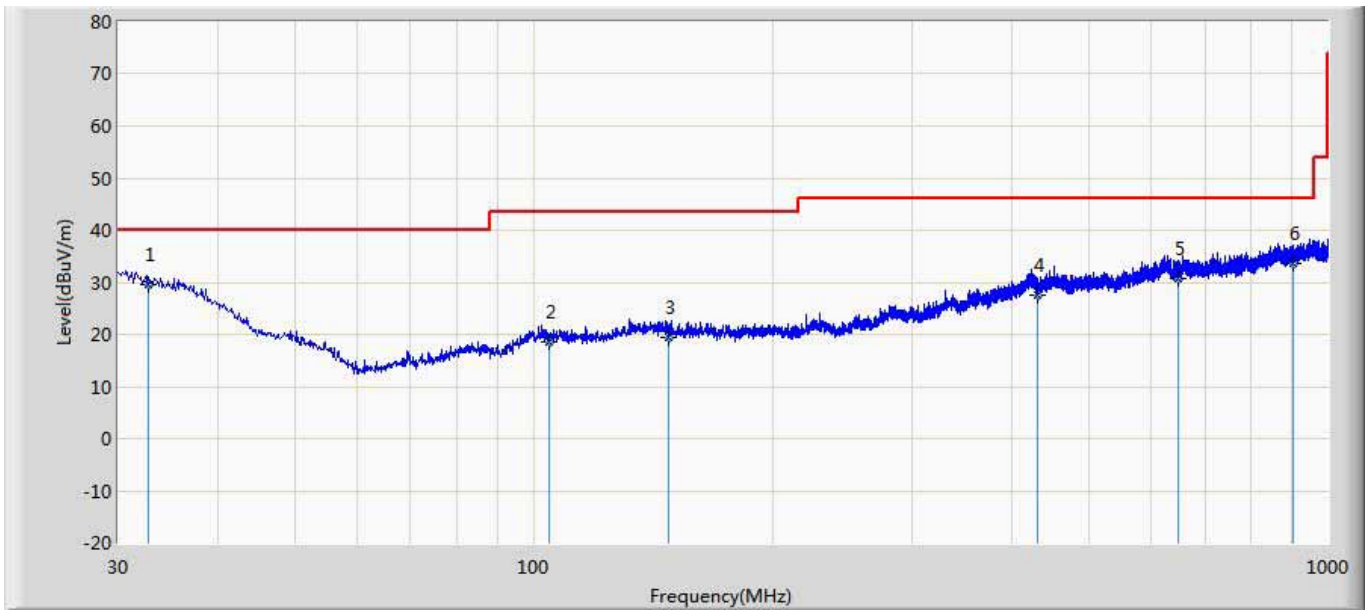
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4961.000	45.830	47.781	-28.170	74.000	-1.951	PK
2		7443.000	47.608	44.948	-26.392	74.000	2.660	PK
3	*	9916.500	51.189	45.979	-22.811	74.000	5.210	PK

Radiated Emission above 18GHz:

Note : The peak value of Radiated Emission above 18GHz is negligible, so this test item is not shown in the report.

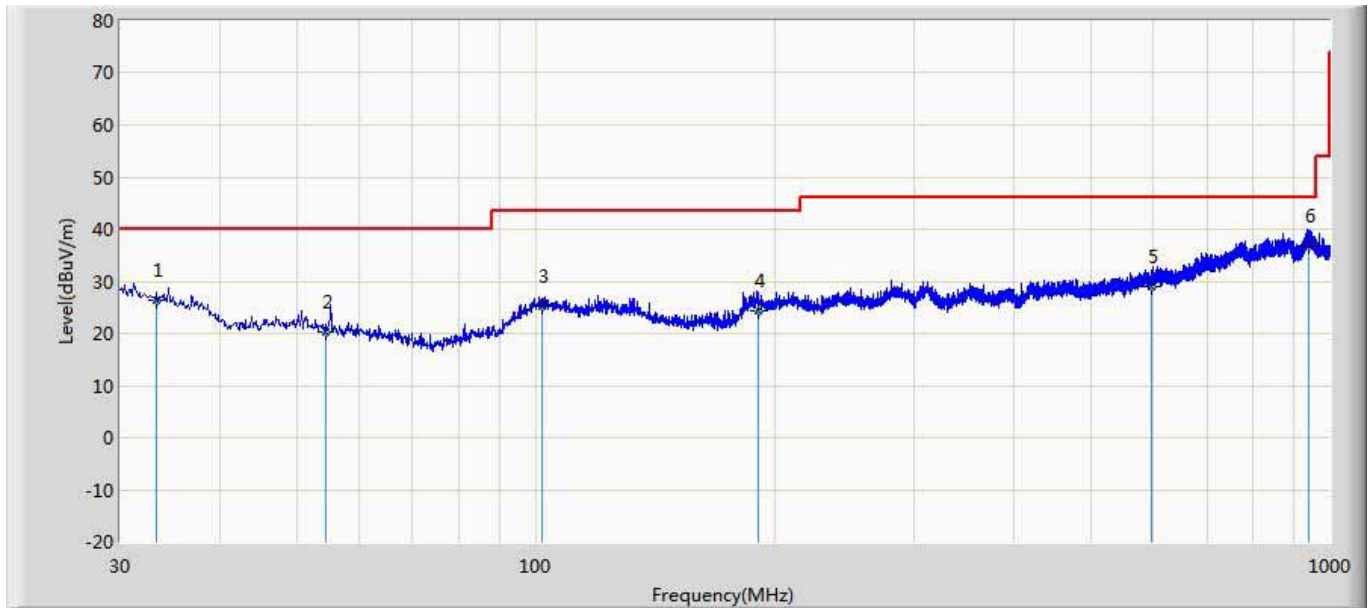
The worst case of Radiated Emission below 1GHz:

Engineer: CptJack	
Site: AC3	Time: 2018/04/08
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Horizontal
EUT: EZ-BT WICED XR Module with Mesh	Power: AC 120V/60Hz
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)	Type
1	*	32.789	29.573	3.100	-10.427	40.000	19.968	6.470	QP
2		104.811	18.499	2.300	-25.001	43.500	9.299	6.871	QP
3		148.098	19.406	2.000	-24.094	43.500	10.239	7.071	QP
4		430.367	27.509	0.800	-18.491	46.000	18.646	7.986	QP
5		648.981	30.733	2.000	-15.267	46.000	20.094	8.544	QP
6		904.576	33.737	1.600	-12.263	46.000	22.968	9.105	QP

Engineer: CptJack	
Site: AC3	Time: 2018/04/08
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Vertical
EUT: EZ-BT WICED XR Module with Mesh	Power: AC 120V/60Hz
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)	Type
1		33.395	26.325	3.300	-13.675	40.000	16.533	6.475	QP
2		54.493	20.200	3.100	-19.800	40.000	10.430	6.620	QP
3		101.780	25.170	3.000	-18.330	43.500	15.236	6.866	QP
4		190.656	24.264	3.000	-19.236	43.500	14.014	7.249	QP
5		596.480	28.901	1.800	-17.099	46.000	18.678	8.420	QP
6	*	939.739	36.778	2.500	-9.222	46.000	25.039	9.182	QP

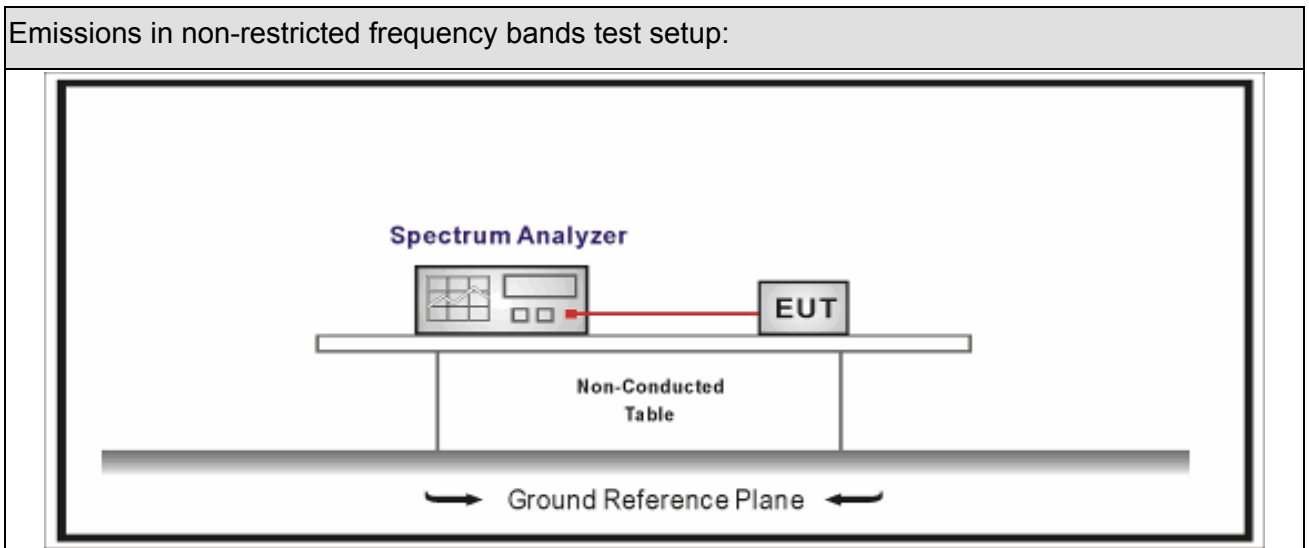
5. Emissions in non-restricted frequency bands

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	2018.02.04	2019.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2019.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2019.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2019.04.09

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

5.2. Test Setup



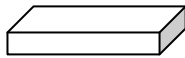
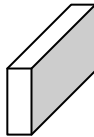
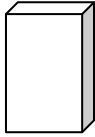
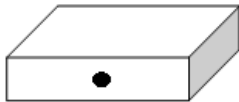


5.3. Limit

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)
<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>	

5.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	11.11	Emissions in non-restricted frequency bands
	<input checked="" type="checkbox"/> ANSI C63.10	11.11.2	Reference level measurement
	<input checked="" type="checkbox"/> ANSI C63.10	11.11.3	Emission level measurement
<input type="checkbox"/>	ANSI C63.10	11.12	Emissions in restricted frequency bands
	<input type="checkbox"/> ANSI C63.10	11.12.1	Radiated emission measurements
	<input type="checkbox"/> ANSI C63.10	11.12.2.7	Radiated spurious emission test
<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 type="checkbox"/>	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz
	<input checked="" type="checkbox"/> ANSI C63.10	11.12.2	Antenna-port conducted measurements
	<input type="checkbox"/> ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure
	<input checked="" type="checkbox"/> ANSI C63.10	11.12.2.4	Peak power measurement procedure
	<input type="checkbox"/> ANSI C63.10	11.12.2.5	Average power measurement procedures
	<input type="checkbox"/> ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission at full power
	<input type="checkbox"/> ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
	<input type="checkbox"/> 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	<input type="checkbox"/>	Fixed point-to-point		
	<input type="checkbox"/>	Emit multiple directional beams, simultaneously or sequentially		
	<input checked="" type="checkbox"/>	Other cases		
Test mode	Mode 1			
Test method	<input type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>
	<input checked="" type="checkbox"/>	Conducted		
	<input checked="" type="checkbox"/>	Chain 1		
				
	<input type="checkbox"/>	Chain 1	Chain 2	
				
	<input type="checkbox"/>	Chain 1	Chain 2	Chain 3
				

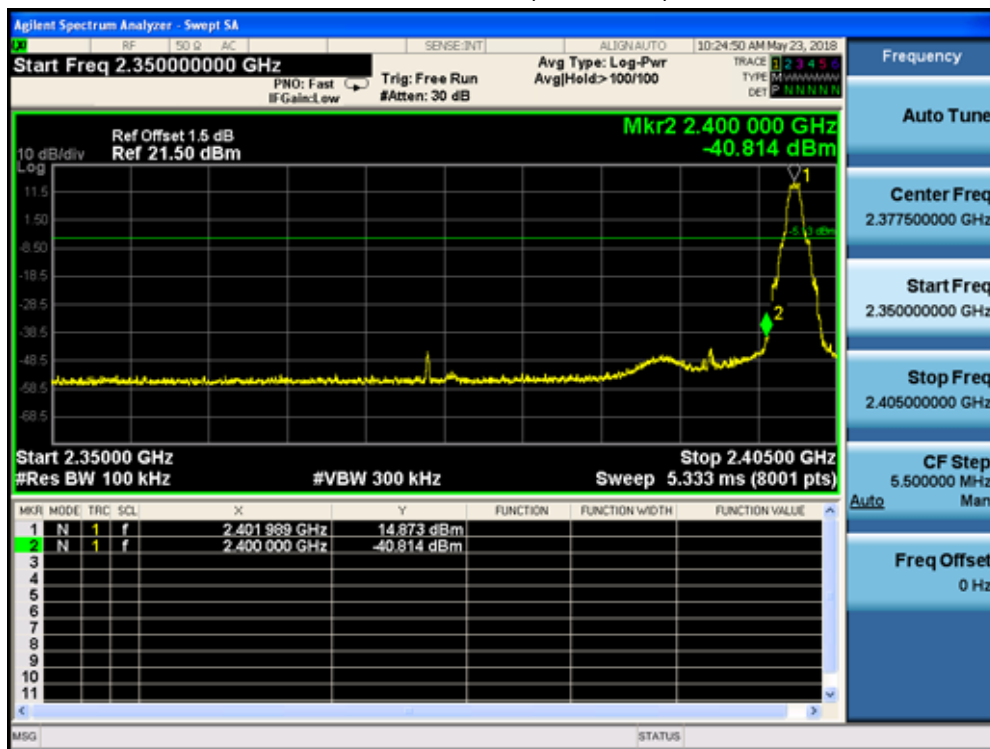
5.6. Test Result

Product Name	: EZ-BT WICED XR Module with Mesh	Power	: AC 120V/60Hz
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2018.05.23	Test Engineer	: Slark

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	14.873	2400.00	-40.814	55.687	>20	Pass
1	39	2480	15.798	2500.00	-54.097	69.895	>20	Pass

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

Mode 1 CH00 (2402MHz)

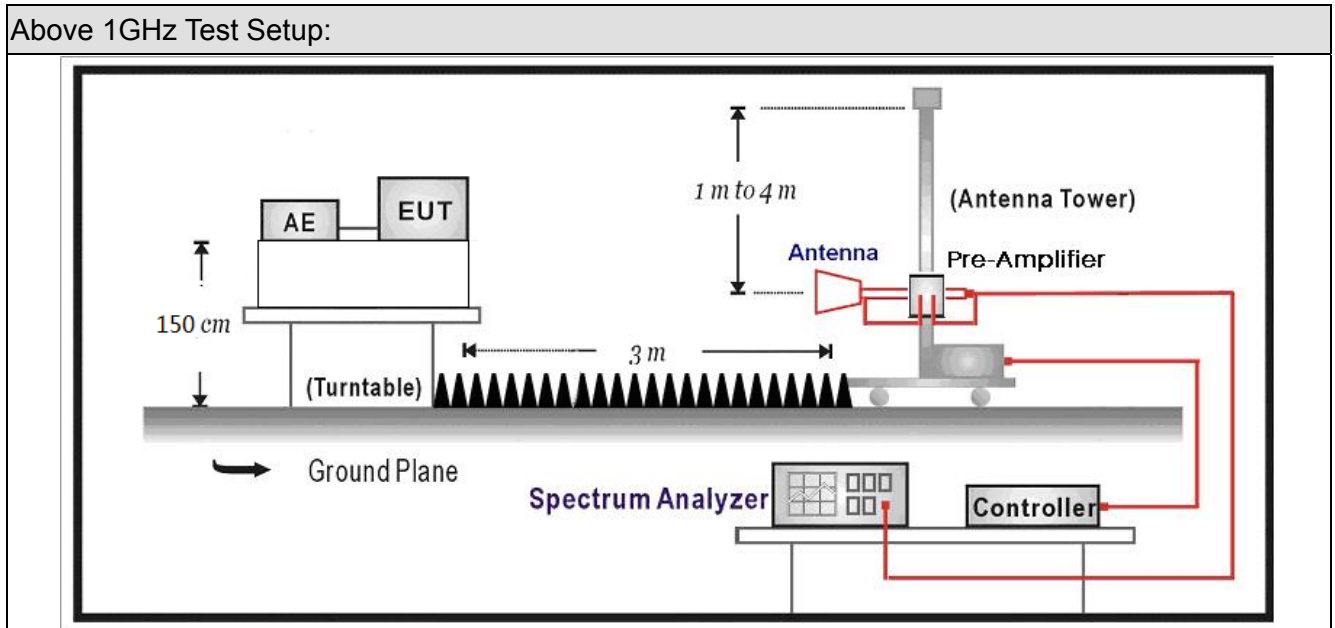


6. Radiated Emission Band Edge

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	2017.07.16	2018.07.15
Pre-Amplifier	Miteq	NSP1800-25	1364185	2017.05.03	2019.05.02
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2017.07.12	2018.07.11
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2017.09.18	2018.09.17
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2018.02.28	2019.02.27
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2018.02.28	2019.02.27
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2018.01.05	2019.01.04

6.2. Test Setup



6.3. Limit

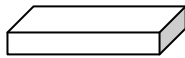
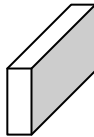
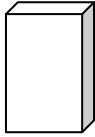
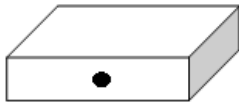


Band edge Limit				
Frequency bands (MHz)	Detector	Limit (dB μ V/m)	RBW (MHz)	Distance (m)
2310-2390	PK	74	1	3
2483.5-2500	AV	54	1	3

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

6.4. Test Procedure

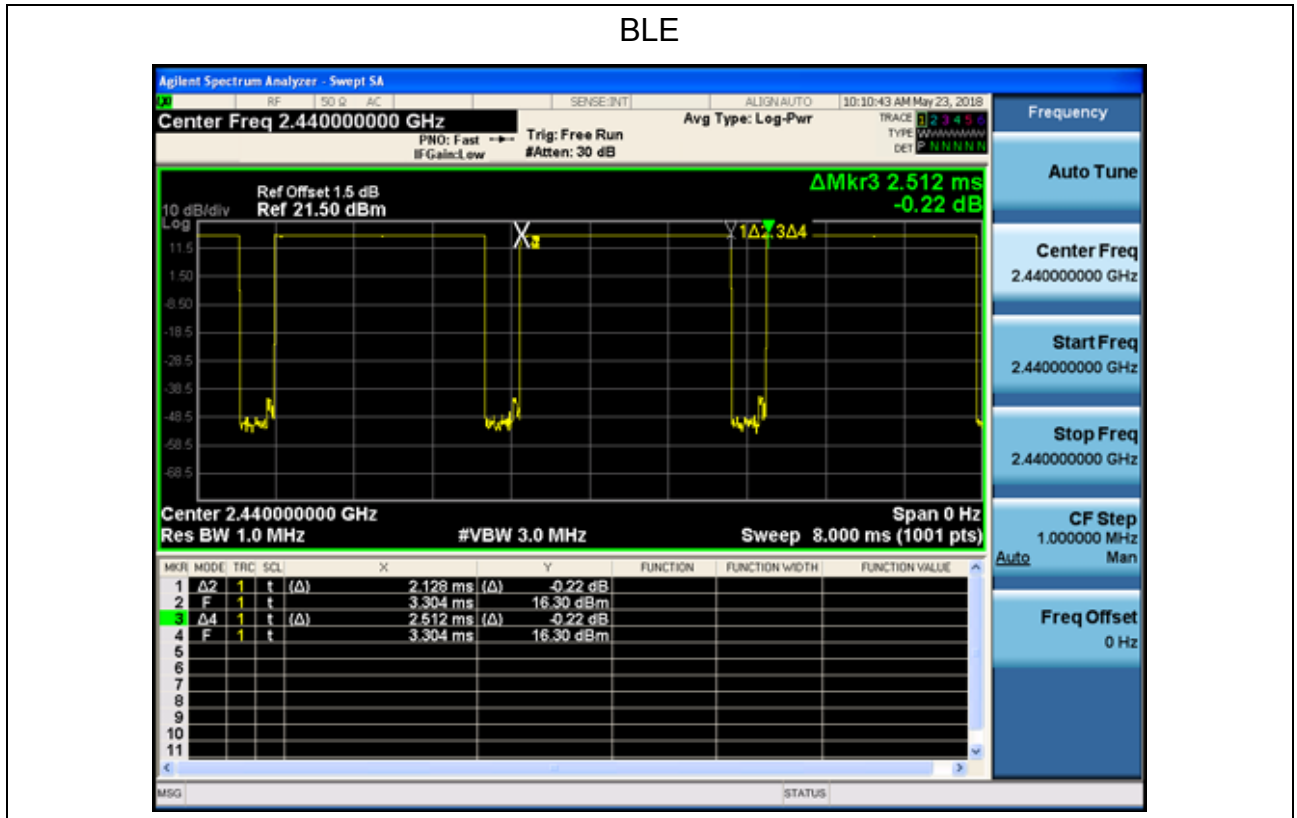
Test Method			
	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	6.10	Band-edge testing
	<input checked="" type="checkbox"/> ANSI C63.10	6.10.5	Restricted-band band-edge measurements
	<input type="checkbox"/> ANSI C63.10	6.10.6	Marker-delta method
<input checked="" type="checkbox"/>	ANSI C63.10	11.12	Emissions in restricted frequency bands
	<input checked="" type="checkbox"/> ANSI C63.10	11.12.1	Radiated emission measurements
	<input checked="" type="checkbox"/> ANSI C63.10	11.12.2.7	Radiated spurious emission test
<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
	<input type="checkbox"/> ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure
	<input checked="" type="checkbox"/> ANSI C63.10	11.12.2.4	Peak power measurement procedure
	<input checked="" type="checkbox"/> ANSI C63.10	11.12.2.5	Average power measurement procedures
	<input type="checkbox"/> ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission at full power
	<input type="checkbox"/> ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
	<input checked="" type="checkbox"/> 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	<input type="checkbox"/>	Fixed point-to-point		
	<input type="checkbox"/>	Emit multiple directional beams, simultaneously or sequentially		
	<input checked="" type="checkbox"/>	Other cases		
Test mode	Mode 1			
Test method	<input checked="" type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input checked="" type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>
	<input type="checkbox"/>	Conducted		
	<input type="checkbox"/>	Chain 1		
				
	<input type="checkbox"/>	Chain 1	Chain 2	
				
	<input type="checkbox"/>	Chain 1	Chain 2	Chain 3
				

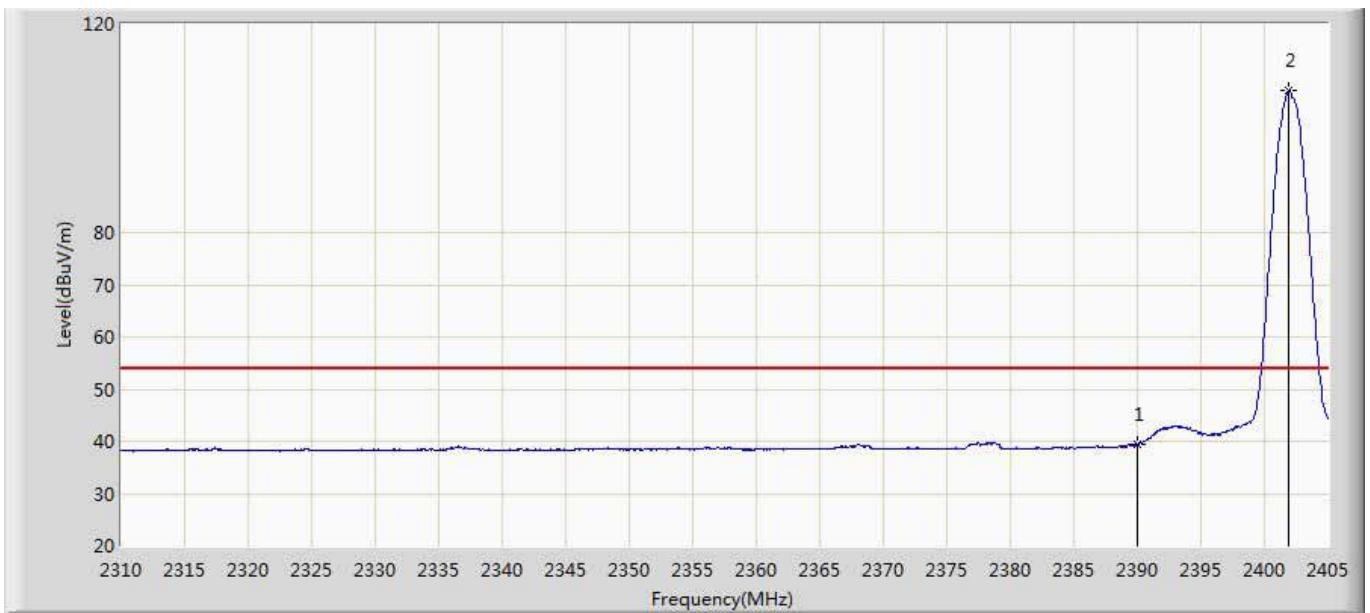
6.6. Duty Cycle

Test Mode	Tx On (ms)	Tx Off (ms)	Reduced VBW (Hz)	Tx On + Tx Off (ms)	Duty Cycle
BLE	2.128	0.384	470	2.512	84.71%



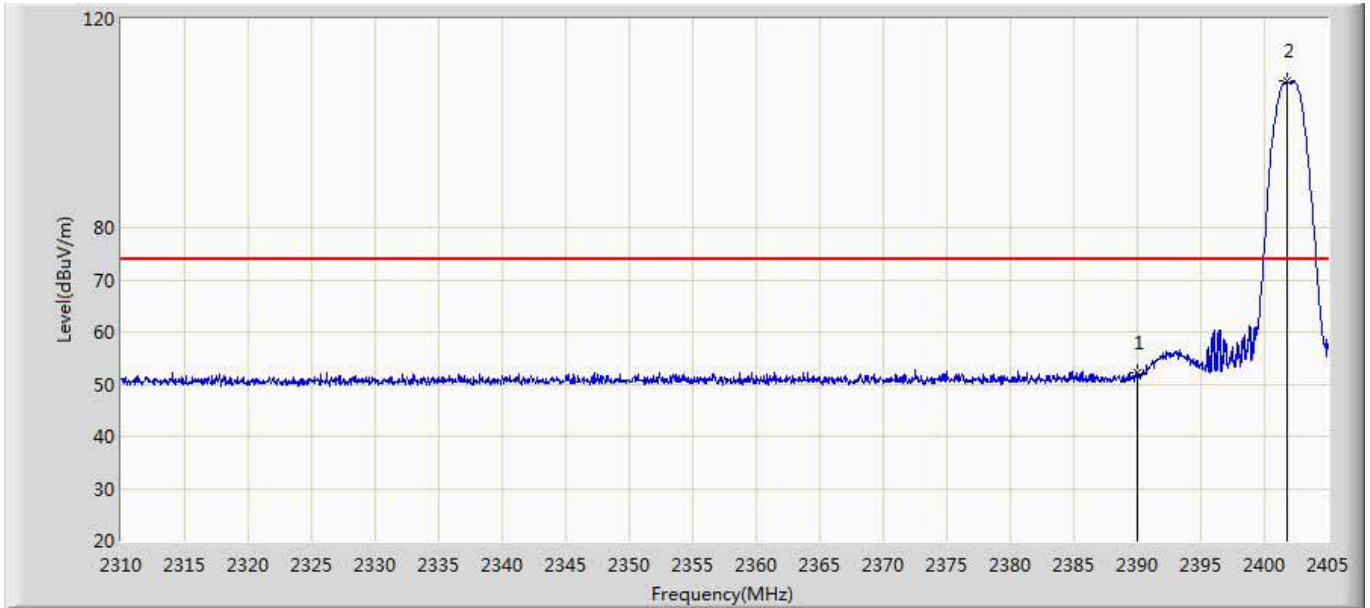
6.7. Test Result

Engineer: Slark	
Site: AC5	Time: 2018/05/23 - 16:10
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT WICED XR Module with Mesh	Power: 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by BLE	



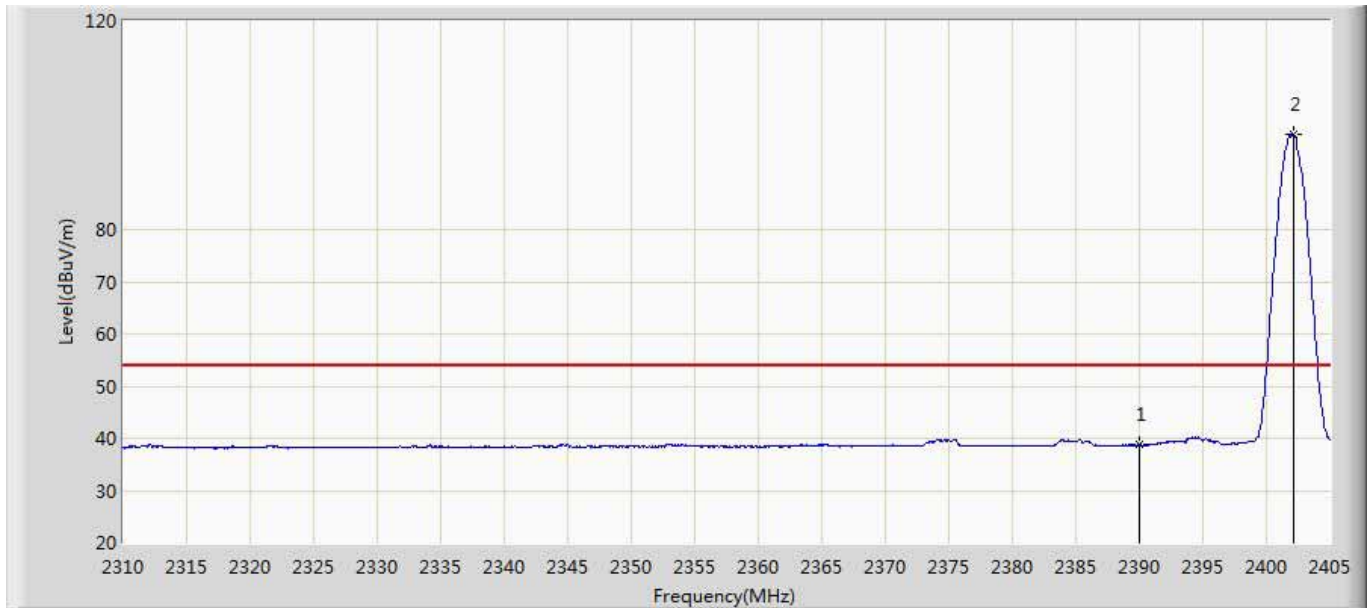
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	39.406	3.724	-14.594	54.000	35.682	AV
2	*	2401.960	107.164	71.451	53.164	54.000	35.712	AV

Engineer: Slark	
Site: AC5	Time: 2018/05/23 - 16:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT WICED XR Module with Mesh	Power: 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by BLE	



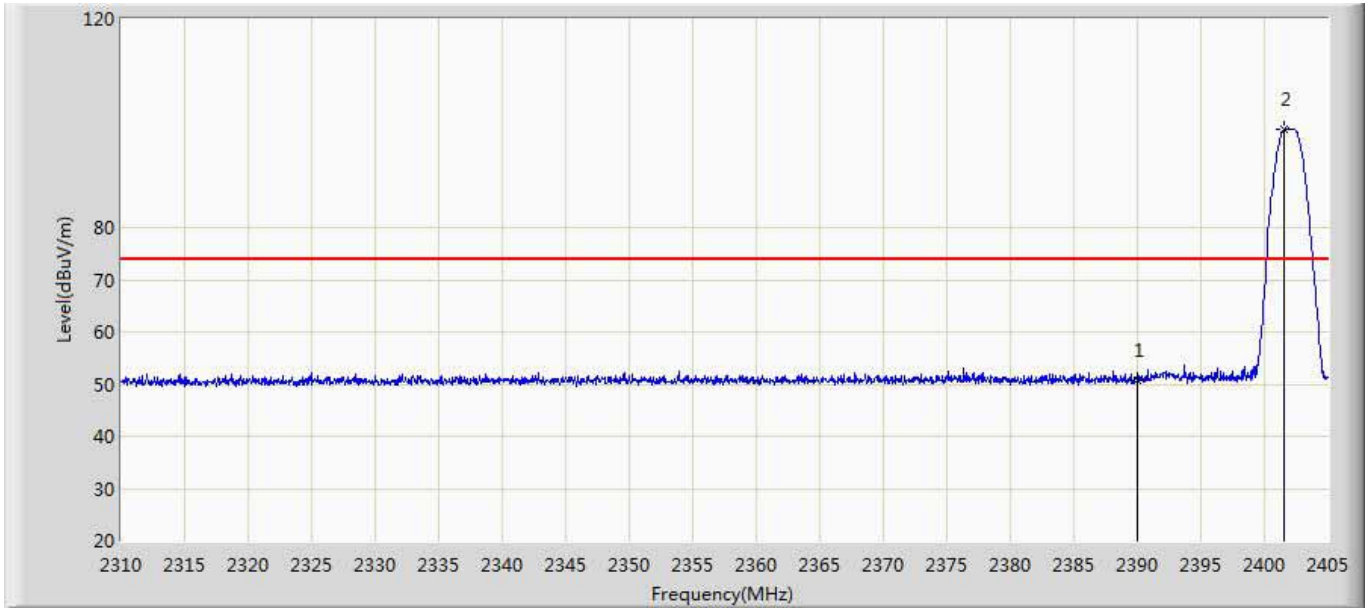
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.114	16.432	-21.886	74.000	35.682	PK
2	*	2401.770	108.173	72.461	34.173	74.000	35.712	PK

Engineer: Slark	
Site: AC5	Time: 2018/05/23 - 16:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT WICED XR Module with Mesh	Power: 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by BLE	



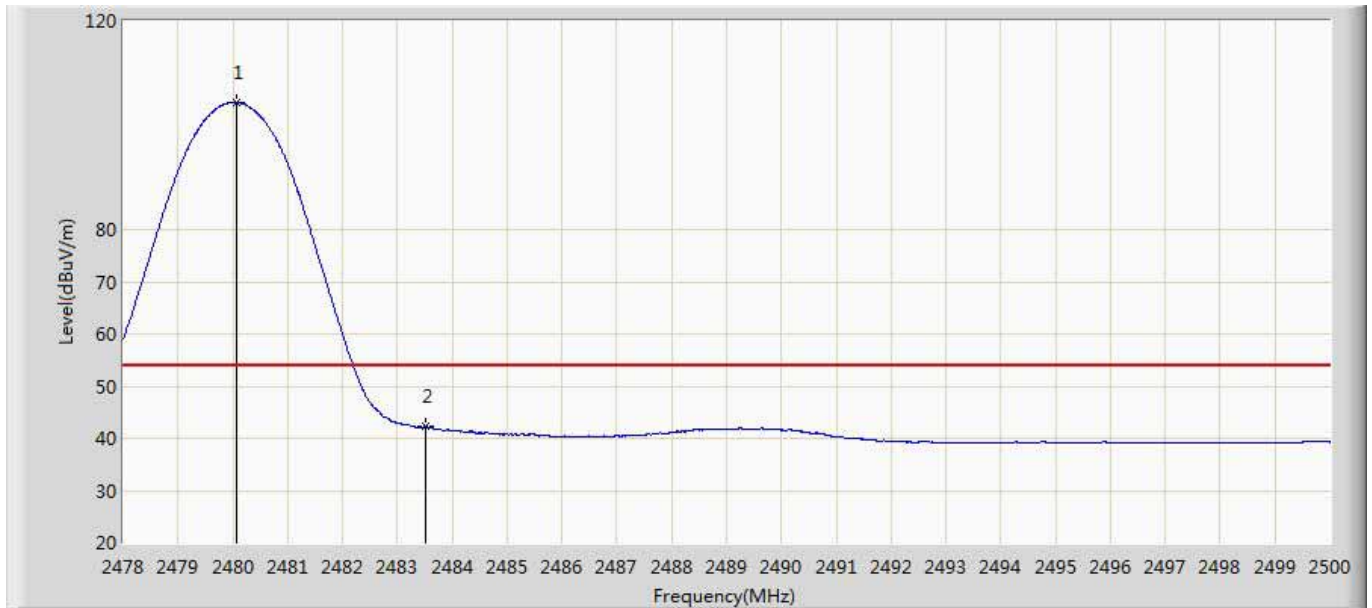
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	38.719	3.037	-15.281	54.000	35.682	AV
2	*	2402.103	98.373	62.660	44.373	54.000	35.713	AV

Engineer: Slark	
Site: AC5	Time: 2018/05/23 - 16:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT WICED XR Module with Mesh	Power: 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by BLE	



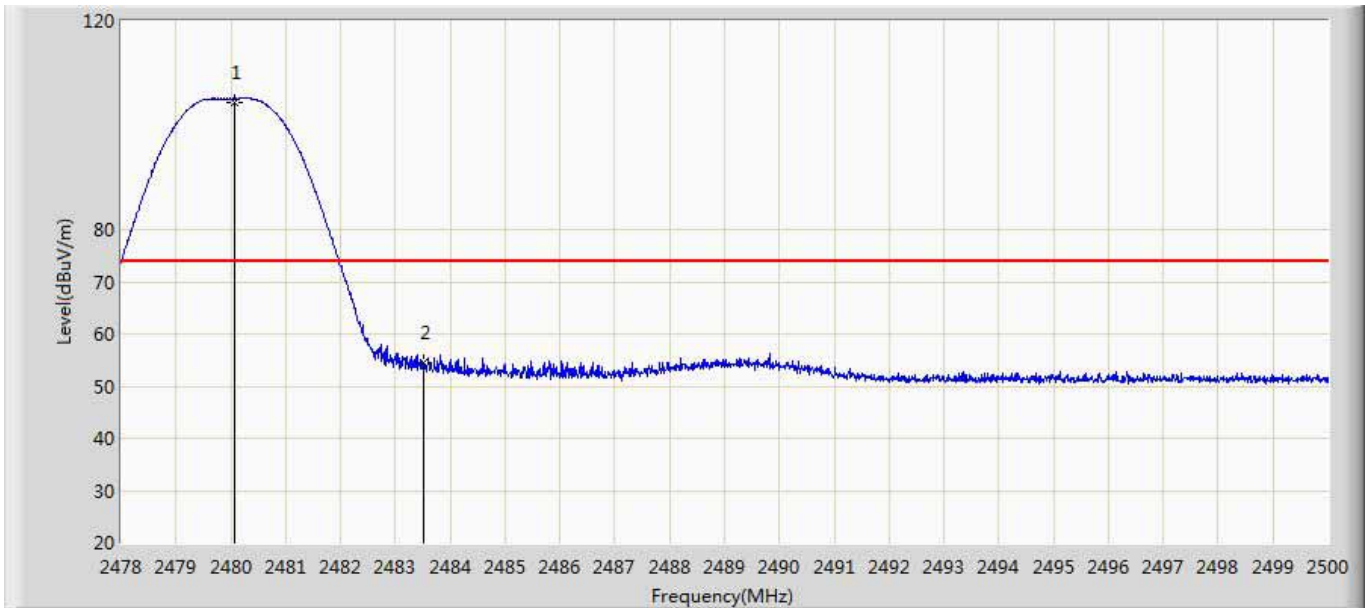
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.771	15.089	-23.229	74.000	35.682	PK
2	*	2401.580	98.805	63.093	24.805	74.000	35.712	PK

Engineer: Slark	
Site: AC5	Time: 2018/05/23 - 16:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT WICED XR Module with Mesh	Power: 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.057	104.335	68.468	50.335	54.000	35.867	AV
2		2483.500	42.192	6.300	-11.808	54.000	35.891	AV

Engineer: Slark	
Site: AC5	Time: 2018/05/23 - 16:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT WICED XR Module with Mesh	Power: 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by BLE	



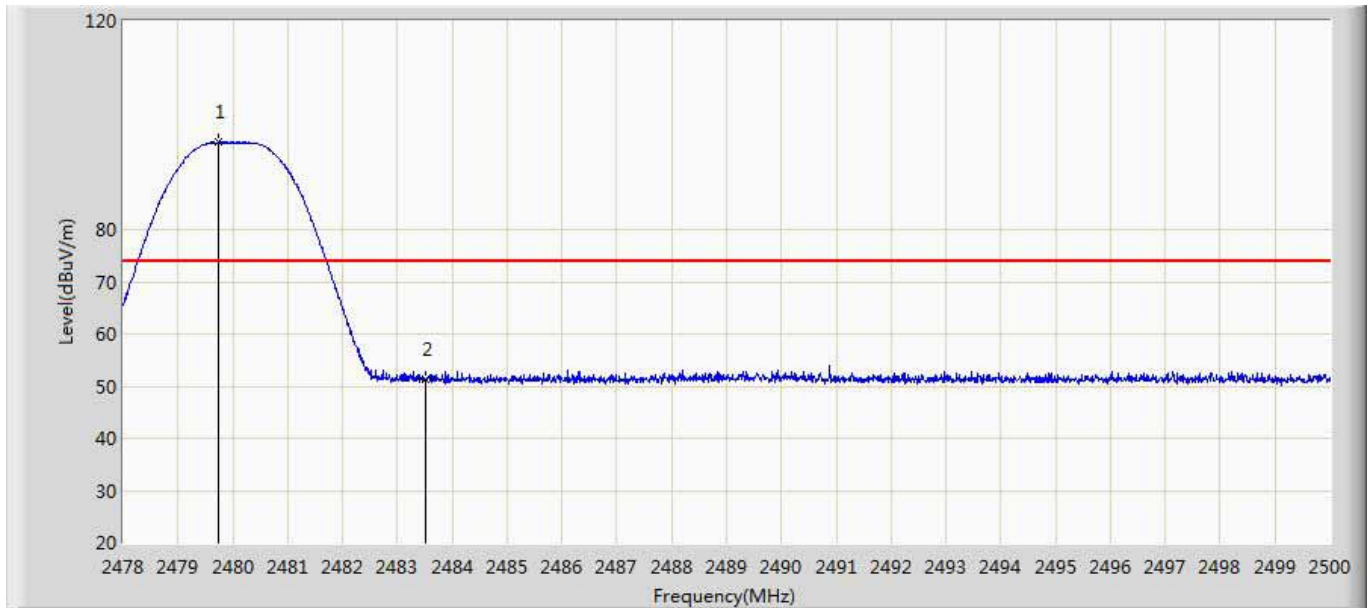
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.057	104.335	68.468	30.335	74.000	35.867	PK
2		2483.500	54.614	18.722	-19.386	74.000	35.891	PK

Engineer: Slark	
Site: AC5	Time: 2018/05/23 - 16:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT WICED XR Module with Mesh	Power: 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.057	96.163	60.296	42.163	54.000	35.867	AV
2		2483.500	39.242	3.350	-14.758	54.000	35.891	AV

Engineer: Slark	
Site: AC5	Time: 2018/05/23 - 16:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT WICED XR Module with Mesh	Power: 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.738	96.869	61.005	22.869	74.000	35.865	PK
2		2483.500	51.270	15.378	-22.730	74.000	35.891	PK

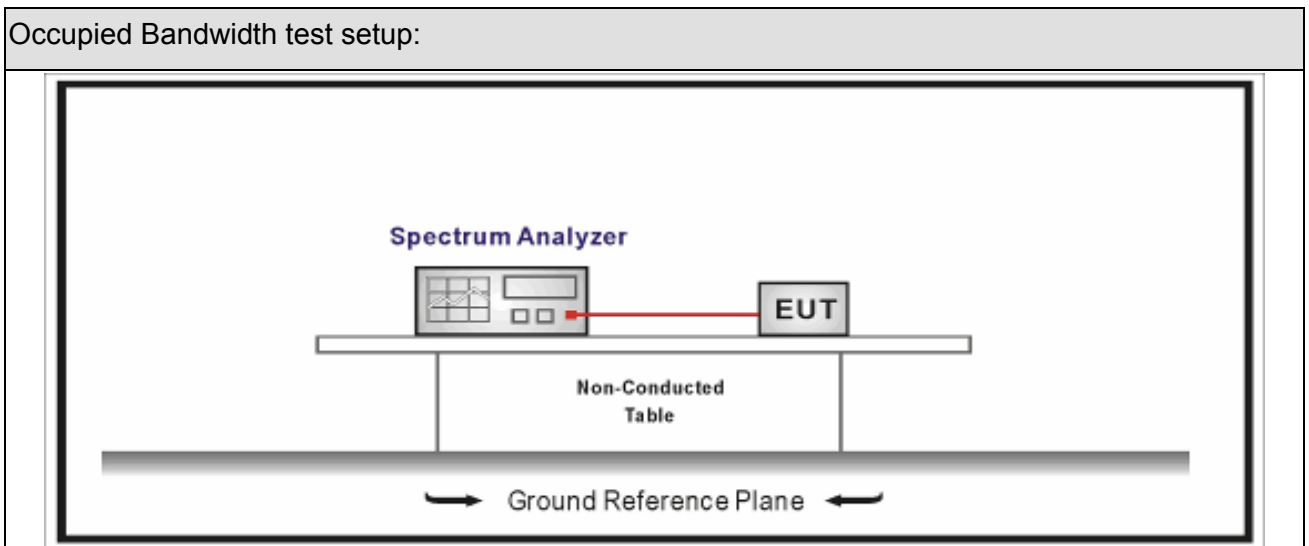
7. Occupied Bandwidth

7.1. Test Equipment

Occupied Bandwidth / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2018.02.04	2019.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2019.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2019.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2019.04.09

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

7.2. Test Setup



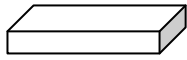
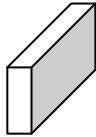
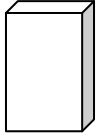
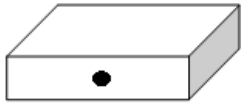
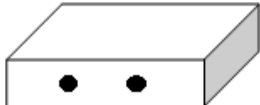

7.3. Limit

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
<input checked="" type="checkbox"/>	ANSI C63.10	11.8	DTS bandwidth
	<input type="checkbox"/> ANSI C63.10	11.8.1	Option 1
	<input checked="" type="checkbox"/> ANSI C63.10	11.8.2	Option 2

7.5. EUT test definition

Item	Occupied Bandwidth			
Device Category	<input type="checkbox"/>	Fixed point-to-point		
	<input type="checkbox"/>	Emit multiple directional beams, simultaneously or sequentially		
	<input checked="" type="checkbox"/>	Other cases		
Test mode	Mode 1			
Test method	<input type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>
	<input checked="" type="checkbox"/>	Conducted		
	<input checked="" type="checkbox"/>	Chain 1		
				
	<input type="checkbox"/>	Chain 1	Chain 2	
				
	<input type="checkbox"/>	Chain 1	Chain 2	Chain 3
				

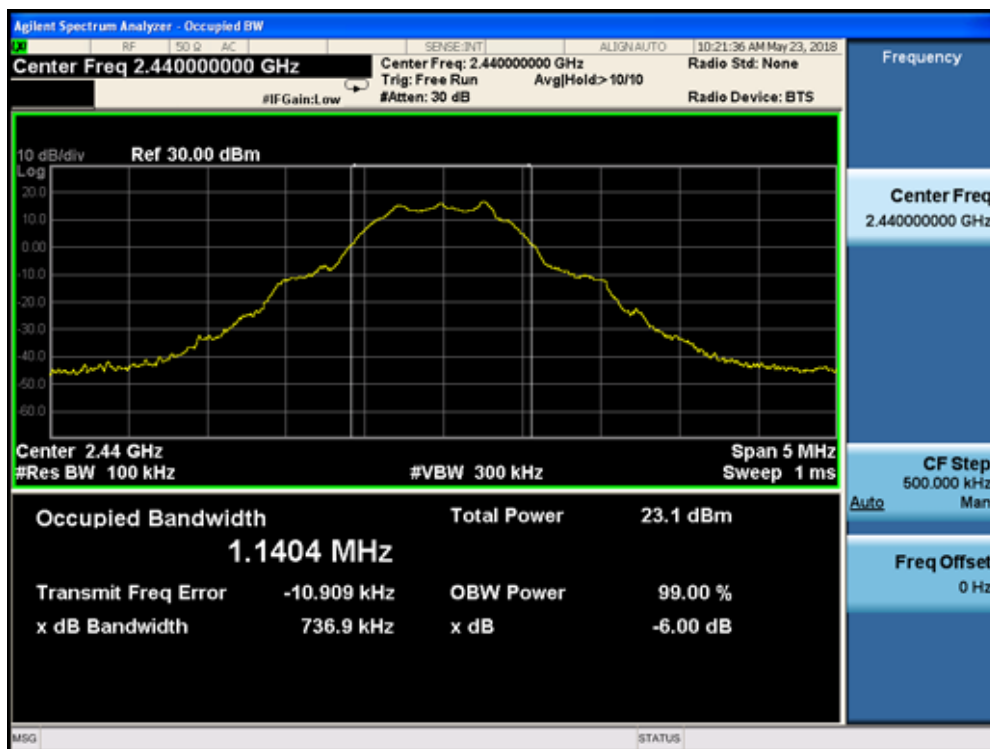
7.6. Test Result

Product Name	: EZ-BT WICED XR Module with Mesh	Power	: AC 120V/60Hz
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2018.05.23	Test Engineer	: Slark

Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (kHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result
1	00	2402	1440.8	743.5	>500	Pass
1	19	2440	1140.4	736.9	>500	Pass
1	39	2480	1138.9	757.4	>500	Pass

Note : The worst case of Occupied Bandwidth as below:

Mode 1 CH19 (2440MHz)



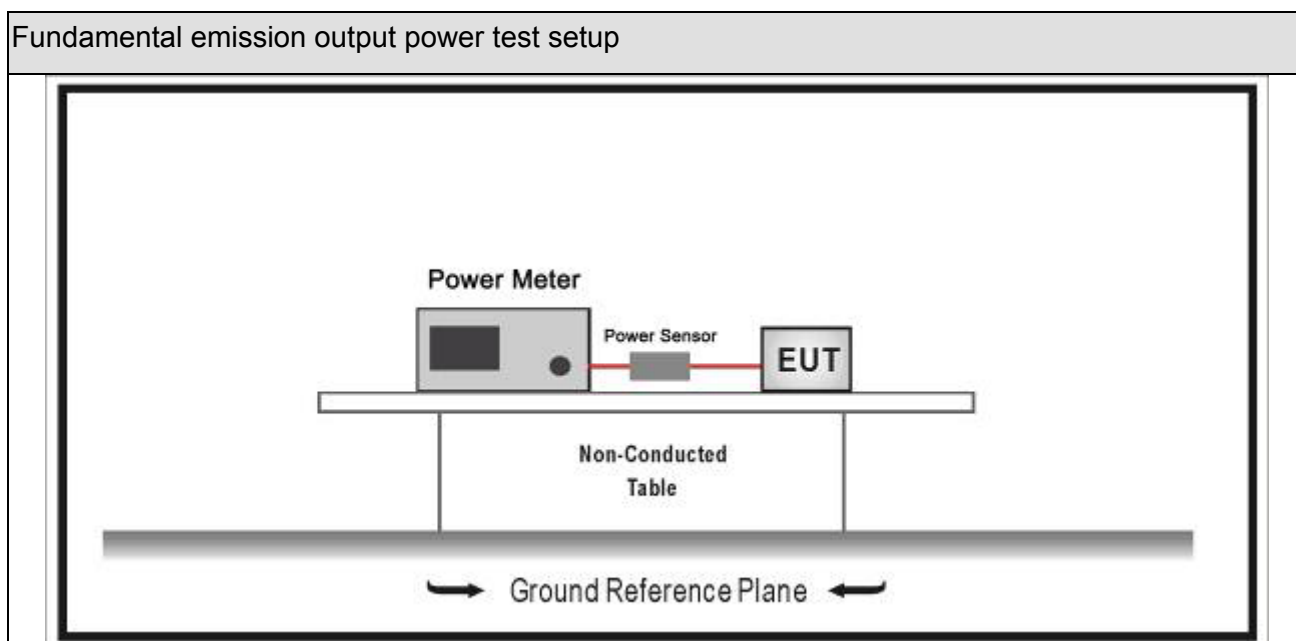
8. Fundamental emission output power

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	2018.01.04	2019.01.03
Spectrum Analyzer	Agilent	N9010A	MY48030494	2018.01.04	2019.01.03
Wideband Peak Power Meter	Anritsu	ML2495A	0905006	2017.10.14	2018.10.13
Power Sensor	Anritsu	MA2411B	0846014	2017.10.14	2018.10.13
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2018.04.10	2019.04.09

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

8.2. Test Setup



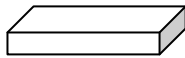
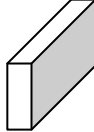
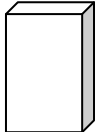



8.3. Limit

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

8.4. Test Procedure

Fundamental emission output power Test Method				
	References Rule		Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10		11.9	Fundamental emission output power
	<input checked="" type="checkbox"/>	ANSI C63.10	11.9.1	Maximum peak conducted output power
	<input type="checkbox"/>	ANSI C63.10	11.9.1.1	RBW \geq DTS bandwidth
	<input type="checkbox"/>	ANSI C63.10	11.9.1.2	Integrated band power method
	<input checked="" type="checkbox"/>	ANSI C63.10	11.9.1.3	PKPM1 Peak power meter method
	<input type="checkbox"/>	ANSI C63.10	11.9.2	Maximum conducted (average) output power
	<input type="checkbox"/>	ANSI C63.10	11.9.2.2	Measurement using a spectrum analyzer (SA)
	<input type="checkbox"/>	ANSI C63.10	11.9.2.2.2	Method AVGSA-1(Duty cycle 98%)
	<input type="checkbox"/>	ANSI C63.10	11.9.2.2.3	Method AVGSA-1A(Duty cycle 98%)
	<input type="checkbox"/>	ANSI C63.10	11.9.2.2.4	Method AVGSA-2(Duty cycle 98%)
	<input type="checkbox"/>	ANSI C63.10	11.9.2.2.5	Method AVGSA-2A(Duty cycle 98%)
	<input type="checkbox"/>	ANSI C63.10	11.9.2.2.4	Method AVGSA-3
	<input type="checkbox"/>	ANSI C63.10	11.9.2.2.5	Method AVGSA-3A
	<input type="checkbox"/>	ANSI C63.10	11.9.2.3	Measurement using a power meter (PM)
	<input type="checkbox"/>	ANSI C63.10	11.9.2.3.1	Method AVGPM
	<input type="checkbox"/>	ANSI C63.10	11.9.2.3.2	Method AVGPM-G

8.5. EUT test definition

Item	Fundamental emission output power			
Device Category	<input type="checkbox"/>	Fixed point-to-point		
	<input type="checkbox"/>	Emit multiple directional beams, simultaneously or sequentially		
	<input checked="" type="checkbox"/>	Other cases		
Test mode	Mode 1			
Test method	<input type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>
	<input checked="" type="checkbox"/>	Conducted		
	<input checked="" type="checkbox"/>	Chain 1		
				
	<input type="checkbox"/>	Chain 1	Chain 2	
				
	<input type="checkbox"/>	Chain 1	Chain 2	Chain 3
				

8.6. Test Result

Product Name	: EZ-BT WICED XR Module with Mesh	Power	: AC 120V/60Hz
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2018.05.23	Test Engineer	: Slark

Mode	Channel	Test Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
1	00	2402	16.0	30	Pass
1	19	2440	16.8	30	Pass
1	39	2480	16.1	30	Pass

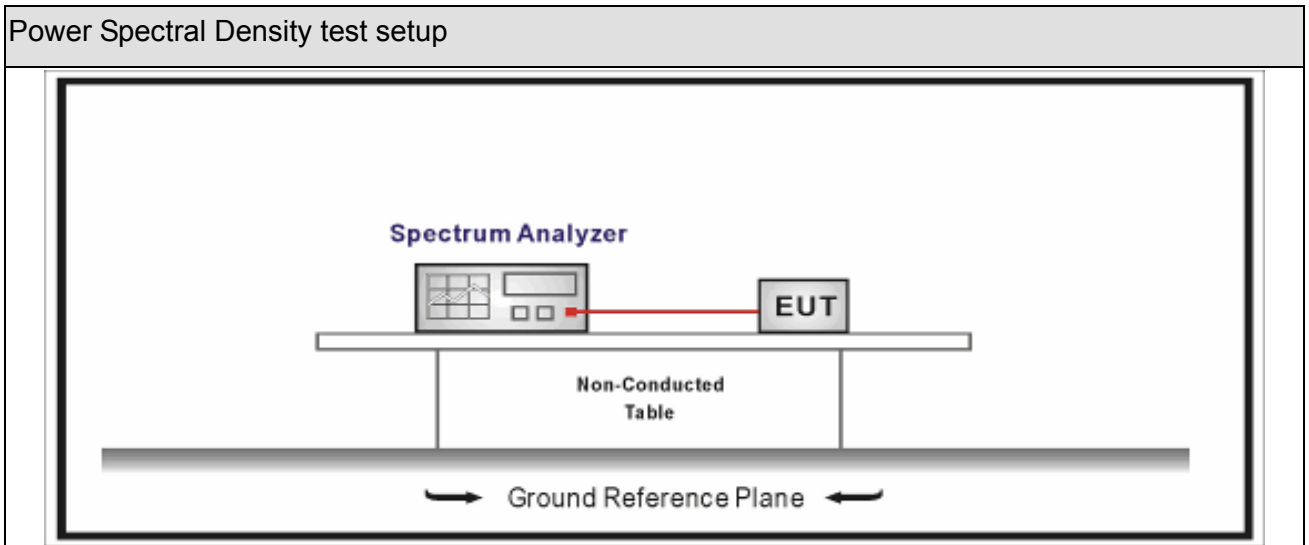
9. Power Spectral Density

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	2018.02.04	2019.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2018.04.09	2019.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2018.04.09	2019.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2018.04.10	2019.04.09

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

9.2. Test Setup



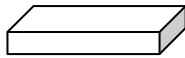
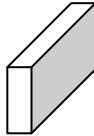
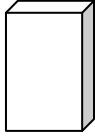
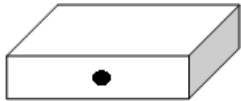
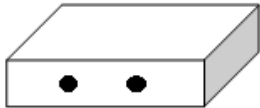
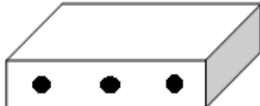
9.3. Limit

Power Spectral Density Limit
Power Spectral Density 8dBm/3kHz

9.4. Test Procedure

Power Spectral Density Test Method			
	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	11.10	Maximum power spectral density level in the fundamental emission
<input checked="" type="checkbox"/>	ANSI C63.10	11.10.2	Method PKPSD (peak PSD)
<input type="checkbox"/>	ANSI C63.10	11.10.3	Method AVGPSD-1(Duty cycle 98%)
<input type="checkbox"/>	ANSI C63.10	11.10.4	Method AVGPSD-1A(Duty cycle 98%)
<input type="checkbox"/>	ANSI C63.10	11.10.5	Method AVGPSD-2(Duty cycle < 98%)
<input type="checkbox"/>	ANSI C63.10	11.10.6	Method AVGPSD-2A(Duty cycle < 98%)
<input type="checkbox"/>	ANSI C63.10	11.10.7	Method AVGPSD-3
<input type="checkbox"/>	ANSI C63.10	11.10.8	Method AVGPSD-3A

9.5. EUT test definition

Item	Power Spectral Density Test Method			
Device Category	<input type="checkbox"/>	Fixed point-to-point		
	<input type="checkbox"/>	Emit multiple directional beams, simultaneously or sequentially		
	<input checked="" type="checkbox"/>	Other cases		
Test mode	Mode 1			
Test method	<input type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>
	<input checked="" type="checkbox"/>	Conducted		
	<input checked="" type="checkbox"/>	Chain 1		
				
	<input type="checkbox"/>	Chain 1	Chain 2	
				
	<input type="checkbox"/>	Chain 1	Chain 2	Chain 3
				

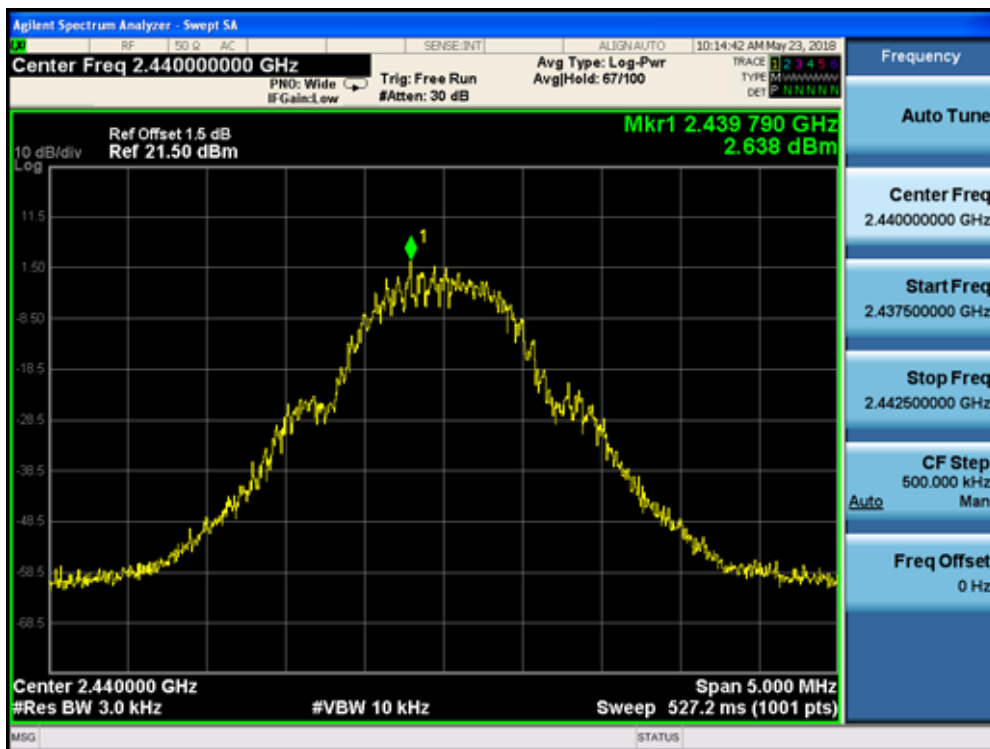
9.6. Test Result

Product Name	: EZ-BT WICED XR Module with Mesh	Power	: AC 120V/60Hz
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2018.05.23	Test Engineer	: Slark

Mode	Channel	Test Frequency (MHz)	Measurement PSD (dBm/3kHz)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	00	2402	1.396	1.396	8	Pass
1	19	2440	2.638	2.638	8	Pass
1	39	2480	1.352	1.352	8	Pass

Note : The worst case of Power Spectral Density as below:

Mode 1 CH19(2440MHz)



10. Antenna Requirement

10.1. 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>	

10.2. 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 _____