









# **Test Report**

## FCC Part15 Subpart C & RSS-247 Issue 2

Product Name: EZ-BT WICED Module

Model No. : CYBT-423028-02

FCC ID : WAP3028

IC : 7922A-3028

Applicant : Cypress Semiconductor

Address : 198 Champion Ct, San Jose, California 95134

**United States** 

Date of Receipt: Jan. 29, 2018

Test Date : Jan. 30, 2018~ Feb. 08, 2018

Issued Date : Mar. 22, 2018

Report No. : 1812166R-RF-US-P06V02

Report Version: V 1.1

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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Co., Ltd.



## **Test Report Certification**

Issued Date: Mar. 22, 2018

Report No. : 1812166R-RF-US-P06V02



Product Name : EZ-BT WICED Module
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Address : 198 Champion Ct, San Jose, California 95134

**United States** 

Manufacturer : Cypress Semiconductor

Address : 198 Champion Ct, San Jose, California 95134

**United States** 

Model No. : CYBT-423028-02

FCC ID : WAP3028
IC : 7922A-3028
EUT Voltage : DC 1.8-3.6V
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.

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## **History of This Test Report**

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1812166R-RF-US-P06V02	V1.0	Initial Issued Report	Mar. 07, 2018
1812166R-RF-US-P06V02	V1.1	<ol> <li>P15&amp;P19, add the test software information</li> <li>P32, add the note of Radiated Emission above 18G</li> <li>P39&amp;65, update the test date</li> <li>P44, add the duty cycle data</li> </ol>	Mar. 22, 2018

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#### 1. General Information

## 1.1. EUT Description

Product Name	EZ-BT WICED Module
Model No.	CYBT-423028-02
EUT Voltage	DC 1.8-3.6V
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	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	$\boxtimes$	1*TX+1*R	RX.		2*TX+2*RX		3*TX+3*RX	
Antenna technology								
				Basic				
		МІМО		CDD				
				Sectorized				
				Beam-forming				
Antenna Type		External		Dipole				
				Secto	rized			
		Internal		PIFA				
				РСВ				
			$\boxtimes$	Ceramic Chip Antenna				
				Mono	pole Antenna			
	Ant Gain							
Antenna Technology	(dBi)							
⊠siso	Ant1:-1							

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#### 1.4. Mode of Operation

Test Mode

Mode 1: Transmit-1Mbps(GFSK\_BLE)

#### 1.5. Tested System Details

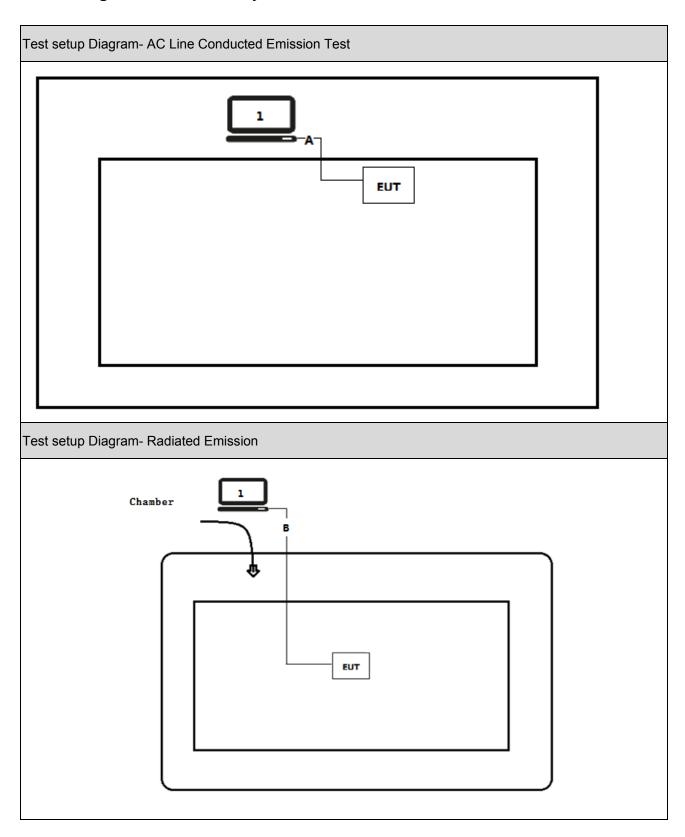
The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

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

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## 1.6. Configuration of Tested System





#### 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.

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### 2. Technical Test

### 2.1. Summary of Test Result

#### For FCC

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

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#### For ISED

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

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## 2.2. Test Frequency configuration:

<b>Modulation Mode</b>	Channel	Frequency	Channel	Frequency	Channel	Frequency
BLE	00	2402 MHz	19	2440 MHz	39	2480MHz

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#### 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

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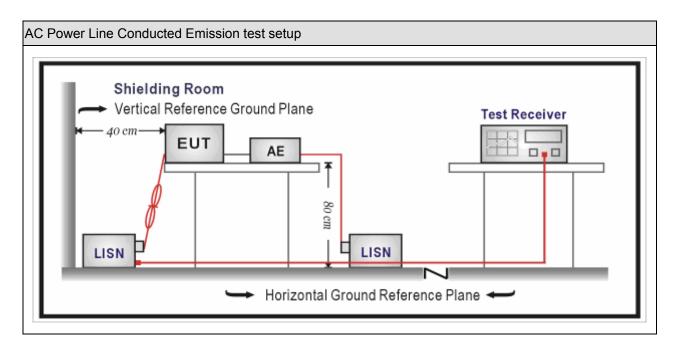
#### 3. AC Power Line Conducted Emission

#### 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	2017.03.05	2018.03.04	
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	Zhichen	ZC1-2	TR1-TH	2018.01.04	2019.01.03	
Meter	Zilichen	201-2	IKI-III	2010.01.04	2019.01.03	
Quietek EMI V3(test	Quietek	N/A	N/A	N/A	N/A	
software)	Quicter	I N/ #\	11/7	IN/A	IN/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	Conducted Limit			
(MHz)	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

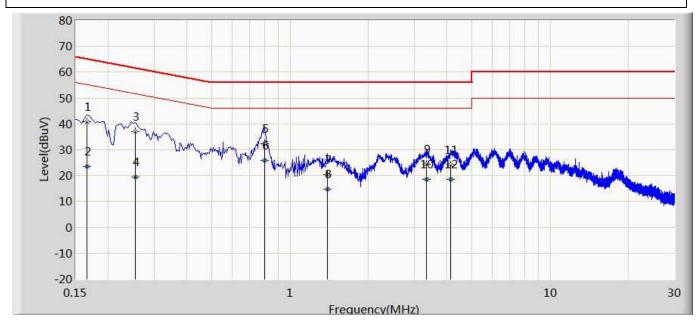
Test Method				
	References Rule	Chapter	Item	
$\boxtimes$	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted	
			emissions from unlicensed wireless devices	

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#### 3.5. Test Result

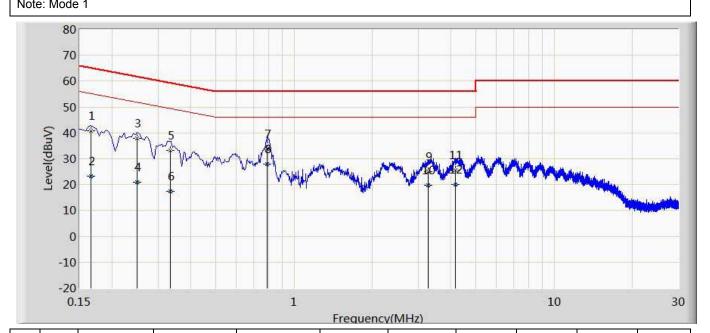
Engineer: CptJack		
Site: TR1	Time: 2018/02/02 - 17:15	
Limit: FCC_Part15.207_CE	Margin: 0	
Probe: ENV216_101190(0.009-30MHz)	Polarity: Line	
EUT: EZ-BT WICED Module	Power: AC 120V/60Hz	
Note: Mode 1		



No	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Probe	Cable	Amp	Туре
		(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dB)	(dB)	(dB)	
1		0.166	40.944	31.324	-24.214	65.158	9.593	0.027	0.000	QP
2		0.166	23.579	13.959	-31.579	55.158	9.593	0.027	0.000	AV
3		0.254	37.162	27.532	-24.464	61.625	9.598	0.031	0.000	QP
4		0.254	19.417	9.788	-32.208	51.625	9.598	0.031	0.000	AV
5		0.798	32.368	22.725	-23.632	56.000	9.590	0.053	0.000	QP
6	*	0.798	25.843	16.200	-20.157	46.000	9.590	0.053	0.000	AV
7		1.390	20.404	10.736	-35.596	56.000	9.598	0.070	0.000	QP
8		1.390	14.867	5.199	-31.133	46.000	9.598	0.070	0.000	AV
9		3.354	24.316	14.573	-31.684	56.000	9.628	0.115	0.000	QP
10		3.354	18.536	8.793	-27.464	46.000	9.628	0.115	0.000	AV
11		4.134	24.206	14.438	-31.794	56.000	9.639	0.130	0.000	QP
12		4.134	18.519	8.751	-27.481	46.000	9.639	0.130	0.000	AV



Engineer: CptJack	
Site: TR1	Time: 2018/02/02 - 17:17
Limit: FCC_Part15.207_CE	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Neutral
EUT: EZ-BT WICED Module	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Probe	Cable	Amp	Туре
		(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dB)	(dB)	(dB)	
1		0.166	40.878	31.258	-24.280	65.158	9.593	0.027	0.000	QP
2		0.166	23.413	13.793	-31.745	55.158	9.593	0.027	0.000	AV
3		0.250	37.924	28.295	-23.833	61.757	9.598	0.031	0.000	QP
4		0.250	20.937	11.308	-30.821	51.757	9.598	0.031	0.000	AV
5		0.334	33.315	23.685	-26.036	59.351	9.595	0.035	0.000	QP
6		0.334	17.406	7.775	-31.946	49.351	9.595	0.035	0.000	AV
7		0.790	33.819	24.176	-22.181	56.000	9.590	0.052	0.000	QP
8	*	0.790	27.817	18.174	-18.183	46.000	9.590	0.052	0.000	AV
9		3.282	24.923	15.182	-31.077	56.000	9.627	0.114	0.000	QP
10		3.282	19.665	9.924	-26.335	46.000	9.627	0.114	0.000	AV
11		4.162	25.474	15.706	-30.526	56.000	9.639	0.129	0.000	QP
12		4.162	19.988	10.219	-26.012	46.000	9.639	0.129	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	2017.03.29	2018.03.28	
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	2017.03.02	2018.03.01	
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.

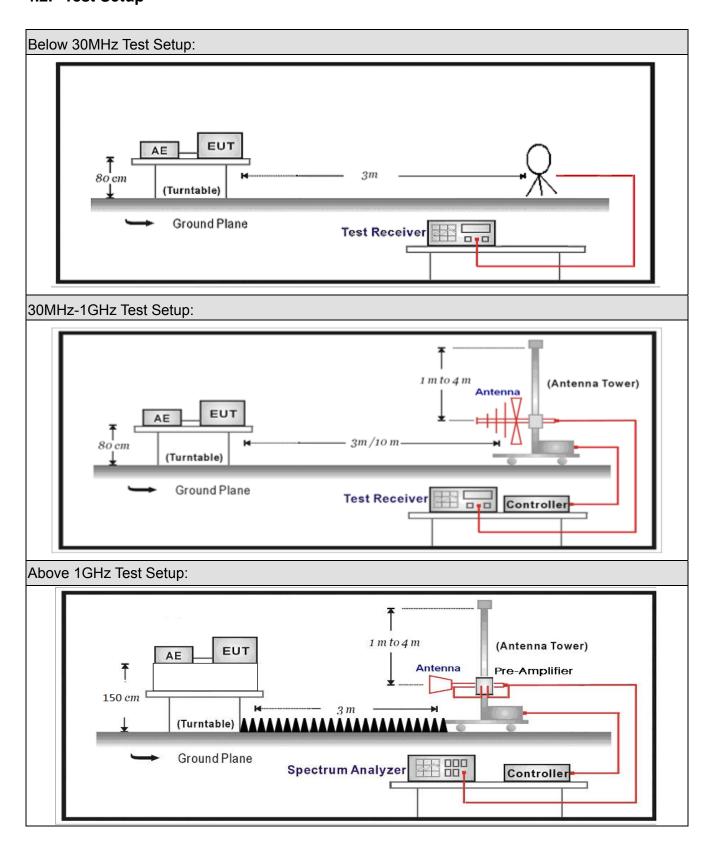
Radiated Emission(Abo	Radiated Emission(Above 1GHz) / AC-5						
Instrument	Manufacturer	Туре No.	Serial No.	Cal. Date	Cal. Due Date		
Spectrum Analyzer	Agilent	E4446A	MY45300103	2018.01.04	2019.01.03		
Preamplifier	Miteq	NSP1800-25	1364185	2017.05.06	2018.05.05		
Preamplifier	QuieTek	AP-040G	CHM-0906001	2017.05.06	2018.05.05		
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		
		SUCOFLEX					
Coaxial Cable	Huber+Suhner	106	AC5-C1	2016.03.02	2018.03.01		
		SUCOFLEX					
Coaxial Cable	Huber+Suhner	106	AC5-C2	2016.03.02	2018.03.01		
		SUCOFLEX					
Coaxial Cable	Huber+Suhner	102	AC5-C3	2016.03.02	2018.03.01		
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.

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#### 4.2. 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						

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#### For ISED:

. 0. 1015.							
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 <sub>(Note 1)</sub>		
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30 <sub>(Note 1)</sub>		
1.705 - 30	30	29.5	30 <sub>(Note 1)</sub>		
30 - 88	100	40	3 <sub>(Note 2)</sub>		
88 - 216	150	43.5	3 <sub>(Note 2)</sub>		
216 - 960	200	46	3 <sub>(Note 2)</sub>		
Above 960	500	54	3 <sub>(Note 2)</sub>		

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

References Rule	Test	Metho	od				
□ 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         □ ANSI C63.10       11.12.2.5.3       Reduced VBW averaging across ON and OFF times of the EUT transmissions		Refer	rences	s Rul	le	Chapter	Description
ANSI C63.10		ANSI	C63.	10		11.11	Emissions in non-restricted frequency bands
ANSI C63.10			ANSI	C63	.10	11.11.2	Reference level measurement
ANSI C63.10 11.12.2.7 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			ANSI	C63	.10	11.11.3	Emission level measurement
ANSI C63.10	$\boxtimes$	ANSI	C63.	10		11.12	Emissions in restricted frequency bands
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 Reduced VBW averaging across ON and OFF times of the EUT transmissions  ANSI C63.10 11.12.2.5.3 Reduced VBW averaging across ON and OFF times of the EUT transmissions		$\boxtimes$	ANSI	C63	3.10	11.12.1	Radiated emission measurements
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			ANSI	C63	3.10	11.12.2.7	Radiated spurious emission test
ANSI C63.10  ANSI C63.10				ANS	I C63.10		
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							
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				ANS	I C63.10		
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							
devices above 1 GHz  ☐ ANSI C63.10							of 30 MHz to 1000 MHz
□ 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					6.6	Radiated emissions from unlicensed wireless	
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							devices above 1 GHz
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				ANS	I C63.10	11.12.2.3	Quasi-peak measurement procedure
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			$\boxtimes$	ANS	I C63.10	11.12.2.4	Peak power measurement procedure
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			$\boxtimes$	ANS	I C63.10	11.12.2.5	Average power measurement procedures
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					ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission
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							at full power
duty cycle correction  ANSI C63.10 11.12.2.5.3 Reduced VBW averaging across ON and OFF times of the EUT transmissions					ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the
ANSI C63.10 11.12.2.5.3 Reduced VBW averaging across ON and OFF times of the EUT transmissions							EUT transmissions followed by
of the EUT transmissions							duty cycle correction
				$\boxtimes$	ANSI C63.10	11.12.2.5.3	Reduced VBW averaging across ON and OFF times
with may hold							of the EUT transmissions
							with max hold

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#### 4.5. EUT test Axis definition

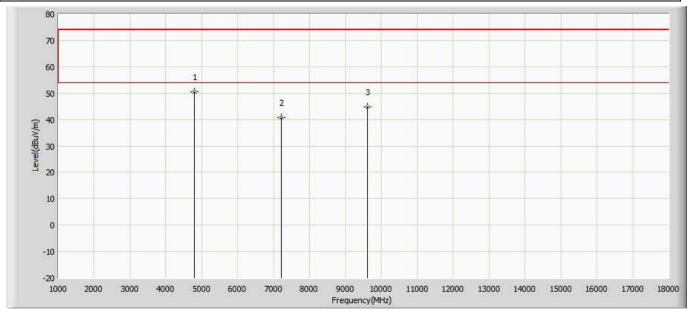
Item	Emissions in restricted frequency ban				y bands		
		Fixed point-to-poin	t				
Device Category		Emit multiple direct sequentially	tional bea	ams, simulta	aneously or		
		Other cases					
Test mode	Mode	: 1					
		Radiated					
		X Axis	Y	Axis	Z Axis		
		Worst Axis ⊠	Worst A	axis 🗌	Worst Axis		
		Conducted					
_ ,		☐ Chain 1					
Test method		•					
		Chain 1			Chain 2		
			•	•			
		Chain 1	Ch	nain 2	Chain 3		
			• •	• •			

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#### 4.6. Test Result

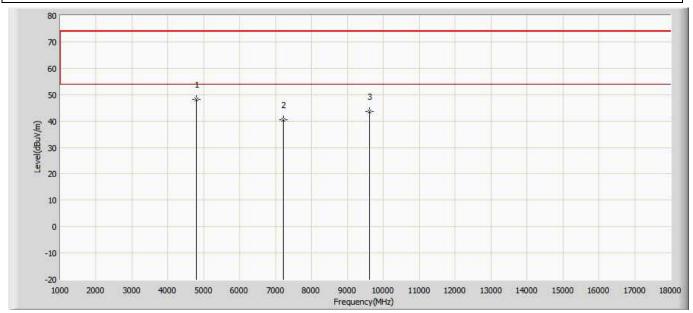
Site: AC5	Time: 2018/02/05 - 15:27	
Limit: FCC_Part15.209_RE(3m)	Margin: 0	
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal	
EUT: EZ-BT WICED Module	Power: AC 120V/60Hz	
Note: Mode 1:Transmit at 2402MHz by BLE		



No	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Factor	Туре
		(MHz)	(dBuV/m)	(dBuV)	(dB)	(dBuV/m)	(dB)	
1	*	4799.500	50.462	56.122	-23.538	74.000	-5.660	PK
2		7206.000	40.777	41.065	-33.223	74.000	-0.288	PK
3		9608.000	44.634	40.503	-29.366	74.000	4.131	PK



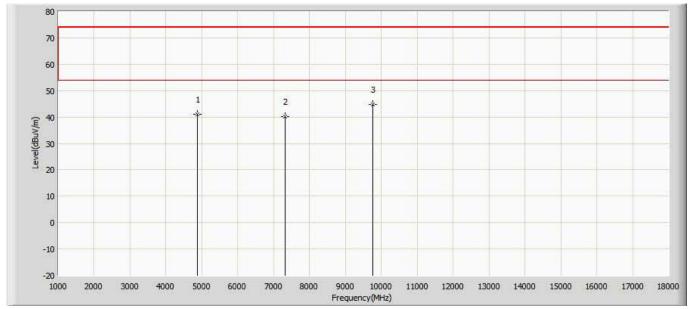
Site: AC5	Time: 2018/02/05 - 15:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT WICED Module	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by BLE	



No	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Factor	Туре
		(MHz)	(dBuV/m)	(dBuV)	(dB)	(dBuV/m)	(dB)	
1	*	4799.500	48.181	53.841	-25.819	74.000	-5.660	PK
2		7206.000	40.355	40.643	-33.645	74.000	-0.288	PK
3		9608.000	43.643	39.512	-30.357	74.000	4.131	PK



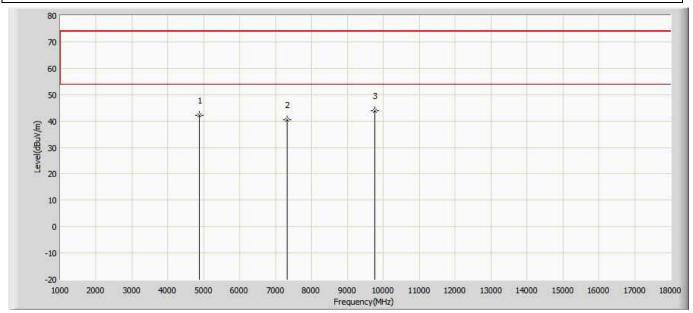
Site: AC5	Time: 2018/02/05 - 15:27	
Limit: FCC_Part15.209_RE(3m)	Margin: 0	
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal	
EUT: EZ-BT WICED Module	Power: AC 120V/60Hz	
Note: Mode 1:Transmit at 2440MHz by BLE		



No	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Factor	Туре
		(MHz)	(dBuV/m)	(dBuV)	(dB)	(dBuV/m)	(dB)	
1		4876.000	41.128	46.648	-32.872	74.000	-5.520	PK
2		7320.000	40.230	40.580	-33.770	74.000	-0.350	PK
3	*	9760.000	44.741	40.547	-29.259	74.000	4.194	PK



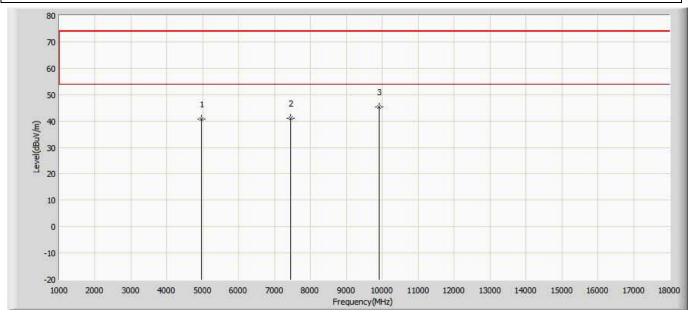
Site: AC5	Time: 2018/02/05 - 15:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT WICED Module	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2440MHz by BLE	



No	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Factor	Туре
		(MHz)	(dBuV/m)	(dBuV)	(dB)	(dBuV/m)	(dB)	
1		4884.500	42.153	47.726	-31.847	74.000	-5.573	PK
2		7320.000	40.460	40.810	-33.540	74.000	-0.350	PK
3	*	9760.000	44.037	39.843	-29.963	74.000	4.194	PK



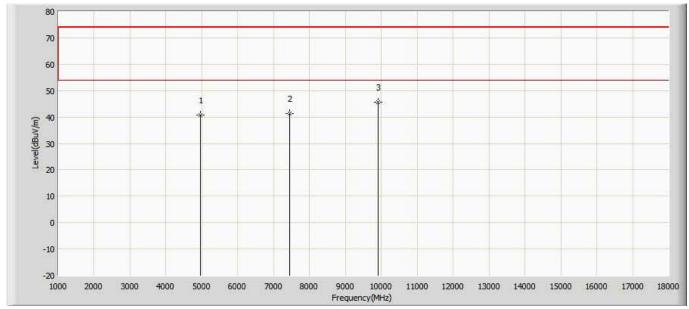
Site: AC5	Time: 2018/02/05 - 15:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: EZ-BT WICED Module	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by BLE	



No	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Factor	Туре
		(MHz)	(dBuV/m)	(dBuV)	(dB)	(dBuV/m)	(dB)	
1		4961.000	40.702	45.929	-33.298	74.000	-5.227	PK
2		7440.000	40.896	41.075	-33.104	74.000	-0.179	PK
3	*	9920.000	45.353	40.407	-28.647	74.000	4.946	PK



Site: AC5	Time: 2018/02/05 - 15:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: EZ-BT WICED Module	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by BLE	



No	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Factor	Туре
		(MHz)	(dBuV/m)	(dBuV)	(dB)	(dBuV/m)	(dB)	
1		4961.000	40.744	45.971	-33.256	74.000	-5.227	PK
2		7440.000	41.184	41.363	-32.816	74.000	-0.179	PK
3	*	9920.000	45.716	40.770	-28.284	74.000	4.946	PK



#### **Radiated Emission above 18GHz:**

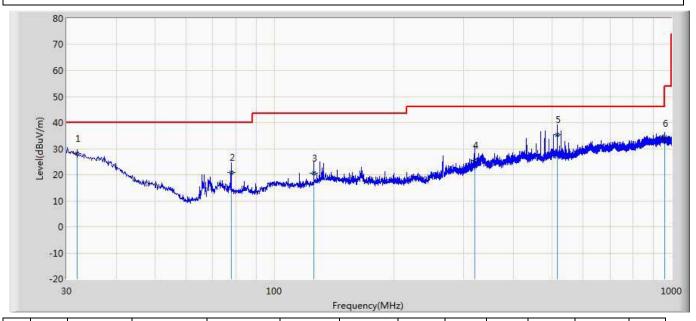
Note: The peak value of Radiated Emission above 18GHz is negligible, so this test item is not shown in the report.

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#### The worst case of Radiated Emission below 1GHz:

Engineer: Lucas					
Site: AC3	Time: 2018/02/05				
Limit: FCC_Part15.209_RE(3m)	Margin: 0				
Probe: AC3_3m (30-1000MHz)	Polarity: Horizontal				
EUT: EZ-BT WICED Module	Power: AC 120V/60Hz				
Note: Mode 1					

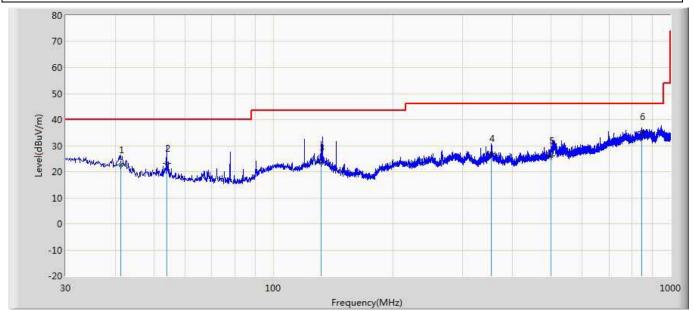


No	Mark	Frequency	Measure	Reading	Over	Limit	Probe	Cable	Amp	Ant	Table	Туре
		(MHz)	Level	Level	Limit	(dBuV/m)	(dB/m)	(dB)	(dB)	Pos	Pos	
			(dBuV/m)	(dBuV)	(dB)					(cm)	(deg)	
1		31.887	28.052	1.200	-11.948	40.000	20.388	6.464	0.000	100	205	QP
2		77.894	20.857	8.400	-19.143	40.000	5.710	6.747	0.000	100	347	QP
3		125.954	20.467	3.900	-23.033	43.500	9.593	6.973	0.000	100	228	QP
4		319.784	25.534	4.200	-20.466	46.000	13.658	7.676	0.000	100	25	QP
5	*	515.945	35.226	8.400	-10.774	46.000	18.622	8.204	0.000	100	29	QP
6		960.558	33.905	1.200	-20.095	54.000	23.482	9.223	0.000	100	258	QP



Engineer: Lucas					
Site: AC3	Time: 2018/02/05				
Limit: FCC_Part15.209_RE(3m)	Margin: 0				
Probe: AC3_3m (30-1000MHz)	Polarity: Vertical				
EUT: EZ-BT WICED Module	Power: AC 120V/60Hz				
Note: Mode 1					

Note: Mode 1



No	Mark	Frequency	Measure	Reading	Over	Limit	Probe	Cable	Amp	Ant	Table	Туре
		(MHz)	Level	Level	Limit	(dBuV/m)	(dB/m)	(dB)	(dB)	Pos	Pos	
			(dBuV/m)	(dBuV)	(dB)					(cm)	(deg)	
1		41.265	22.510	4.600	-17.490	40.000	11.377	6.534	0.000	100	26	QP
2		53.859	23.127	5.900	-16.873	40.000	10.611	6.617	0.000	100	256	QP
3		132.256	23.362	2.500	-20.138	43.500	13.861	7.002	0.000	100	147	QP
4		354.245	26.947	2.100	-19.053	46.000	17.067	7.780	0.000	100	45	QP
5		501.055	26.131	1.200	-19.869	46.000	16.767	8.164	0.000	100	48	QP
6	*	845.054	35.244	2.600	-10.756	46.000	23.662	8.981	0.000	100	224	QP



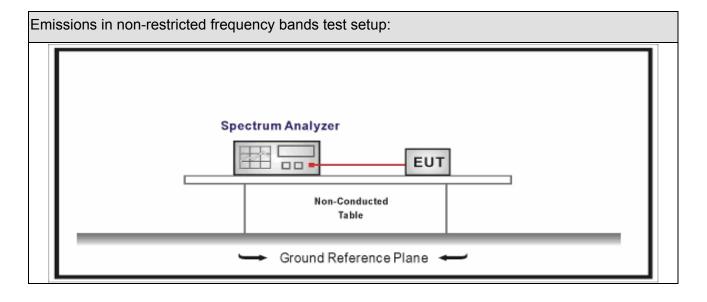
#### 5. Emissions in non-restricted frequency bands

### 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	2017.02.04	2018.02.03			
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08			
MXA Signal Anlyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08			
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09			

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)			

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).

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# 5.4. Test Procedure

References Rule	Test	Meth	od					
ANSI C63.10		Refe	rend	ces	Rule		Chapter	Description
ANSI C63.10	$\boxtimes$	ANS	I C	63.	10		11.11	Emissions in non-restricted frequency bands
□ 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       11.12.2.5       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		$\boxtimes$	A١	ISI	C63	.10	11.11.2	Reference level measurement
ANSI C63.10			A١	ISI	C63	.10	11.11.3	Emission level measurement
ANSI C63.10  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  11.12.2.5  Average power measurement procedures  ANSI C63.10  ANSI C63.10  11.12.2.5.1  Trace averaging with continuous EUT transmission at full power  ANSI C63.10		ANS	I C	63.	10		11.12	Emissions in restricted frequency bands
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  11.12.2.5  Average power measurement procedures  ANSI C63.10  11.12.2.5.1  Trace averaging with continuous EUT transmission at full power  ANSI C63.10			A۱	NSI	C63	.10	11.12.1	Radiated emission measurements
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			A۱	NSI	C63	.10	11.12.2.7	Radiated spurious emission test
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  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  ANS		ANS	I C	63.	10		6.4	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								devices below 30 MHz
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		ANS	I C	63.	10		6.5	Radiated emissions from unlicensed wireless
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								devices in the frequency range
devices above 1 GHz  ANSI C63.10								of 30 MHz to 1000 MHz
ANSI C63.10		ANS	I C	63.	10		6.6	Radiated emissions from unlicensed wireless
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								devices above 1 GHz
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			A۱	NSI	C63	.10	11.12.2	Antenna-port conducted measurements
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					ANS	I C63.10	11.12.2.3	Quasi-peak measurement procedure
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				$\leq$	ANS	I C63.10	11.12.2.4	Peak power measurement procedure
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.					ANS	I C63.10	11.12.2.5	Average power measurement procedures
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.						ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission
EUT transmissions followed by duty cycle correction  ANSI C63.10 11.12.2.5.3 Reduced VBW averaging across ON and OFF times.								at full power
duty cycle correction  ANSI C63.10 11.12.2.5.3 Reduced VBW averaging across ON and OFF time						ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the
ANSI C63.10 11.12.2.5.3 Reduced VBW averaging across ON and OFF time						EUT transmissions followed by		
								duty cycle correction
of the EUT transmissions						ANSI C63.10	11.12.2.5.3	Reduced VBW averaging across ON and OFF times
								of the EUT transmissions
with max hold								with max hold



### 5.5. EUT test Axis definition

Item		Emissions in non-restricted frequency bands						
		Fixed point-to-poin	t					
Device Category		Emit multiple direct	aneously or					
	$\boxtimes$							
Test mode	Mode	1						
		Radiated						
		X Axis	Y	Axis	Z Axis			
		Worst Axis	Worst A	Axis 🗌	Worst Axis			
	□ Conducted     □							
To at we atte and			Ch	nain 1				
Test method								
		Chain 1			Chain 2			
			•	•				
		Chain 1	Ch	nain 2	Chain 3			
			•	• •				

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#### 5.6. Test Result

Product Name	• •	EZ-BT WICED Module	Power	:	AC 120V/60Hz
Test Mode		Mode 1	Test Site	:	TR-8
Test Date	:	2018.01.31	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	4.872	2400.00	-51.205	56.077	>20	Pass
1	39	2480	4.299	2500.00	-60.879	65.178	>20	Pass

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

Mode 1 CH00 (2402MHz) Start Freq 2.350000000 GHz Avg Type: Log-Pwr Avg|Hold:>100/100 Trig: Free Run Atten: 20 dB Auto Tune Mkr2 2.400 000 GHz -51.205 dBm Ref Offset 1.5 dB Ref 11.50 dBm Center Freq Start Freq 2.350000000 GHz Stop Freq 2,405000000 GHz Stop 2.40500 GHz 5.333 ms (8001 pts) Start 2.35000 GHz #Res BW 100 kHz CF Step 5.500000 MHz Man #VBW 300 kHz Freq Offset Scale Type

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# 6. Radiated Emission Band Edge

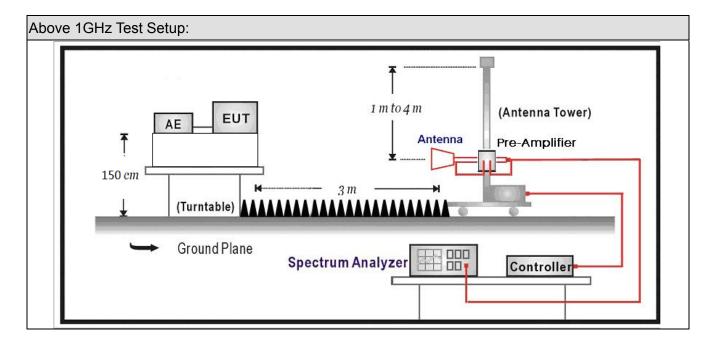
# 6.1. Test Equipment

Radiated Emission(Abov	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	2018.05.02			
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2017.07.12	2018.07.11			
Broad-Band Horn	Schwarzbeck	BBHA9170	294					
Antenna	Ochwarzbeck	DDITACTIO	254	2017.09.18	2018.09.17			
		SUCOFLEX		2017.02.28	2018.02.27			
Coaxial Cable	Huber+Suhner	106	AC5-C1	2017.02.20	2010.02.21			
		SUCOFLEX		2017.02.28	2018.02.27			
Coaxial Cable	Huber+Suhner	106	AC5-C2	2017.02.20	2010.02.21			
Temperature/Humidity								
Meter	Zhichen	ZC1-2	AC5-TH	2018.01.05	2019.01.04			

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### 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

References Rule	Test	Metho	od				
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   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		References Rule			е	Chapter	Description
□ 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	$\boxtimes$	ANSI	NSI C63.10			6.10	Band-edge testing
☑ 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		$\boxtimes$	ANSI	C63	.10	6.10.5	Restricted-band band-edge measurements
ANSI C63.10			ANSI	C63	.10	6.10.6	Marker-delta method
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  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	$\boxtimes$	ANSI	C63.	10		11.12	Emissions in restricted frequency bands
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  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  ANSI C63.10  11.12.2.5.3  Reduced VBW averaging across ON and OFF times of the EUT transmissions		$\boxtimes$	ANSI	C63	.10	11.12.1	Radiated emission measurements
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  11.12.2.5  Average power measurement procedures  ANSI C63.10  11.12.2.5.1  Trace averaging with continuous EUT transmission at full power  ANSI C63.10  ANSI C63.10  11.12.2.5.2  Reduced VBW averaging across ON and OFF times of the EUT transmissions  ANSI C63.10		$\boxtimes$	ANSI	C63	.10	11.12.2.7	Radiated spurious emission test
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		ANSI	C63.	10		6.4	Radiated emissions from unlicensed wireless
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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		ANSI	C63.	10		6.5	Radiated emissions from unlicensed wireless
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  11.12.2.5  Average power measurement procedures  ANSI C63.10  ANSI C63.10  11.12.2.5.1  Trace averaging with continuous EUT transmission at full power  ANSI C63.10							devices in the frequency range
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							of 30 MHz to 1000 MHz
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		ANSI	C63.	10		6.6	Radiated emissions from unlicensed wireless
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							devices above 1 GHz
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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			$\boxtimes$	ANS	I C63.10	11.12.2.4	Peak power measurement procedure
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			$\boxtimes$	ANS	I C63.10	11.12.2.5	Average power measurement procedures
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					ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission
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							at full power
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					ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the
ANSI C63.10 11.12.2.5.3 Reduced VBW averaging across ON and OFF times of the EUT transmissions							
of the EUT transmissions							duty cycle correction
				$\boxtimes$	ANSI C63.10	11.12.2.5.3	Reduced VBW averaging across ON and OFF times
with max hold							of the EUT transmissions
							with max hold



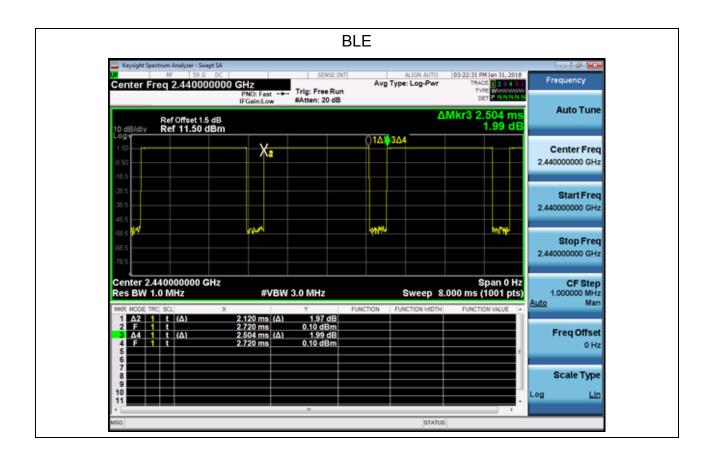
### 6.5. EUT test definition

Item		Radiated Emission Band Edge						
		Fixed point-to-point						
Device Category		Emit multiple directional beams, simultaneously or sequentially						
		Other cases						
Test mode	Mode	: 1						
		Radiated						
		X Axis	Y	Axis	Z Axis			
		Worst Axis 🖂	Worst A	Axis 🗌	Worst Axis			
	☐ Conducted ☐ Chain 1							
To at we attend								
Test method				•				
		Chain 1			Chain 2			
			• •					
		Chain 1	Cl	nain 2	Chain 3			



#### 6.6. Duty Cycle

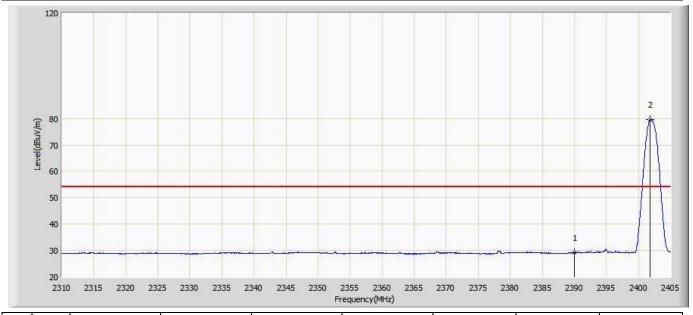
Test Mode	Tx On (ms)	Tx Off (ms)	Reduced VBW (kHz)	Tx On + Tx Off (ms)	Duty Cycle
BLE	2.120	0.384	510	2.504	84.66%





### 6.7. Test Result

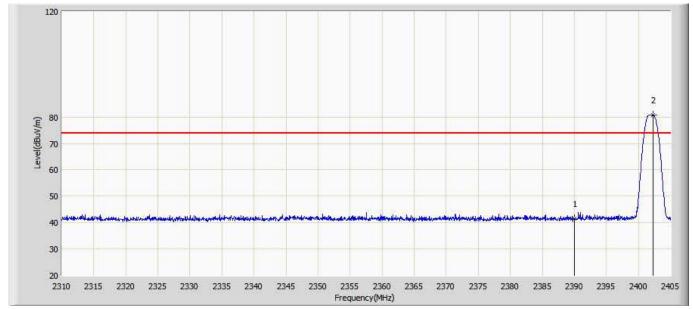
Site: AC5	Time: 2018/02/03 - 10:58
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055 (1-18GHz)	Polarity: Horizontal
EUT: EZ-BT WICED Module	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by BLE	



No	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Factor	Туре
		(MHz)	(dBuV/m)	(dBuV)	(dB)	(dBuV/m)	(dB)	
1		2390.000	29.169	-7.16	-24.831	54.000	36.329	AV
2	*	2401.865	79.605	43.276	N/A	N/A	36.329	AV



Site: AC5	Time: 2018/02/03 - 11:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055 (1-18GHz)	Polarity: Horizontal
EUT: EZ-BT WICED Module	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by BLF	



No	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Factor	Туре
		(MHz)	(dBuV/m)	(dBuV)	(dB)	(dBuV/m)	(dB)	
1		2390.000	41.479	5.15	-32.521	74.000	36.329	PK
2	*	2402.292	80.774	44.446	N/A	N/A	36.328	PK



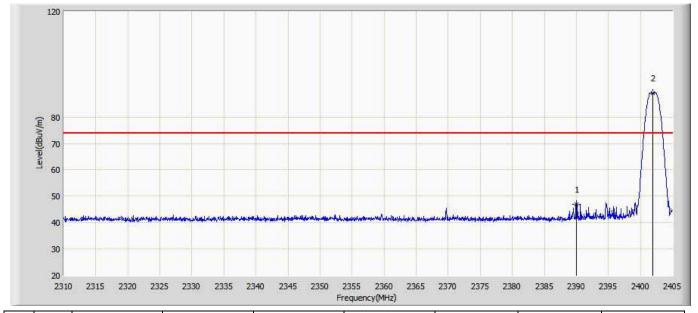
Site: AC5	Time: 2018/02/03 - 11:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055 (1-18GHz)	Polarity: Vertical
EUT: EZ-BT WICED Module	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by BLE	

120 (E) 80 40 30 20 2310 2315 2320 2325 2330 2335 2340 2345 2350 2355 2360 2365 2370 2375 2380 2385 2390 2395 2400 2405 Frequency(MHz)

No	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Factor	Туре
		(MHz)	(dBuV/m)	(dBuV)	(dB)	(dBuV/m)	(dB)	
1		2390.000	29.620	-6.709	-24.380	54.000	36.329	AV
2	*	2401.960	88.388	52.059	N/A	N/A	36.329	AV



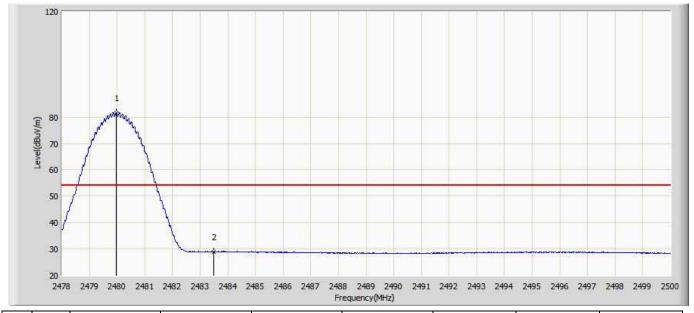
Site: AC5	Time: 2018/02/03 - 11:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055 (1-18GHz)	Polarity: Vertical
EUT: EZ-BT WICED Module	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by BLE	



No	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Factor	Туре
		(MHz)	(dBuV/m)	(dBuV)	(dB)	(dBuV/m)	(dB)	
1		2390.000	47.022	10.693	-26.978	74.000	36.329	PK
2	*	2401.960	89.108	52.78	N/A	N/A	36.328	PK



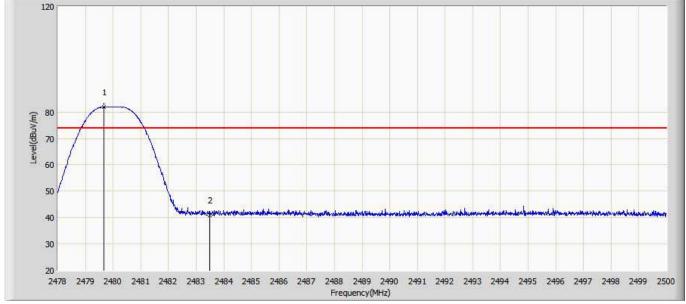
Site: AC5	Time: 2018/02/03 - 11:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055 (1-18GHz)	Polarity: Horizontal
EUT: EZ-BT WICED Module	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by BLE	



N	lo	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Factor	Туре
			(MHz)	(dBuV/m)	(dBuV)	(dB)	(dBuV/m)	(dB)	
	1	*	2479.969	81.670	45.256	N/A	N/A	36.414	AV
	2		2483.500	28.911	-7.556	-25.089	54.000	36.467	AV



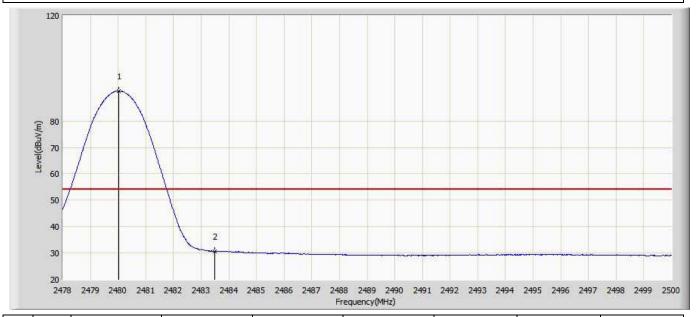
Site: AC5	Time: 2018/02/03 - 11:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055 (1-18GHz)	Polarity: Horizontal
EUT: EZ-BT WICED Module	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by BLE	



No	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Factor	Туре
		(MHz)	(dBuV/m)	(dBuV)	(dB)	(dBuV/m)	(dB)	
1	*	2479.672	81.960	45.545	N/A	N/A	36.415	PK
2		2483.500	40.874	4.407	-33.126	74.000	36.467	PK



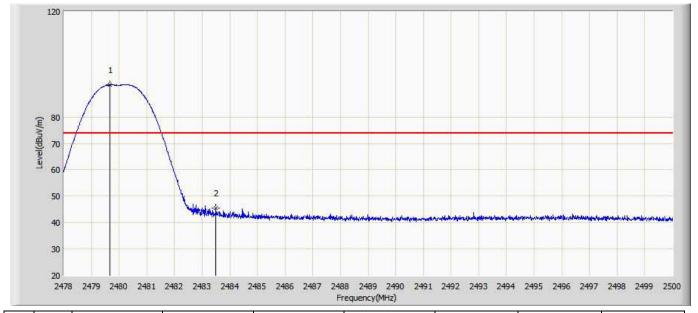
Site: AC5	Time: 2018/02/03 - 11:34		
Limit: FCC_Part15.209_RE(3m)	Margin: 0		
Probe: Horn_3117_00167055 (1-18GHz)	Polarity: Vertical		
EUT: EZ-BT WICED Module	Power: AC 120V/60Hz		
Note: Mode 1:Transmit at 2480MHz by BLF			



N	o N	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Factor	Туре
			(MHz)	(dBuV/m)	(dBuV)	(dB)	(dBuV/m)	(dB)	
	1	*	2480.024	91.389	54.971	N/A	N/A	36.418	AV
	2		2483.500	30.619	-5.848	-23.381	54.000	36.467	AV



Site: AC5	Time: 2018/02/03 - 11:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055 (1-18GHz)	Polarity: Vertical
EUT: EZ-BT WICED Module	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by BLE	



N	lo	Mark	Frequency	Measure Level	Reading Level	Over Limit	Limit	Factor	Туре
			(MHz)	(dBuV/m)	(dBuV)	(dB)	(dBuV/m)	(dB)	
	1	*	2479.672	92.099	55.682	N/A	N/A	36.417	PK
	2		2483.500	45.574	9.107	-28.426	74.000	36.467	PK



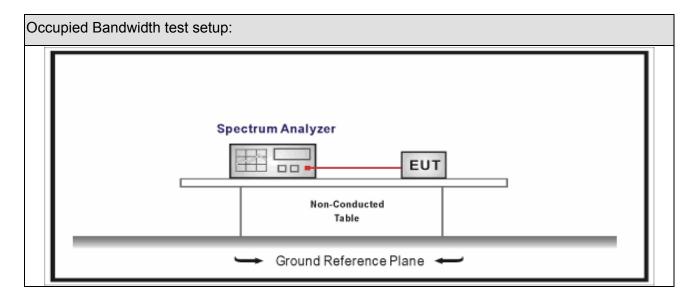
### 7. Occupied Bandwidth

# 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	2018.04.08					
MXA Signal Anlyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08					
Temperature/Humidity Mete	rzhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09					

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**

$\overline{}$		:1	D	-1: -141-
( )	-	חםח	Ran	awalata
$\smile$	CCU	DICU.	Dan	dwidth

Systems using digital modulation techniques operate in the2400-2483.5 MHz .The minimum 6 dB bandwidth shall be at least 500 kHz

#### 7.4. Test Procedure

Test	Test Method											
	Reference Rule	Chapter	Description									
$\boxtimes$	ANSI C63.10	11.8	DTS bandwidth									
	☐ ANSI C63.10	11.8.1	Option 1									
	ANSI C63.10	11.8.2	Option 2									

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# 7.5. EUT test definition

Item		Occupied Bandwidth					
		Fixed point-to-point					
Device Category		Emit multiple directional beams, simultaneously or sequentially					
		Other cases					
Test mode	Mode	1					
		Radiated					
		X Axis	Y	Axis	Z Axis		
		Worst Axis	Worst A	Axis 🗌	Worst Axis		
	□ Conducted     □						
To at we atte a d	$\boxtimes$		Ch	nain 1			
Test method	•						
		Chain 1			Chain 2		
			•	•			
		Chain 1	Ch	nain 2	Chain 3		
			•	• •			



#### 7.6. Test Result

Product Name	• •	EZ-BT WICED Module	Power	:	AC 120V/60Hz
Test Mode		Mode 1	Test Site	:	TR-8
Test Date	• •	2018.02.08	Test Engineer	:	Slark

Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (kHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result
1	00	2402	1298.1	758.7	>500	Pass
1	19	2440	1167.4	754.5	>500	Pass
1	39	2480	1156.9	760.3	>500	Pass

Note: The worst case of Occupied Bandwidth as below:

#### Mode 1 CH19 (2440MHz)





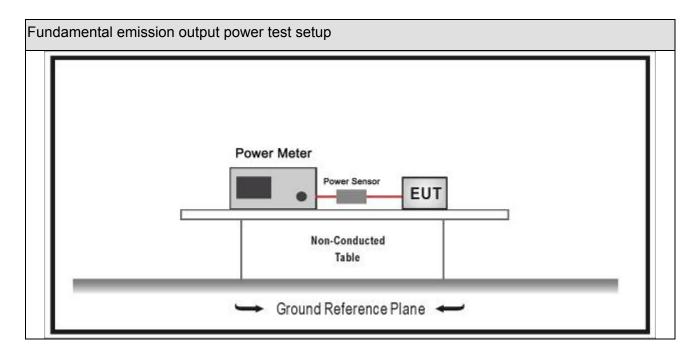
### 8. Fundamental emission output power

### 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	2017.04.10	2018.04.09						

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**

Fund	undamental emission output power Limit								
$\boxtimes$	Gтх ·	GTX < 6dBi		30dBm					
	Gтх :	> 6dBi							
		Non-Fix point-point	Pout	30-( GTX -6)					
		Fix point-point	Pout	30-[(Gтx-6)]/3					
		Point-to-multipoint		30-(G⊤x-6)					
		Overlap Beams	Pout	30-[(Gтx-6)]/3					
		Aggregate power transmitted simultaneously on all beams	Pout	30-[(Gтх-6)]/3					
		single directional beam	Pout	30-[(GTX-6)]/3+8dB					
	Note 1 : GTX directional gain of transmitting antennas.  Note 2 : Pout is maximum peak conducted output power .								



# 8.4. Test Procedure

Funda	ament	tal emi	ission	output power	Test Method	1
		Refe	erence	es Rule	Chapter	Description
	ANSI C63.10				11.9	Fundamental emission output power
	$\boxtimes$	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
		$\boxtimes$	ANSI	C63.10	11.9.1.3	PKPM1 Peak power meter method
		☐ ANSI C63.10 ☐ ANSI C63.10		11.9.2	Maximum conducted (average) output power	
				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		ANSI C63.10	11.9.2.2.5	Method AVGSA-3A
			<ul><li>☐ ANSI C63.10</li><li>☐ ANSI C63.10</li></ul>		11.9.2.3	Measurement using a power meter (PM)
					11.9.2.3.1	Method AVGPM
				ANSI C63.10	11.9.2.3.2	Method AVGPM-G

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### 8.5. EUT test definition

Item		Fundamental emission output power						
		Fixed point-to-poin	t					
Device Category		Emit multiple directional beams, simultaneously or sequentially						
		Other cases						
Test mode	Mode	: 1						
		Radiated						
		X Axis	Y	'Axis	Z Axis			
		Worst Axis	Worst A	Axis 🗌	Worst Axis			
	□ Conducted     □							
<del>-</del>	$\boxtimes$	Chain 1						
Test method		•						
		Chain 1		(	Chain 2			
			•	•				
		Chain 1	Cł	nain 2	Chain 3			
			•	• • •				

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# 8.6. Test Result

Product Name	• •	EZ-BT WICED Module	Power	• •	AC 120V/60Hz
Test Mode	• •	Mode 1	Test Site		TR-8
Test Date	• •	2018.02.08	Test Engineer	•	Slark

Mode	Channel	Test Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
1	00	2402	3.9	30	Pass
1	19	2440	3.7	30	Pass
1	39	2480	4.8	30	Pass



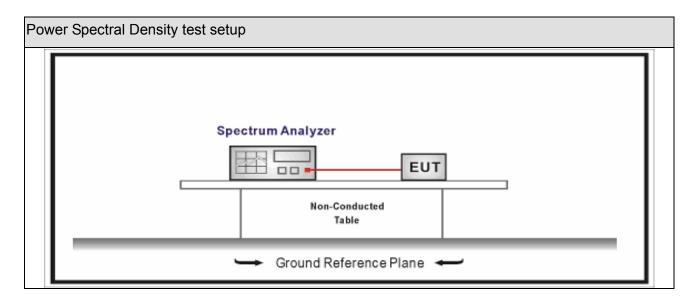
### 9. Power Spectral Density

### 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	2017.02.04	2018.02.03			
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08			
MXA Signal Anlyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08			
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09			

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 I	_imit
Power Spectral Density	8dBm/3kHz



### 9.4. Test Procedure

Powe	Power Spectral Density Test Method							
		References Rule	Chapter	Description				
$\boxtimes$	ANSI C63.10		11.10	Maximum power spectral density level in the fundamental emission				
	$\boxtimes$	ANSI C63.10	11.10.2	Method PKPSD (peak PSD)				
		ANSI C63.10	11.10.3	Method AVGPSD-1(Duty cycle 98%)				
		ANSI C63.10	11.10.4	Method AVGPSD-1A(Duty cycle 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				

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### 9.5. EUT test definition

Item		Power Spectral Density Test Method							
	Fixed point-to-point								
Device Category		Emit multiple directional beams, simultaneously or sequentially							
		Other cases							
Test mode	Mode	Mode 1							
		Radiated							
		X Axis	Y Axi	s	Z Axis				
		Worst Axis	Worst Axis		Worst Axis				
	$\boxtimes$	□ Conducted     □							
<del>-</del>	$\boxtimes$	☐ Chain 1							
Test method		•							
		Chain 1		Chain 2					
			• •						
		Chain 1	Chain	2	Chain 3				
			• •	•					

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#### 9.6. Test Result

Product Name	• •	EZ-BT WICED Module	Power	:	AC 120V/60Hz
Test Mode	• •	Mode 1	Test Site	:	TR-8
Test Date	:	2018.01.31	Test Engineer	:	Slark

Mode	Channel	Test Frequency (MHz)	Measurement PSD (dBm/3kHz)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	00	2402	-10.102	-10.102	8	Pass
1	19	2440	-11.797	-11.797	8	Pass
1	39	2480	-10.182	-10.182	8	Pass

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

#### Mode 1 CH00(2402MHz)



Report No: 1812166R-RF-US-P06V02



#### 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

— The End —————