

CTC Laboratories, Inc.

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Т	EST REPORT			
Report No. ······	GTI20190626F-1			
FCC ID······:	2AKIT-AS012			
IC:	22635-AS012			
Applicant·····:	Lumi United Technology Co., Ltd			
Address	8th Floor, JinQi Wisdom Valley, Liuxian A District, Nanshan District, Shenzhen, Ch	•		
Manufacturer	Lumi United Technology Co., Ltd			
Address	8th Floor, JinQi Wisdom Valley, Liuxian A District, Nanshan District, Shenzhen, Ch			
Product Name·····:	Door and Window Sensor T1			
Trade Mark······	AQara			
Model/Type reference······:	DWS-S01			
Listed Model(s) ······	MCCGQ12LM, MCCGQ12LM-G0			
Standard:	FCC CFR Title 47 Part 15 Subpart C Section 15.247 RSS-247 Issue 2 RSS-Gen Issue 5			
Date of receipt of test sample:	Apr. 15, 2019			
Date of testing	Apr. 16, 2019 to Apr. 25, 2019			
Date of issue	Apr. 26, 2019			
Result:	PASS			
Compiled by:		Terry Su		
(Printed name+signature)	Terry Su	lerry.Ju		
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Approved by:		unter chis		
(Printed name+signature)	Walter Chen	Mullen Chrs		
Testing Laboratory Name	CTC Laboratories, Inc.			
Address	1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China			
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Any objections must be raised to CTC within 15 days since the date when the report is received. It will not be taken into consideration beyond this limit. The test report merely correspond to the test sample.



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1. TEST SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.247: Operation within the bands of 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz. RSS 247 Issue 2: Standard Specifications for Frequency Hopping Systems (FHSs) and Digital Transmission Systems (DTSs) Operating in the Bands 902-928MHz, 2400-2483.5MHz and 5725-5850MHz. RSS-Gen: General Requirements for Compliance of Radio Apparatus.

ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

1.2. Report version

Revised No.	Date of issue	Description	
01	Apr. 26, 2019	Original	



1.3. Test Description

FCC Part 15 Subpart C(15.247)/ RSS-247 Issue 2/ RSS-Gen Issue 5						
Test Item	Standard	Decult				
Test item	FCC	IC	Result	Test Engineer		
Antenna Requirement	15.203	/	Pass	Terry Su		
Conducted Emission	15.207(a)	RSS-GEN 8.8	N/A	N/A		
Band-Edge & Unwanted Emissions into Restricted Frequency	15.205&15.247(d)	RSS-GEN 8.9	Pass	Terry Su		
6dB Bandwidth	15.247(a)(2)	RSS 247 5.2 (1)	Pass	Terry Su		
Conducted Max Output Power	15.247(b)(3)	RSS 247 5.4 (4)	Pass	Terry Su		
Power Spectral Density	15.247(e)	RSS 247 5.2 (2)	Pass	Terry Su		
Transmitter Radiated Spurious &Unwanted Emissions into Restricted Frequency	15.205, 15.209&15.247(d)	RSS 247 5.5	Pass	Terry Su		

Note: "N/A" is not applicable.

The measurement uncertainty is not included in the test result.



1.4. Test Facility

Address of the report laboratory

CTC Laboratories. Inc.

Add: 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

Laboratory accreditation

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L5365

CTC Laboratories, Inc. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No.: CN1208

CTC Laboratories, Inc. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

IC Registration No.: CN0029

The 3m alternate test site of CTC Laboratories, Inc. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: CN0029 on Dec, 2018.

FCC-Registration No.: 951311

CTC Laboratories, Inc. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 951311, Aug 26, 2017

1.5. Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01" Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the CTC Laboratories, Inc. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Below is the best measurement capability for CTC Laboratories, Inc.

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Test Items	Measurement Uncertainty	Notes
Transmitter power conducted	0.42 dB	(1)
Transmitter power Radiated	2.14 dB	(1)
Conducted spurious emissions 9kHz~40GHz	1.60 dB	(1)
Radiated spurious emissions 9kHz~40GHz	2.20 dB	(1)
Conducted Emissions 9kHz~30MHz	3.20 dB	(1)
Radiated Emissions 30~1000MHz	4.70 dB	(1)
Radiated Emissions 1~18GHz	5.00 dB	(1)
Radiated Emissions 18~40GHz	5.54 dB	(1)
Occupied Bandwidth		(1)

Note (1): This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

1.6. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15~35°C
Relative Humidity:	30~60%
Air Pressure:	950~1050kPa



2. GENERAL INFORMATION

2.1. Client Information

Applicant:	Lumi United Technology Co., Ltd
Address:	8th Floor, JinQi Wisdom Valley, Liuxian Ave, Taoyuan Residential District, Nanshan District, Shenzhen, China
Manufacturer:	Lumi United Technology Co., Ltd
Address:	8th Floor, JinQi Wisdom Valley, Liuxian Ave, Taoyuan Residential District, Nanshan District, Shenzhen, China

2.2. General Description of EUT

Product Name:	Door and Window Sensor T1
Marketing Name:	AQara
Model/Type reference:	DWS-S01
Listed Model(s):	MCCGQ12LM, MCCGQ12LM-G0
Model Difference:	All these models are identical in the same PCB, layout and electrical circuit, only named differently for marketing purpose.
Power supply:	3Vdc from button battery
Hardware version:	V1.0.1
Software version:	V1.0.1
Zigbee	
Operation frequency:	2405MHz~2480MHz
Modulation Type:	O-QPSK
Max Peak Output Power:	11.06dBm
Channel number:	16
Channel separation:	5MHz
Antenna type:	PCB Antenna
Antenna gain:	2dBi





2.3. Operation state

Operation Frequency List: The EUT has been tested under typical operating condition. The Applicant provides communication tools software to control the EUT for staying in continuous transmitting and receiving mode for testing. Zigbee 16 channels are provided to the EUT. Channels 11/18/26 were selected for testing. Operation Frequency List:

Channel	Frequency (MHz)	Test software power Settings
11	2405	10
12	2410	
:	÷	÷
17	2435	
18	2440	10
19	2445	
:	÷	÷
25	2475	
26	2480	0

Note: The display in grey were the channel selected for testing.

Test mode

For RF test items:

The software test program was provided and enabled to make EUT continuous transmit (duty cycle>98%).

For AC power line conducted emissions:

The EUT was set to connect with the Zigbee instrument under large package sizes transmission.

For Radiated spurious emissions test item:

The engineering test program was provided and enabled to make EUT continuous transmit. The EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.



2.4. Measurement Instruments List

Tonso	Tonscend JS0806-2 Test system						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated until	
1	Spectrum Analyzer	Rohde & Schwarz	FSU26	100105	Dec. 27, 2018	Dec. 28, 2019	
2	Spectrum Analyzer	Rohde & Schwarz	FUV40-N	101331	Jun. 21, 2018	Jun. 22, 2019	
3	MXG Vector Signal Generator	Agilent	N5182A	MY47420864	Dec. 27, 2018	Dec. 28, 2019	
4	Signal Generator	Agilent	E8257D	MY46521908	Dec. 27, 2018	Dec. 28, 2019	
5	Power Sensor	Agilent	U2021XA	MY5365004	Dec. 27, 2018	Dec. 28, 2019	
6	Power Sensor	Agilent	U2021XA	MY5365006	Dec. 27, 2018	Dec. 28, 2019	
7	Simultaneous Sampling DAQ	Agilent	U2531A	TW54493510	Dec. 27, 2018	Dec. 28, 2019	
8	Climate Chamber	TABAI	PR-4G	A8708055	Dec. 27, 2018	Dec. 28, 2019	
9	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	116410	Dec. 27, 2018	Dec. 28, 2019	
10	Climate Chamber	ESPEC	MT3065	/	Dec. 27, 2018	Dec. 28, 2019	
11	300328 v2.1.1 test system	TONSCEND	v2.6	/	/	/	

Conduc	Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated until	
1	LISN	R&S	ENV216	101112	Dec. 27, 2018	Dec. 28, 2019	
2	LISN	R&S	ENV216	101113	Dec. 27, 2018	Dec. 28, 2019	
3	EMI Test Receiver	R&S	ESCI	100920	Dec. 27, 2018	Dec. 28, 2019	
4	ISN CAT6	Schwarzbeck	NTFM 8158	8158-0046	Dec. 27, 2018	Dec. 28, 2019	

Radiated Emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated until
1	EMI Test Receiver	Rohde & Schwarz	ESCI	100658	Dec. 27, 2018	Dec. 28, 2019
2	High pass filter	micro-tranics	HPM50111	142	Dec. 27, 2018	Dec. 28, 2019
3	Log-Bicon Antenna	Schwarzbeck	CBL6141A	4180	Dec. 27, 2018	Dec. 28, 2019
4	Ultra-Broadba nd Antenna	SchwarzBeck	BBHA9170	25841	Dec. 27, 2018	Dec. 28, 2019
5	Loop Antenna	LAPLAC	RF300	9138	Dec. 27, 2018	Dec. 28, 2019
6	Spectrum Analyzer	Rohde & Schwarz	FSU26	100105	Dec. 27, 2018	Dec. 28, 2019
7	Horn Antenna	Schwarzbeck	BBHA 9120D	647	Dec. 27, 2018	Dec. 28, 2019
8	Pre-Amplifier	HP	8447D	1937A030 50	Dec. 27, 2018	Dec. 28, 2019
9	Pre-Amplifier	EMCI	EMC051835	980075	Dec. 27, 2018	Dec. 28, 2019
10	Antenna Mast	UC	UC3000	N/A	N/A	N/A
11	Turn Table	UC	UC3000	N/A	N/A	N/A
12	Cable Below 1GHz	Schwarzbeck	AK9515E	33155	Dec. 27, 2018	Dec. 28, 2019
13	Cable Above 1GHz	Hubersuhner	SUCOFLEX10 2	DA1580	Dec. 27, 2018	Dec. 28, 2019
14	Splitter	Mini-Circuit	ZAPD-4	400059	Dec. 27, 2018	Dec. 28, 2019
15	RF Connection Cable	HUBER+SUHN ER	RE-7-FL	N/A	Dec. 27, 2018	Dec. 28, 2019
16	RF Connection	Chengdu			Dec. 27, 2018	Dec. 28, 2019

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	Cable	E-Microwave				
17	High pass filter	Compliance Direction systems	BSU-6	34202	Dec. 27, 2018	Dec. 28, 2019
18	Attenuator	Chengdu E-Microwave	EMCAXX-10R NZ-3		Dec. 27, 2018	Dec. 28, 2019

Note: 1. The cable loss has calculated in test result which connection between each test instruments.



3. TEST ITEM AND RESULTS

3.1. Conducted Emission

<u>Limit</u>

Conducted Emission Test Limit

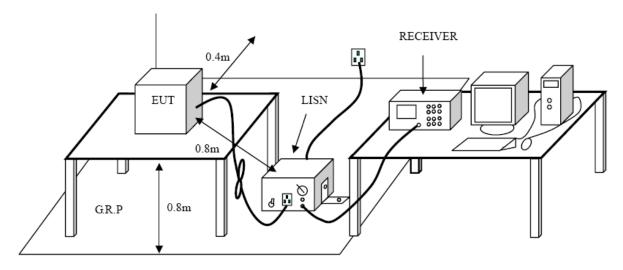
Fraguanay	Maximum RF Line Voltage (dBμV)					
Frequency	Quasi-peak Level	Average Level				
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *				
500kHz~5MHz	56	46				
5MHz~30MHz	60	50				

Notes:

(1) *Decreasing linearly with logarithm of the frequency.

- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

Test Configuration



Test Procedure

1. The EUT was setup according to ANSI C63.10:2013 requirements.

2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.

3. The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 500hm /50uH coupling impedance for the measuring equipment.

The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)

4. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

5. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

6. Conducted Emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

7. During the above scans, the emissions were maximized by cable manipulation.

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Please refer to the clause 2.3.

Test Results

Not applicable.

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3.2. Radiated Emission

Limit

Radiated Emission Limits (9 kHz~1000 MHz)

Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)		
0.009~0.490	2400/F(KHz)	300		
0.490~1.705	24000/F(KHz)	30		
1.705~30.0	30	30		
30~88	100	3		
88~216	150	3		
216~960	200	3		
Above 960	500	3		

Radiated Emission Limit (Above 1000MHz)

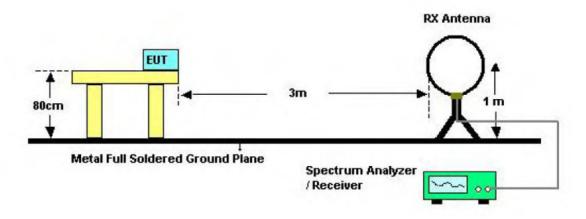
Frequency	Distance Meters(at 3m)					
(MHz)	Peak	Average				
Above 1000	74	54				

Note:

(1) The tighter limit applies at the band edges.

(2) Emission Level (dBuV/m)=20log Emission Level (uV/m).

Test Configuration

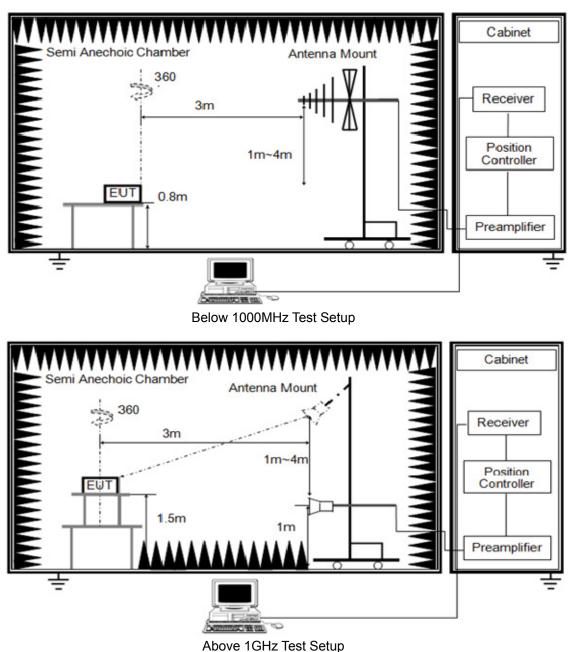


Below 30MHz Test Setup

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Test Procedure

- 1. The EUT was setup and tested according to ANSI C63.10:2013
- 2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
- 3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
- For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower 4. (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
- Set to the maximum power setting and enable the EUT transmit continuously. 5.
- Use the following spectrum analyzer settings 6.
 - Span shall wide enough to fully capture the emission being measured; (1)
 - Below 1 GHz: (2)

RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold; If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

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(3) From 1 GHz to 10th harmonic:
 RBW=1MHz, VBW=3MHz Peak detector for Peak value.
 RBW=1MHz, VBW=3MHz RMS detector for Average value.

Test Mode

Please refer to the clause 2.3.

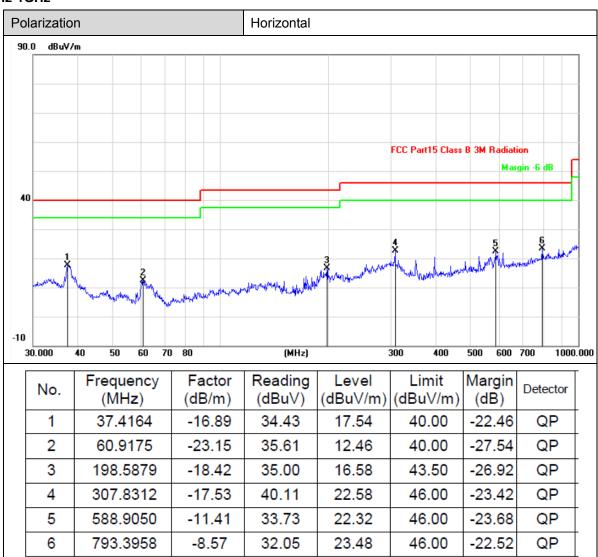
<u>Test Result</u>

9 KHz~30 MHz

From 9 KHz to 30 MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



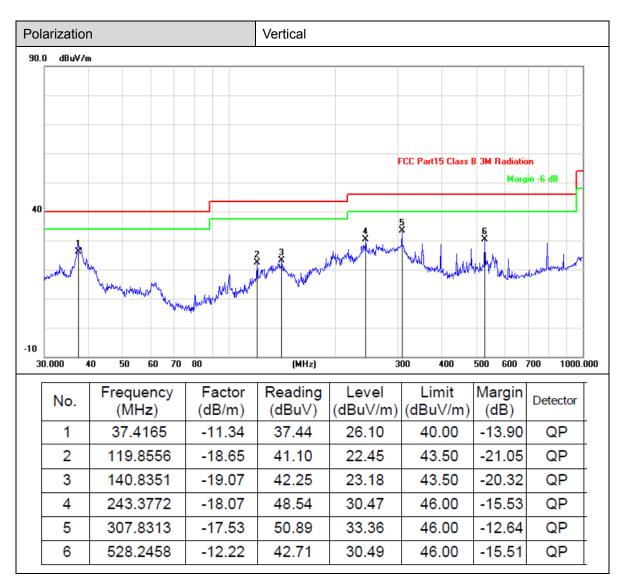


Remark:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2.Margin value = Level -Limit value

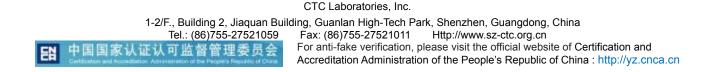




Remark:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2.Margin value = Level -Limit value





Ant. Pol.
Test Mode:

Horizontal												. Pol			
TX Zigbee Mode 2405MHz No report for the emission which more than 10 dB below the prescribed												t Mo			
prescribed	ow the pre	IB belov	ın 10 d	ore tha	ich m	sion wł	emiss	r the	port for	No re limit.			:	nark	len
													iV/m) dBu	10.0
ak.	ove-16 Peak	C 3M Abov	t15 Class	FCC Pa											
AV.	Above-1G AV	ee C 3M Ah	Part15 Cla	FCC											60
<u>.</u>	DOVE TO AT			100							1				
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26000.00 M	00	21000.00	8500.00	0.00	0 1600	13500.0	00.00	11	8500.00	0.00	600).00	3500	00.000	L
	Margin (dB)		Lin (dBu)		Le ^v (dBu	iding BuV)			Facto (dB/n		ueno Hz)	requ (Mł	Fr	0.	N
96 peak	-25.96	.00 ·	74.	04	48.	.67	46	7	1.37	35	D.88	810	4	1	
65 AVG	-20.65	.00 ·	54.00		33.35		31	7	1.37	00	3.50	808	4	2	
) 96	(dB) -25.96	√/m) .00 ·	(dBu) 74.	V/m) 04	(dBu 48.	3uV)	(dE 46	n) 7	(dB/n 1.37	35	Hz) 0.88	(M) 810	4	1	

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value



Ant. Pol		Verti	cal								
Test Mo	de:	TX Z	igbee Mode	2405MHz							
Remark	:	No re limit.	No report for the emission which more than 10 dB below the prescribed								
60	V/m 2 2 4 3500.00 6	300.00	8500.00 11	000.00 13500.0	FCC	rt15 Class C 3M Ab Part15 Class C 3M	Above-1G AV	26000.00 MHz			
No.	Freque (MHz		Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector			
1	1 4810.606		1.37	35.65	37.02	54.00	-16.98	AVG			
2	2 4810.804		1.37	48.11	49.48	74.00	-24.52	peak			
				8/m)+Cable F	Factor (dB)-F	Pre-amplifier	Factor				

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Ant. Pol.		zontal								
de:	TX Z	TX Zigbee Mode 2440MHz No report for the emission which more than 10 dB below the prescribed limit.								
:										
V/m										
						10.0				
				FLL Pa	TTO LIASS L 3M AD	ove-lu reak				
				FCC	Part15 Class C 3M	Above-1G AV				
2										
Î										
×										
3500.00	6000.00	8500.00 11	13500.0	U 16000.00 1	8500.00 21000	.00	26000.00 Mł			
	-	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector			
4881.	203	1.56	32.25	33.81	54.00	-20.19	AVG			
4880.	588	1.56	46.21	47.77	74.00	-26.23	peak			
	de: v/m \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	de: TX Z No r limit. V/m Z X X	de: TX Zigbee Mode No report for the limit. V/m V/m <tr< td=""><td>de: TX Zigbee Mode 2440MHz No report for the emission whilimit. V/m V/m Imit. Imit</td><td>de: TX Zigbee Mode 2440MHz No report for the emission which more that limit. v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m <thv m<="" th=""> v/m v/m</thv></td><td>TX Zigbee Mode 2440MHz No report for the emission which more than 10 dB bellimit. V/m V/m FCC Part15 Class C 3M Ab FCC Part15 Class C 3M Ab FCC Part15 Class C 3M State State FCC Part15 Class C 3M State FC</td><td>Image: de: TX Zigbee Mode 2440MHz No report for the emission which more than 10 dB below the prilimit. V/m V/m FCC Part15 Class C 3M Above-16 Peak FCC Part15 Class C 3M Above-16 Peak FCC Part15 Class C 3M Above-16 Peak FCC Part15 Class C 3M Above-16 AV State FCC Part15 Class C 3M Above-16</td></tr<>	de: TX Zigbee Mode 2440MHz No report for the emission whilimit. V/m V/m Imit. Imit	de: TX Zigbee Mode 2440MHz No report for the emission which more that limit. v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m v/m <thv m<="" th=""> v/m v/m</thv>	TX Zigbee Mode 2440MHz No report for the emission which more than 10 dB bellimit. V/m V/m FCC Part15 Class C 3M Ab FCC Part15 Class C 3M Ab FCC Part15 Class C 3M State State FCC Part15 Class C 3M State FC	Image: de: TX Zigbee Mode 2440MHz No report for the emission which more than 10 dB below the prilimit. V/m V/m FCC Part15 Class C 3M Above-16 Peak FCC Part15 Class C 3M Above-16 Peak FCC Part15 Class C 3M Above-16 Peak FCC Part15 Class C 3M Above-16 AV State FCC Part15 Class C 3M Above-16			

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value



Ant	. Pol		Verti	cal									
Test	t Moo	de:	TX Z	TX Zigbee Mode 2440MHz									
Ren	nark:			No report for the emission which more than 10 dB below the prescribed limit.									
110.0) dBu	V/m											
									FCC Par	t15 Class C 3k	Above-16 Pe	ak	
60									FCC	Part15 Class C	3M Above-1G	AV	
		×											
		2											
10.0													
10	000.000	3500.00 6	000.00	850	0.00 11	000.00 1	3500.0	0 160	0.00 1	8500.00 21	000.00	26	000.00 MHz
N	lo.	Frequency (MHz)			actor B/m)	Readi (dBu			vel V/m)	Limit (dBuV/r	Marg n) (dB)		etector
	1	1 4881.011			1.56	49.5	7	51	.13	74.00	-22.8	37	peak
	2 4880.507			1.56	37.3	8	38	.94	54.00	-15.0	6	AVG	
1.Fa		(dB/m) = A value = Le				3/m)+Ca	ble F	actor	(dB)-P	Pre-amplifi	er Factor		

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Ant. Pol.			Horizontal									
Fest Mo			TX Zigbee Mode 2480MHz									
Remark	:	No r	No report for the emission which more than 10 dB below the prescribed limit.									
110.0 dBu	uV/m											
					FCC Pa	rt15 Class C 3M Ab	ove-1G Peak					
60					FCC	Part15 Class C 3M	Above-1G AV					
	×											
	X											
10.0) 3500.00	6000.00	8500.00 11	1000.00 13500.0	0 16000.00	18500.00 21000	00	26000.00 MH				
No.	Freque (MH	z)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	· · · ·	Margin (dB)	Detector				
1	4958.	563	1.78	45.63	47.41	74.00	-26.59	peak				
2	4960.	843	1.78	31.66	33.44	54.00	-20.56	AVG				
Remark: 1.Factor		Antenn	a Factor (dl	3/m)+Cable I	⁼ actor (dB)-F	Pre-amplifier	Factor					



Ant. Po		Verti	cal								
Test Mo	de:	TX Z	TX Zigbee Mode 2480MHz								
Remark	:	No re limit.	No report for the emission which more than 10 dB below the prescribed limit.								
110.0 dBu	W/m										
					FCC Par	t15 Class C 3M Ab	ove-16 Peak				
60					FCC	Part15 Class C 3M	Above-1G AV				
	Î										
10.0											
1000.000		000.00	Factor	Reading	0 16000.00 1	8500.00 21000 Limit		26000.00 MHz			
No.	Freque (MH:		(dB/m)	(dBuV)	(dBuV/m)	(dBuV/m)	Margin (dB)	Detector			
1	4960.	666	1.78	34.75	36.53	54.00	-17.47	AVG			
2	4960.	358	1.78	47.59	49.37	74.00	-24.63	peak			
Remark:		/m) = /	Antenna Fac	tor (dB/m)+(Cable Factor	(dB)-Pre-an	nnlifier Fa	ctor			

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2.Margin value = Level -Limit value

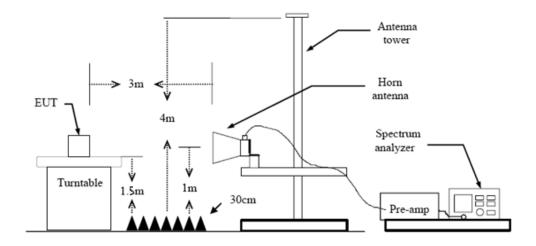


3.3. Band Edge Emissions

Limit

Restricted Frequency Band	(dBuV/m)(at 3m)						
(MHz)	Peak	Average					
2310 ~2390	74	54					
2483.5 ~2500	74	54					
Note: All restriction bands have been tested, only the worst case is reported.							

Test Configuration



Test Procedure

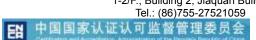
- The EUT was setup and tested according to ANSI C63.10:2013 requirements. 1.
- The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to 2. determine the position of the maximum emission level.
- 3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
- 4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.
- The receiver set as follow: 5. RBW=1MHz, VBW=3MHz PEAK detector for Peak value. RBW=1MHz, VBW=10Hz with PEAK Detector for Average Value.

Test Mode

Please refer to the clause 2.3.

Test Results

CTC Laboratories, Inc.





(1) Radiation Test

Ant. Pol		Horiz	zontal											
Test Mo	de:	TX Z	Ligbee N	lode	2405M	Hz								
110.0 dBu	V/m													
								FCC Par	t15 Class	С ЗМ АЬ	ove-16 P	n, XX €ak		
60								FCC	Part15 Cl	ass C 3M	Above- G	i av		
											1X NX		L	
10.0														
2315.000	2325.00	2335.00	2345.00	23	55.00 2	365.00	237	5.00 2	385.00	2395.0	10		2415.00	MH2
No.	Freque (MH		Fact (dB/r		Read (dBu			vel iV/m)		nit V/m)	Marg (dB		Detect	or
1	2400.	000	-4.5	1	48.9	97	44	.46	74	.00	-29.	54	pea	k
2	2400	000	-4.5	1	37.4	7	32	.96	54	.00	-21.0	04	AVC	3
3	2404.	500	-4.4	9	99.3	33	94	.84			<u> </u>	ŀ	pea	k
4	2405.	100	-4.4	9	97.2	27	92	.78				}	AVC	3
	(dB/m) = value = L				/m)+Ca	ble F	actor	(dB)-F	Pre-am	plifier	Factor	-		



Ant.	Pol				/ertical IX Zigbee Mode 2405MHz											
Test	Mo	de:		TX Z	Zigbe	e Mo	ode	2405	5MHz	2						
110.0	dBu	√/m														
-												FCC Par	rt15 Clas	s C 3M Ab	ove-1G Peak	
60												FCC	Part15 C	ass C 3M	Above-1G AV	
															1 X	
10.0	11 000	2321.00	1 23	31.00	234	1 00	23	51.00	2361	00	2371		2381.00	2391.0		2411.00 MHz
25	11.000	2321.00	J 2J	1.00	234		23.	1.00	2301		257		.501.00	2331.0		2411.00 MI12
N	0.		quen MHz)	-		acto B/m			adin BuV)	- 1		vel V/m)		nit Ⅳ/m)	Margin (dB)	Detector
	1	24	00.0	00	-	4.51		47	7.52		43.	.01	74	.00	-30.99	peak
	2	24	00.0	00	-	4.51		33	3.18		28	.67	54	.00	-25.33	AVG
	3	24	05.0	00	-	4.49)	91	1.52		87	.03				AVG
	4	24	05.5	00	-	4.49)	93	3.48		88	.99	-			peak
	ctor		ı) = Aı : = Le					/m)+	Cabl	e F	actor	(dB)-F	Pre-an	plifier	Factor	

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Ant.	Pol.		Horiz	ontal							
Test	Mode	:	TX Z	igbee Moo	le 2480	MHz					
60									115 Class C 3M At		
10.0	2.000 2	(0) 00 - 2	492.00	2502.00	2512.00	2522.00	2532	00 2	542.00 2552.	00	2572.00 MHz
	No.	Freque (MH	ency	Factor (dB/m)	Rea	ading BuV)	Le	vel	Limit (dBuV/m)	Margin	Detector
	1	2479.	400	-4.20	89	.54	85	.34		+	peak
	2	2480.	000	-4.20	87	.57	83	.37		' '	AVG
	3	2483.	500	-4.19	47	.53	43	.34	54.00	-10.66	AVG
	4	2483.	500	-4.19	54	.77	50	.58	74.00	-23.42	peak

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1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2.Margin value = Level -Limit value



1

Ant. Po	l.	Vertio	cal									
Test Mo	ode:	TX Zi	TX Zigbee Mode 2480MHz									
110.0 dB	uV/m	-										
60					FCC	Part15 Class C 3M Ab	Above-1G AV					
2472.00	0 2482.00 2	2492.00	2502.00 25	12.00 2522.00) 2532.00	2542.00 2552.	00	2572.00 MHz				
No.	Freque (MHz		Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector				
1	2480.0	000	-4.20	86.96	82.76			AVG				
2	2480.4	100	-4.20	88.98	84.78			peak				
3	2483.5	500	-4.19	54.02	49.83	74.00	-24.17	peak				
4	2483.5	500	-4.19	47.05	42.86	54.00	-11.14	AVG				

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Remark:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2.Margin value = Level -Limit value



Conducted Test (2)

Sr	ectrun	n 🖌								
-		I 15.00 dB	m Offset	1.00 dB 🧉	• RBW 100 kH	łz				(v
	tt	25 c			• VBW 300 kH		Auto FFT			
• 1	Pk View		1							
10	dBm					M:	L[1]		2.4	107164 dBm 107680 GHz
n d	Bm					M	2[1]			-53 23 dBm
						1		I	2.4	toooo GHz
-10	dBm—	D1 -12.36	0.dBm	-						
-20	dBm									
	-									۳ ۹
-30	dBm—									
-40	dBm—									$ \rightarrow $
-50	dBm								M2 (
	abin				M#			M3	كملكن	h.
-60	dBm—	wy m w	hunder	_	Male way	how the most	Menterrenter	month	and M	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
-70	dBm—	··· · · · · · · · · · · · · · · · · ·								
	dBm									
<u> </u>	2.363 (GHz			691	pts			Span	100.0 MHz
	'ker 'pe Re	f Trc	X-valu	ie	Y-value	Funct	ion	Fund	ction Result	t l
	M1	1	2.40	468 GHz	7.64 dBr	m				
	M2 M3	1		2.4 GHz	-53.23 dBr -58.46 dBr					
	M4	1		272 GHz	-61.89 dBr					
	1011	-								
_	: 18.A	PR.2019				Mea	suring		446	18.04.2019
Sp	e: 18.Ai ectrun ef Leve	PR.2019	19:52:35 m Offset	1.00 dB	• RBW 100 kH	Hz Mea	suring			18.04.2019
Sp R A	e: 18.A ectrun ef Leve tt	pr.2019	19:52:35 m Offset	1.00 dB		Hz Mea	Auto FFT			18.04.2019 //
Sp R A A	e: 18.A ectrun ef Leve tt Pk View	PR.2019	19:52:35 m Offset	1.00 dB	• RBW 100 kH	Hz Hz Hz Mode	Auto FFT		196	18.04.2010 ₩ ∇ -2.87 dBm
Sp R 10	ectrun ef Leve tt dBm	PR.2019	19:52:35 m Offset	1.00 dB	• RBW 100 kH	Hz Hz Hz Mode M:	l[1]			-2.87 dBm 179720 GHz
Sp R 10	e: 18.A ectrun ef Leve tt Pk View	PR.2019	19:52:35 m Offset	1.00 dB	• RBW 100 kH	Hz Hz Hz Mode M:				-2.87 dBm
Sp R • 11 10 0 d	e: 18.Al ectrun ef Leve tt Pk View dBm	PR.2019	19:52:35 m Offset	1.00 dB	• RBW 100 kH	Hz Hz Hz Mode M:	l[1]			-2.87 dBm 179720 GHz -60.52 dBm
Sp R A 1 11 10 0 d -10	et 18.Al ectrun ef Leve tt ^{ok} View dBm Bm dBm	PR.2019	19:52:35 m Offset	1.00 dB	• RBW 100 kH	Hz Hz Hz Mode M:	l[1]			-2.87 dBm 179720 GHz -60.52 dBm
Sp R 11 10 0 d -10	e: 18.Al ectrun ef Leve tt Pk View dBm	PR.2019	m Offset B SWT	1.00 dB	• RBW 100 kH	Hz Hz Hz Mode M:	l[1]			-2.87 dBm 179720 GHz -60.52 dBm
Sp R -11 10 0 d -10 -20	et 18.Al ectrun ef Leve tt ^{ok} View dBm Bm dBm	PR.2019	m Offset B SWT	1.00 dB	• RBW 100 kH	Hz Hz Hz Mode M:	l[1]			-2.87 dBm 179720 GHz -60.52 dBm
Sp R 111 10 0 d -10 -20	ectrun ef Leve tt dBm dBm dBm dBm	PR.2019	m Offset B SWT	1.00 dB	• RBW 100 kH	Hz Hz Hz Mode M:	l[1]			-2.87 dBm 179720 GHz -60.52 dBm
Sp R A 111 10 0 d -10 -20 -30 -40	ectrun ef Leve tt dBm dBm dBm dBm dBm	PR.2019	m Offset B SWT	1.00 dB	• RBW 100 kH	Hz Hz Hz Mode M:	l[1]			-2.87 dBm 179720 GHz -60.52 dBm
Sp R A 111 10 0 d -10 -20 -30 -40	ectrun ef Leve tt dBm dBm dBm dBm	PR.2019	m Offset B SWT	1.00 dB	• RBW 100 kH	Hz Hz Hz Mode M:	l[1]		2.4	-2.87 dBm 179720 GHz -60.52 dBm
Sp R 11 10 0 d -10 -20 -30 -40 -50	ectrun ef Leve tt dBm dBm dBm dBm dBm	PR.2019	m Offset B SWT	1.00 dB 113.8 μs 	RBW 100 kH VBW 300 kH	12 Mode 12 Mode 13 Miles 14 Mi	l[1]		2.4	-2.87 dBm +79720 GHz 60.52 dBm +83500 GHz
SF R 0 111 10 0 d -10 -20 -30 -30 -30 -30 -30 -30 -30 -30 -30 -3	ectrun ef Leve tt Pk View dBm dBm dBm dBm dBm	PR.2019	19:52:35	1.00 dB	RBW 100 kH VBW 300 kH	Hz Hz Hz Mode M:	l[1]		2.4	-2.87 dBm 179720 GHz -60.52 dBm
Sp R 0 11 10 0 d -10 -20 -30 -30 -30 -30 -30 -30 -30 -30 -30 -3	ectrun ef Leve tt bk View dBm dBm dBm dBm dBm	PR.2019	19:52:35	1.00 dB 113.8 μs 	RBW 100 kH VBW 300 kH	12 Mode 12 Mode 13 Miles 14 Mi	l[1]		2.4	-2.87 dBm +79720 GHz 60.52 dBm +83500 GHz
Sp R A 111 10 0 d -10 -20 -30 -40 -50 -50 -50 -70	ectrun ef Leve tt Pk View dBm dBm dBm dBm dBm	PR.2019	19:52:35	1.00 dB 113.8 μs 	RBW 100 kH VBW 300 kH	12 Mode 12 Mode 13 Miles 14 Mi	l[1]		2.4	-2.87 dBm +79720 GHz 60.52 dBm +83500 GHz
Sp R A 111 10 0 d -10 -20 -30 -40 -50 -50 -50 -50 -50 CF	:: 18.AI ectrum ef Leve tt % View dBm dBm dBm dBm dBm dBm dBm dBm dBm 2.524 (PR. 2019	19:52:35	1.00 dB 113.8 μs 	RBW 100 kH VBW 300 kH	Hos	l[1]		2.4	-2.87 dBm +79720 GHz 60.52 dBm +83500 GHz
SF R 11 10 0 d -10 -20 -30 -40 -50 -50 -50 -50 -50 -50 -50 -50 -50 -5	:: 18.Ai ectrun ef Leve tt % View dBm dBm dBm dBm dBm dBm dBm 2.524 (ker	PR. 2019	19:52:35	1.00 dB = 113.8 μs =	RBW 100 kH VBW 300 kH	12 12 Mode M: M: M: M: M: M: M: M: M: M: M: M: M:	1[1] 2[1]		2,4 M4 M4 Span	-2.87 dBm +79720 GHz 60.52 dBm +83500 GHz
SF R 11 10 0 d -10 -20 -30 -40 -50 -50 -50 -50 -50 -50 -50 -50 -50 -5	:: 18.Al ectrun ef Leve tt ck View dBm dBm dBm dBm dBm dBm dBm dBm dBm dBm	PR. 2019 PR. 2019 1 15.00 dB 25 c 	19:52:35	1.00 dB • 113.8 µs •	RBW 100 kł VBW 300 kł	12 12 12 12 12 12 12 12 12 12 12 12 12 1	1[1] 2[1]		2.4	-2.87 dBm +79720 GHz 60.52 dBm +83500 GHz
SF R 11 10 0 d -10 -20 -30 -40 -50 -50 -50 -50 -50 -50 -50 -50 -50 -5	:: 18.AI ectrun ef Leve tt % View dBm dBm dBm dBm dBm dBm t dBm dBm t d dBm t d dBm d dBm d dBm d dBm d d d d d d d d	PR. 2019 PR. 2019 1 15.00 dB 25 c 	19:52:35	1.00 dB = 113.8 μs = 113.8	RBW 100 kH VBW 300 kH VBW 300 kH	12 12 12 Mode M: M: M: M: M: M: M: M: M: M:	1[1] 2[1]		2,4 M4 M4 Span	-2.87 dBm +79720 GHz 60.52 dBm +83500 GHz
SF R 11 10 0 d -10 -20 -30 -40 -50 -50 -50 -50 -50 -50 -50 -50 -50 -5	:: 18.AI ectrun ef Leve tt ek View dBm	PR. 2019 PR. 2019 15.00 dB 25 c 	19:52:35	1.00 dB 113.8 µs 113.	RBW 100 kł VBW 300 kł -	12 12 12 12 13 14 14 14 14 14 14 14 14 14 14 14 14 14	1[1] 2[1]		2,4 M4 M4 Span	-2.87 dBm +79720 GHz 60.52 dBm +83500 GHz
SF R 11 10 0 d -10 -20 -30 -40 -50 -50 -50 -50 -50 -50 -50 -50 -50 -5	:: 18.AI ectrun ef Leve tt % View dBm dBm dBm dBm dBm dBm t dBm dBm t d dBm t d dBm d dBm d dBm d dBm d d d d d d d d	PR. 2019 PR. 2019 1 15.00 dB 25 c 	19:52:35	1.00 dB = 113.8 μs = 113.8	RBW 100 kH VBW 300 kH VBW 300 kH	12 12 12 12 13 14 14 14 14 14 14 14 14 14 14 14 14 14	i[1] 2[1]	Fund	2.4 M4 Span	-2.87 dBm +79720 GHz 60.52 dBm +83500 GHz

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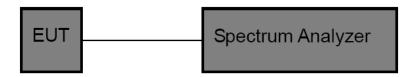


3.4. Bandwidth

<u>Limit</u>

Test Item	Limit	Frequency Range(MHz)
Bandwidth	>=500 KHz (6dB bandwidth)	2400~2483.5

Test Configuration



Test Procedure

- 1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- 2. Spectrum Setting:

Set RBW = 100 kHz. Set the video bandwidth (VBW) \geq 3 RBW. Detector = Peak. Trace mode = Max hold. Sweep = Auto couple.

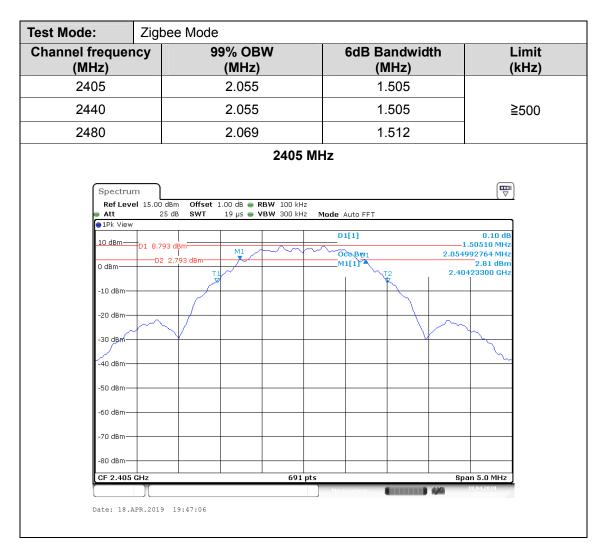
NOTE: The EUT was set to continuously transmitting in each mode and low, Middle and high channel for the test.

Test Mode

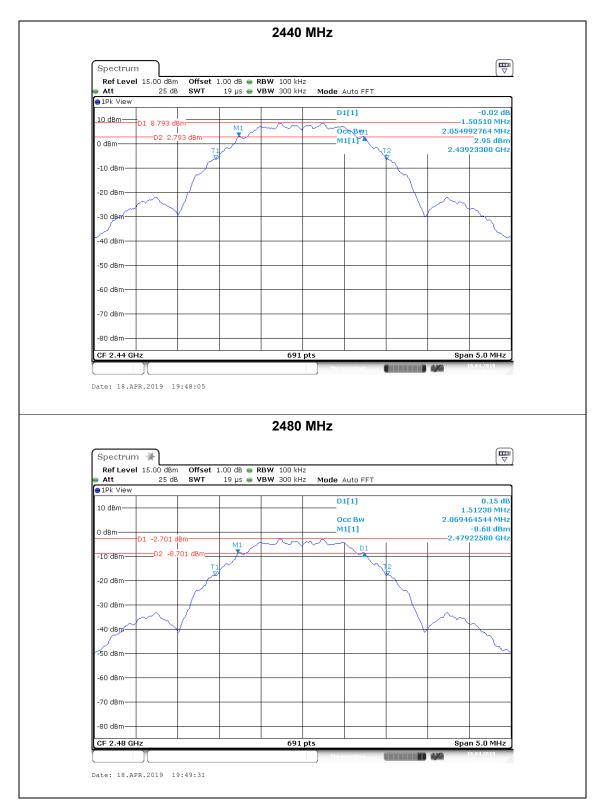
Please refer to the clause 2.3.

Test Results









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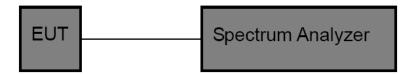


3.5. Peak Output Power

<u>Limit</u>

Section	Test Item	Limit	Frequency Range(MHz)
CFR 47 FCC 15.247(b)(3)	Maximum conducted output power	1 Watt or 30dBm	2400~2483.5
ISED RSS-247 5.4	EIRP	4 Watt or 36dBm	2400~2483.5

Test Configuration



Test Procedure

- 1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- 2. Spectrum Setting:

Peak Detector: RBW≥DTS Bandwidth, VBW≥3*RBW. Sweep time=Auto. Detector= Peak. Trace mode= Maxhold.

Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

Test Mode

Please refer to the clause 2.3.

Test Result



t Mode:	Zigbee N	Node					
annel frequenc	nnel frequency (MHz)		t (dBm)	Test Resu	Test Result (EIRP)		
2405	2405		0	13.			
2440		11.0	6	13.	06	PASS	
2480		-0.7	1	1.2	29		
		:	2405 MHz	2			
	_						
Spectrum			0.6411-				
Ref Level 1 Att	25 dB SV	fset 1.00 dB 👄 RBW VT 1.3 µs 👄 VBW		Auto FFT			
1Pk Max				_M1[1]		11.00 dBm	
10 dBm				⇒Mi	2.40	54860 GHz	
0 dBm							
-10 dBm							
-20 dBm							
-30 dBm							
-40 dBm							
-50 dBm							
-60 dBm							
-70 dBm							
-80 dBm				_			
CF 2.405 GH	z		691 pts		Spa	in 8.0 MHz	
][Measuring		18.04.2019	

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) MHz				
Spectrum									
Ref Level				RBW 3 MHz					
Att 1Pk Max	25 dB	SWT	1.3 µs 👄	VBW 3 MHz	Mode A	uto FFT			
10 dBm						1[1]		0.44	11.06 dBn
10 0000								2.44	104750 GH:
0 dBm							-		
-10 dBm									
-20 dBm									
-30 dBm									
-40 dBm									
-50 dBm									
-60 dBm									
-70 dBm									
-80 dBm									
CF 2.44 GH	z		1	69:	1 pts		1	Spa	n 8.0 MHz
ate: 18.AP	R.2019 1	9:43:16		2480) MHz				
ate: 18.AP		9:43:16		2480) MHz				
Spectrum Ref Level	15.00 dBm	Offset		RBW 3 MHz	2				(IIII)
Spectrum		Offset			2	uto FFT			∏ ⊽
Spectrum Ref Level Att	15.00 dBm	Offset		RBW 3 MHz	2 2 Mode A	uto FFT		2.48	-0.71 dBn
Spectrum Ref Level Att 1Pk Max	15.00 dBm	Offset		RBW 3 MHz	2 Mode An			2.48	
Spectrum Ref Level Att 1Pk Max	15.00 dBm	Offset		RBW 3 MHz	2 2 Mode A			2.48	-0.71 dBn
Spectrum Ref Level Att IPk Max 10 dBm 0 dBm	15.00 dBm	Offset		RBW 3 MHz	2 Mode An			2.48	-0.71 dBn
Spectrum Ref Level Att 1Pk Max	15.00 dBm	Offset		RBW 3 MHz	2 Mode An			2.46	-0.71 dBn
Spectrum Ref Level Att IPk Max 10 dBm 0 dBm	15.00 dBm	Offset		RBW 3 MHz	2 Mode An			2.46	-0.71 dBn
Spectrum Ref Level) Att) 1Pk Max 10 dBm -10 dBm -20 dBm	15.00 dBm	Offset		RBW 3 MHz	2 Mode An			2.46	-0.71 dBn
Spectrum Ref Level Att 1Pk Max 10 dBm -10 dBm	15.00 dBm	Offset		RBW 3 MHz	2 Mode An			2.46	-0.71 dBn
Spectrum Ref Level) Att) 1Pk Max 10 dBm -10 dBm -20 dBm	15.00 dBm	Offset		RBW 3 MHz	2 Mode An			2.46	-0.71 dBn
Spectrum Ref Level Att 10 dBm -10 dBm -10 dBm -28 dBm -30 dBm -40 dBm	15.00 dBm	Offset		RBW 3 MHz	2 Mode An			2.46	-0.71 dBn
Spectrum Ref Level Att 10 dBm -10 dBm -20 dBm -30 dBm	15.00 dBm	Offset		RBW 3 MHz	2 Mode An			2.46	-0.71 dBn
Spectrum Ref Level Att 10 dBm -10 dBm -10 dBm -28 dBm -30 dBm -40 dBm	15.00 dBm	Offset		RBW 3 MHz	2 Mode An			2.46	-0.71 dBn
Spectrum Ref Level 11 dbm 12 dbm -10 dbm -28 dbm -30 dbm -40 dbm -50 dbm	15.00 dBm	Offset		RBW 3 MHz	2 Mode An			2.4€	-0.71 dBn
Spectrum Ref Level • Att • IPk Max 10 dBm • 10 dBm • 20 dBm • 30 dBm • 40 dBm • 50 dBm	15.00 dBm	Offset		RBW 3 MHz	2 Mode An			2.46	-0.71 dBn
Spectrum Ref Level Att PIPK Max 10 dBm -10 dBm -20 dBm -30 dBm -30 dBm -50 dBm -60 dBm -70 dBm	15.00 dBm	Offset		RBW 3 MHz	2 Mode An			2.48	-0.71 dBn
Spectrum Ref Level 11 dbm 12 dbm 10 dbm -10 dbm -26 dbm -30 dbm -50 dbm -60 dbm -70 dbm -80 dbm	15.00 dBm 25 dB	Offset		RBW 3 MHz	Mode A				-0.71 dBn 03820 GH
Spectrum Ref Level Att PIPK Max 10 dBm -10 dBm -20 dBm -30 dBm -30 dBm -50 dBm -60 dBm -70 dBm	15.00 dBm 25 dB	Offset		RBW 3 MHz	2 Mode An			Spa	-0.71 dBn

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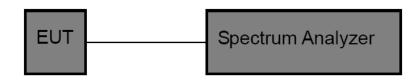


3.6. Power Spectral Density

<u>Limit</u>

	FCC Part 15 Subpart C(15.247)							
Test Item	Frequency Range(MHz)							
Power Spectral Density	8dBm(in any 3 kHz)	2400~2483.5						

Test Configuration



Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.

2. The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v04.

3. Spectrum Setting:

Set analyser center frequency to DTS channel center frequency. Set the span to 1.5 times the DTS bandwidth. Set the RBW to: 3 kHz Set the VBW to: 10 kHz Detector: peak Sweep time: auto

Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

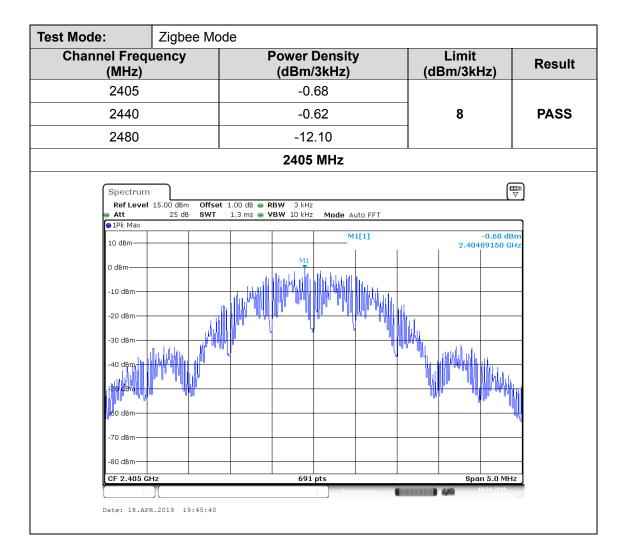
Test Mode

Please refer to the clause 2.3.

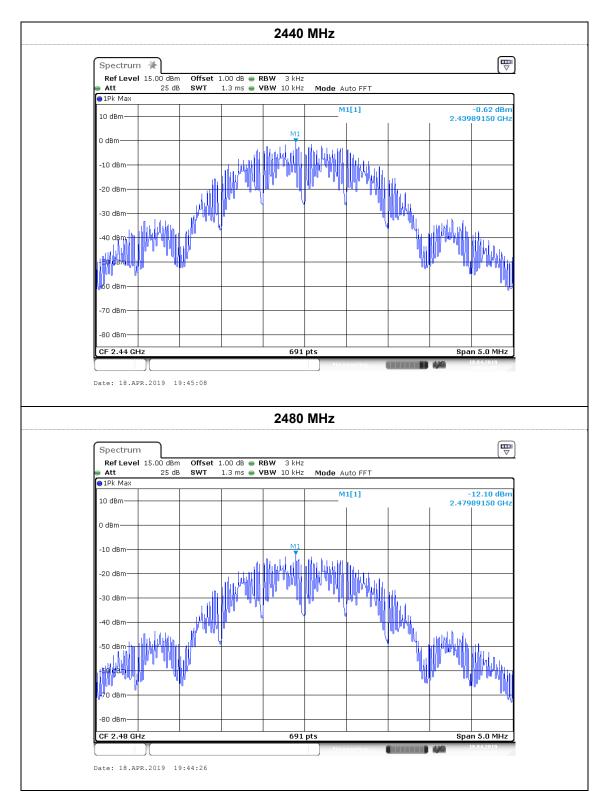
Test Result

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3.7. Antenna requirement

Requirement

FCC CFR Title 47 Part 15 Subpart C Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of antenna that uses a unique coupling to the intentional radiator, 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.

FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1)(i):

(i) Systems operating in the 2400~2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

Test Result

The directional gain of the antenna less than 6dBi, please refer to the EUT internal photographs antenna photo.