

TEST REPORT

FCC ID: 2AHUTZBM

Product: Zigbee RF Module

Model No.: ZBM

Additional Model No.: N/A

Trade Mark: Lynxus

Report No.: TCT201103E008

Issued Date: Nov. 17, 2020

Issued for:

Lynxus Technology Corp

**Nanshan District Tian Xia International Center A (Room510), Shenzhen,
Guangdong, China**

Issued By:

Shenzhen Tongce Testing Lab.

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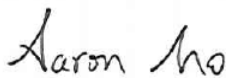
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1. Test Certification

Product:	Zigbee RF Module
Model No.:	ZBM
Additional Model No.:	N/A
Trade Mark:	Lynxus
Applicant:	Lynxus Technology Corp
Address:	Nanshan District Tian Xia International Center A (Room510), Shenzhen, Guangdong, China
Manufacturer:	Lynxus Technology Corp
Address:	Nanshan District Tian Xia International Center A (Room510), Shenzhen, Guangdong, China
Date of Test:	Nov. 04, 2020 – Nov. 16, 2020
Applicable Standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.249 ANSI C63.10:2013

The above equipment has been tested by Shenzhen Tongce Testing Lab. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By:



Aaron Mo

Date:

Nov. 16, 2020

Reviewed By:



Beryl Zhao

Date:

Nov. 17, 2020

Approved By:



Tomsin

Date:

Nov. 17, 2020

2. Test Result Summary

Requirement	CFR 47 Section	Result
Antenna Requirement	§15.203	PASS
AC Power Line Conducted Emission	§15.207	PASS
Field Strength of Fundamental	§15.249 (a)	PASS
Spurious Emissions	§15.249 (a) (d)/ §15.209	PASS
Band Edge	§15.249 (d)/ §15.205	PASS
20dB Occupied Bandwidth	§15.215 (c)	PASS

Note:

1. Pass: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.

3. EUT Description

Product:	Zigbee RF Module
Model No.:	ZBM
Additional Model No.:	N/A
Trade Mark:	Lynxus
Operation Frequency:	2405MHz - 2480MHz
Number of Channel:	16
Modulation Technology:	OQPSK
Antenna Type:	External Antenna
Antenna Gain:	3.5dBi
Power Supply:	DC 3.3V

Note: The antenna gain listed in this report is provided by applicant, and the test laboratory is not responsible for this parameter.

Operation Frequency Each of Channel

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2405MHz	4	2425MHz	8	2445MHz	12	2465MHz
1	2410MHz	5	2430MHz	9	2450MHz	13	2470MHz
2	2415MHz	6	2435MHz	10	2455MHz	14	2475MHz
3	2420MHz	7	2440MHz	11	2460MHz	15	2480MHz

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The Lowest channel	2405MHz
The Middle channel	2440MHz
The Highest channel	2480MHz

4. General Information

4.1. Test Environment and Mode

Operating Environment:		
Condition	Conducted Emission	Radiated Emission
Temperature:	25.0 °C	25.0 °C
Humidity:	55 % RH	55 % RH
Atmospheric Pressure:	1010 mbar	1010 mbar
Test Mode:		
Engineering mode:	Keep the EUT in continuous transmitting by select channel and modulations with Fully-charged battery	
The sample was placed 0.8m & 1.5m for the measurement below & above 1GHz above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case(Z axis) are shown in Test Results of the following pages.		

4.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
/	/	/	/	/

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

5. Facilities and Accreditations

5.1. Facilities

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

- FCC - Registration No.: 645098

Shenzhen Tongce Testing Lab.

The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A-1

The 3m Semi-anechoic chamber of SHENZHEN TONGCE TESTING LAB has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

5.2. Location

Shenzhen Tongce Testing Lab.

Address: 1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China

TEL: +86-755-27673339

5.3. Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	$\pm 2.56\text{dB}$
2	RF power, conducted	$\pm 0.12\text{dB}$
3	Spurious emissions, conducted	$\pm 0.11\text{dB}$
4	All emissions, radiated(<1GHz)	$\pm 3.92\text{dB}$
5	All emissions, radiated(>1GHz)	$\pm 4.28\text{dB}$
6	Temperature	$\pm 0.1^{\circ}\text{C}$
7	Humidity	$\pm 1.0\%$

6. Test Results and Measurement Data

6.1. Antenna Requirement

Standard requirement:

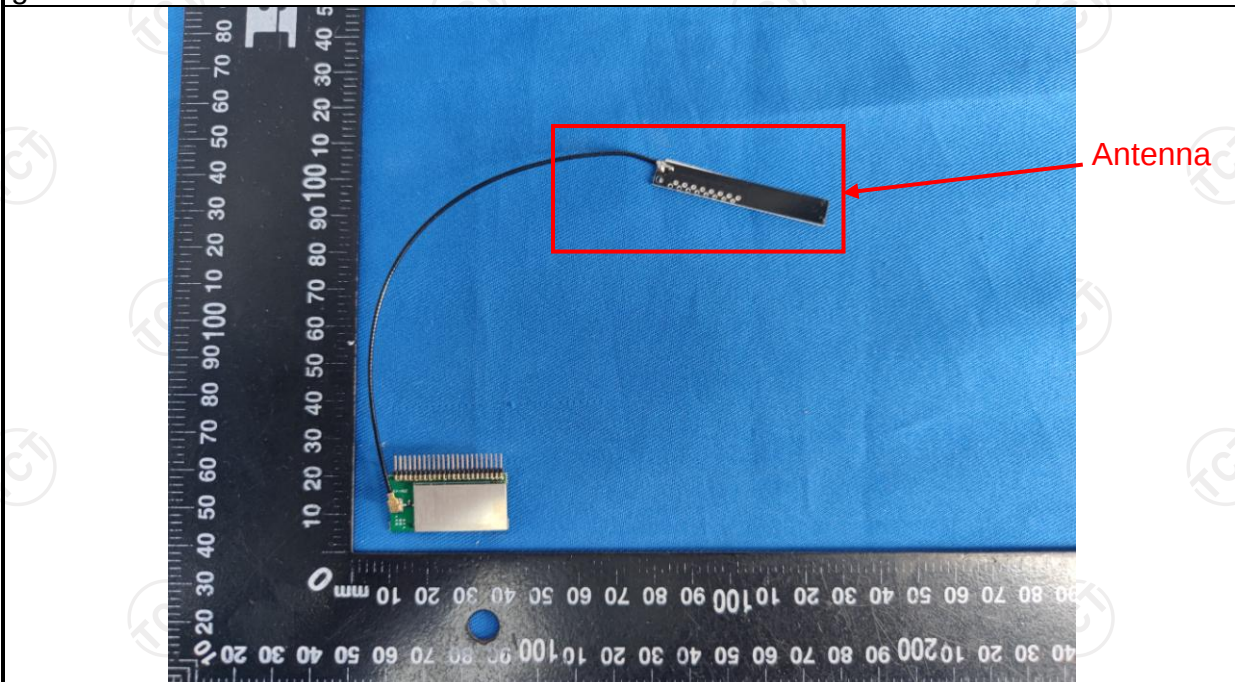
FCC Part15 C Section 15.203

15.203 requirement:

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, 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.

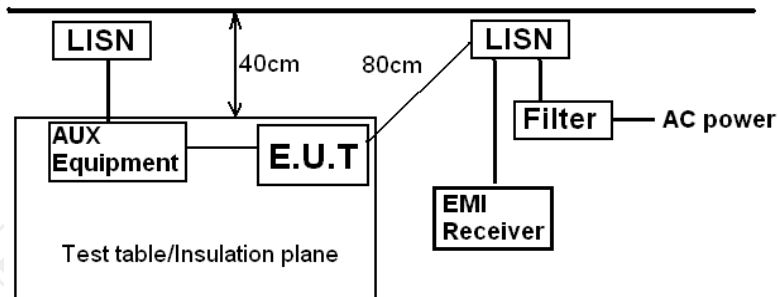
E.U.T Antenna:

The EUT antenna is external antenna which permanently attached, and the best case gain of the antenna is 3.5dBi.



6.2. Conducted Emission

6.2.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.207														
Test Method:	ANSI C63.10:2013														
Frequency Range:	150 kHz to 30 MHz														
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto														
Limits:	<table><tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBuV)</th></tr><tr><th>Quasi-peak</th><th>Average</th></tr><tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr><tr><td>0.5-5</td><td>56</td><td>46</td></tr><tr><td>5-30</td><td>60</td><td>50</td></tr></table>	Frequency range (MHz)	Limit (dBuV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBuV)														
	Quasi-peak	Average													
0.15-0.5	66 to 56*	56 to 46*													
0.5-5	56	46													
5-30	60	50													
Test Setup:	Reference Plane  40cm 80cm LISN AUX Equipment E.U.T Test table/Insulation plane Filter AC power EMI Receiver Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m														
Test Mode:	Transmitting mode with modulation														
Test Procedure:	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.														
Test Result:	PASS														

6.2.2. Test Instruments

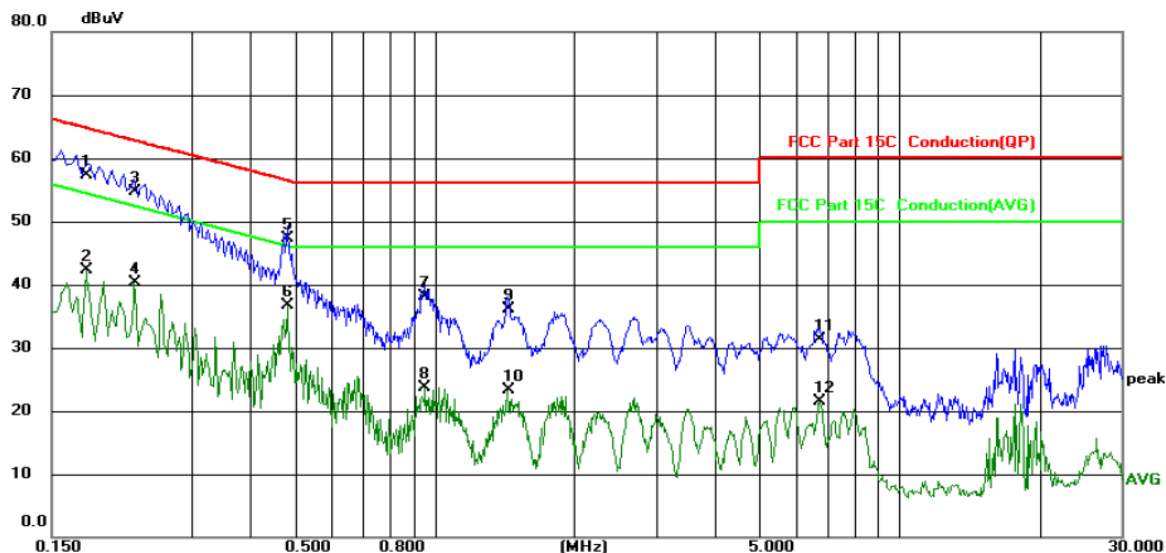
Conducted Emission Shielding Room Test Site (843)				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Test Receiver	R&S	ESCI3	100898	Jul. 27, 2021
LISN-2	Schwarzbeck	NSLK 8126	8126453	Sep. 11, 2021
Line-5	TCT	CE-05	N/A	Sep. 02, 2021
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.2.3. Test data

Please refer to following diagram for individual

Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz)



Site: Phase: **L1** Temperature: 25 (C)
Limit: FCC Part 15C Conduction(QP) Power: AC 120V/60Hz Humidity: 55 %RH

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1780	47.25	10.12	57.37	64.58	-7.21	QP	
2		0.1780	32.13	10.12	42.25	54.58	-12.33	AVG	
3		0.2260	44.54	10.13	54.67	62.60	-7.93	QP	
4		0.2260	30.23	10.13	40.36	52.60	-12.24	AVG	
5		0.4820	37.23	10.13	47.36	56.30	-8.94	QP	
6		0.4820	26.57	10.13	36.70	46.30	-9.60	AVG	
7		0.9500	27.99	10.12	38.11	56.00	-17.89	QP	
8		0.9500	13.49	10.12	23.61	46.00	-22.39	AVG	
9		1.4380	25.90	10.12	36.02	56.00	-19.98	QP	
10		1.4380	13.11	10.12	23.23	46.00	-22.77	AVG	
11		6.7100	21.15	10.14	31.29	60.00	-28.71	QP	
12		6.7100	11.39	10.14	21.53	50.00	-28.47	AVG	

Note:

Freq. = Emission frequency in MHz

Reading level (dBμV) = Receiver reading

Corr. Factor (dB) = LISN factor + Cable loss

Measurement (dBμV) = Reading level (dBμV) + Corr. Factor (dB)

Limit (dBμV) = Limit stated in standard

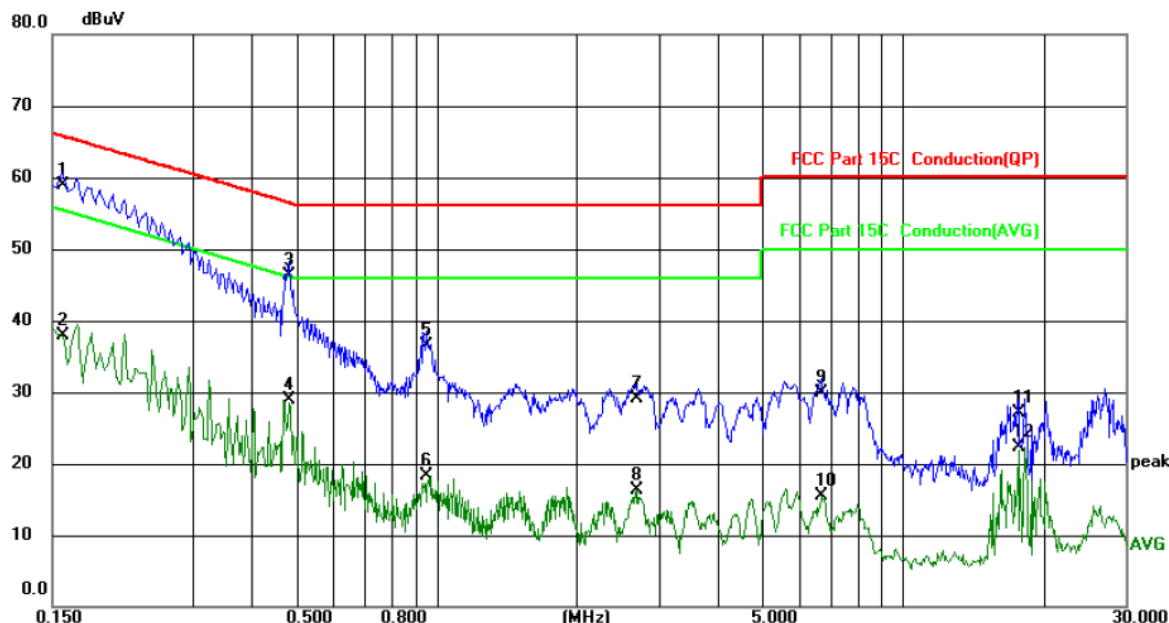
Margin (dB) = Measurement (dBμV) – Limits (dBμV)

Q.P. =Quasi-Peak

AVG =average

* is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.

Conducted Emission on Neutral Terminal of the power line (150 kHz to 30MHz)



Site: Phase: **N** Temperature: 25 (C)
 Limit: FCC Part 15C Conduction(QP) Power: AC 120V/60Hz Humidity: 55 %RH

No.	Mk.	Freq. MHz	Reading Level dBμV	Correct Factor dB	Measure- ment dBμV	Limit dBμV	Over dB	Detector	Comment
1	*	0.1580	48.75	10.12	58.87	65.57	-6.70	QP	
2		0.1580	27.83	10.12	37.95	55.57	-17.62	AVG	
3		0.4820	36.16	10.13	46.29	56.30	-10.01	QP	
4		0.4820	18.83	10.13	28.96	46.30	-17.34	AVG	
5		0.9500	26.42	10.12	36.54	56.00	-19.46	QP	
6		0.9500	8.25	10.12	18.37	46.00	-27.63	AVG	
7		2.6820	18.95	10.12	29.07	56.00	-26.93	QP	
8		2.6820	6.24	10.12	16.36	46.00	-29.64	AVG	
9		6.6740	19.68	10.14	29.82	60.00	-30.18	QP	
10		6.6740	5.39	10.14	15.53	50.00	-34.47	AVG	
11		17.6940	16.98	10.19	27.17	60.00	-32.83	QP	
12		17.6940	12.03	10.19	22.22	50.00	-27.78	AVG	

Note:

Freq. = Emission frequency in MHz

Reading level (dBμV) = Receiver reading

Corr. Factor (dB) = LISN factor + Cable loss

Measurement (dBμV) = Reading level (dBμV) + Corr. Factor (dB)

Limit (dBμV) = Limit stated in standard

Margin (dB) = Measurement (dBμV) – Limits (dBμV)

Q.P. =Quasi-Peak AVG =average

* is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.

6.3. Radiated Emission Measurement

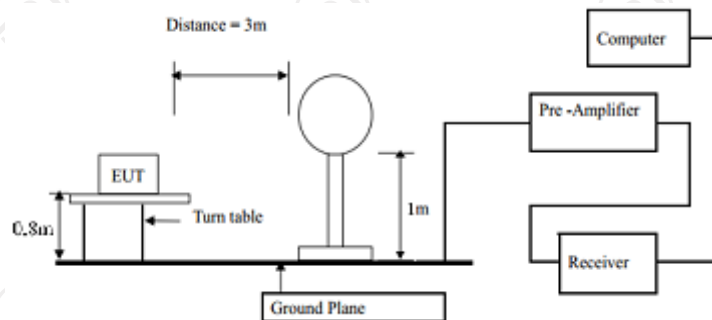
6.3.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.10:2013				
Frequency Range:	9 kHz to 25 GHz				
Measurement Distance:	3 m				
Antenna Polarization:	Horizontal & Vertical				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	9kHz- 150kHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value
	150kHz- 30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
Peak		1MHz	10Hz	Average Value	
Limit(Field strength of the fundamental signal):	Frequency		Limit (dBuV/m @3m)		Remark
	2400MHz-2483.5MHz		94.00		Average Value
			114.00		Peak Value
Limit(Spurious Emissions):	Frequency		Limit (dBuV/m @3m)		Remark
	0.009-0.490		2400/F(KHz)		Quasi-peak Value
	0.490-1.705		24000/F(KHz)		Quasi-peak Value
	1.705-30		30		Quasi-peak Value
	30MHz-88MHz		40.0		Quasi-peak Value
	88MHz-216MHz		43.5		Quasi-peak Value
	216MHz-960MHz		46.0		Quasi-peak Value
	960MHz-1GHz		54.0		Quasi-peak Value
	Above 1GHz		54.0		Average Value
74.0			Peak Value		
Limit (band edge) :	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.				
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber in below 1GHz, 1.5m above the ground in above 1GHz. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.				

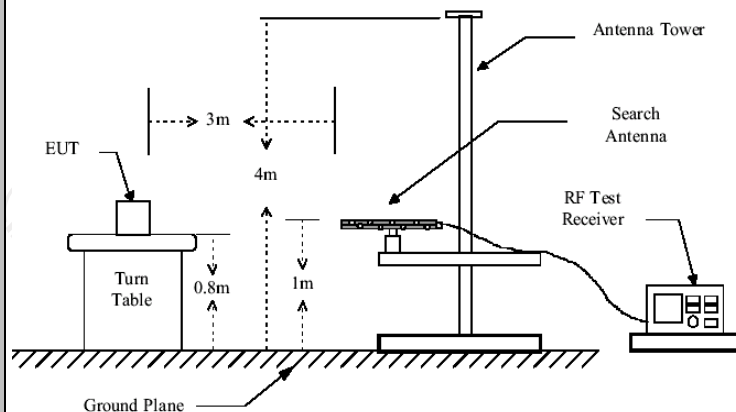
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Test setup:

For radiated emissions below 30MHz

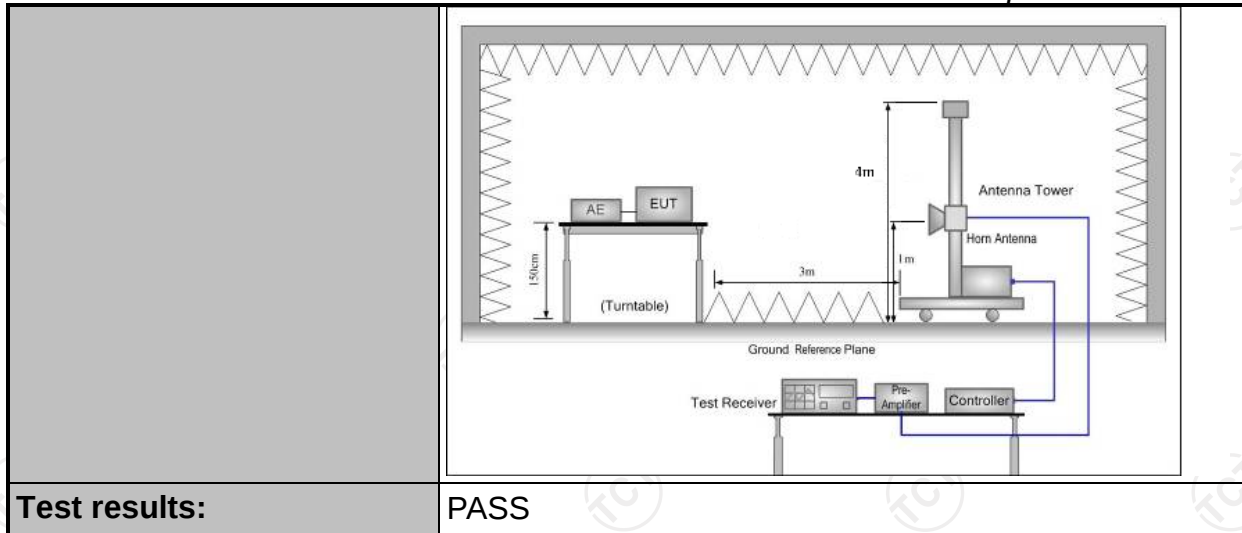


30MHz to 1GHz



Above 1GHz

(The diagram below shows the test setup that is utilized to make the measurements for emission from 1GHz to the tenth harmonic of the highest fundamental frequency or to 40GHz emissions, whichever is lower.)



6.3.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Test Receiver	ROHDE&SCHW ARZ	ESIB7	100197	Jul. 27, 2021
Spectrum Analyzer	ROHDE&SCHW ARZ	FSQ40	200061	Sep. 11, 2021
Pre-amplifier	EM Electronics Corporation CO.,LTD	EM30265	07032613	Sep. 02, 2021
Pre-amplifier	HP	8447D	2727A05017	Sep. 02, 2021
Loop antenna	ZHINAN	ZN30900A	12024	Sep. 05, 2022
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 04, 2022
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 04, 2022
Horn Antenna	A-INFO	LB-180400-KF	J211020657	Sep. 04, 2022
Antenna Mast	Keleto	RE-AM	N/A	N/A
Line-4	TCT	RE-high-04	N/A	Sep. 02, 2021
Line-8	TCT	RE-01	N/A	Jul. 27, 2021
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.3.3. Test Data

Field Strength of Fundamental

Frequency (MHz)	Emission PK (dBuV/m)	Horizontal /Vertical	Limits PK (dBuV/m)	Margin (dB)
2405	82.01	H	114	-31.99
2405	78.32	V	114	-35.68
2440	79.44	H	114	-34.56
2440	75.43	V	114	-38.57
2480	77.83	H	114	-36.17
2480	73.99	V	114	-40.01

Frequency (MHz)	Emission AV (dBuV/m)	Horizontal /Vertical	Limits AV (dBuV/m)	Margin (dB)
2405	67.28	H	94	-26.72
2405	64.10	V	94	-29.90
2440	66.89	H	94	-27.11
2440	64.52	V	94	-29.48
2480	64.77	H	94	-29.23
2480	63.31	V	94	-30.69

Spurious Emissions

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dBμV/m)	Limit@3m (dBμV/m)
--	--	--
--	--	--
--	--	--
--	--	--

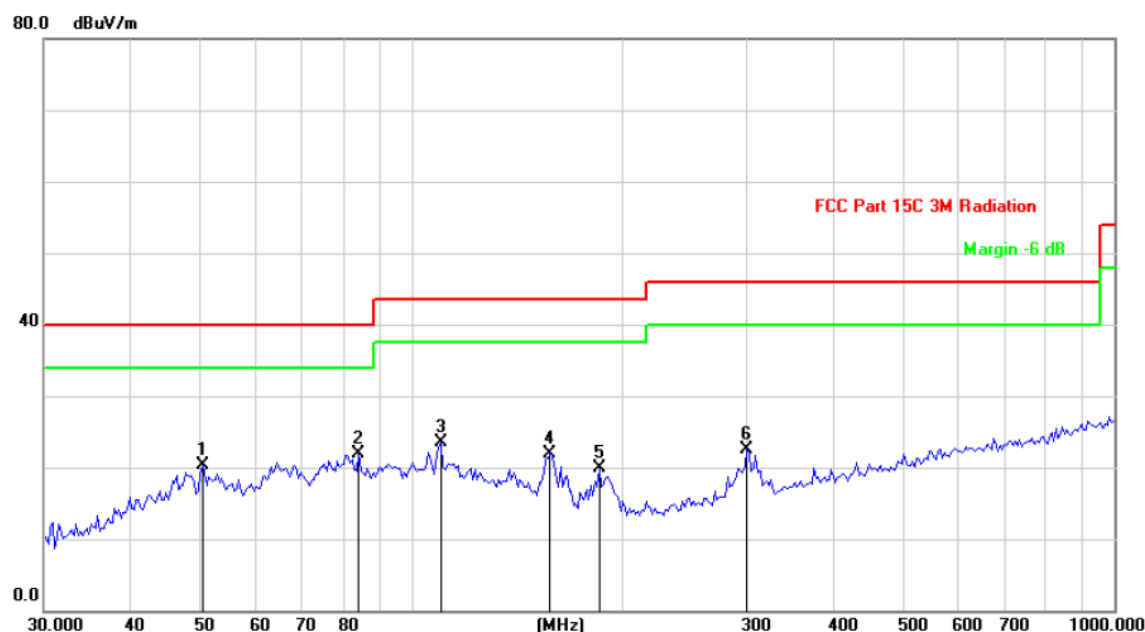
Note: 1. Emission Level=Reading+ Cable loss-Antenna factor-Amp factor.

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement.

3. For fundamental frequency, RBW >20dB BW , VBW>=RBW, PK detector is for PK value, RMS detector is for AV value.

Frequency Range (30MHz-1GHz)

Horizontal:



Site

Polarization: **Horizontal**

Temperature: 25

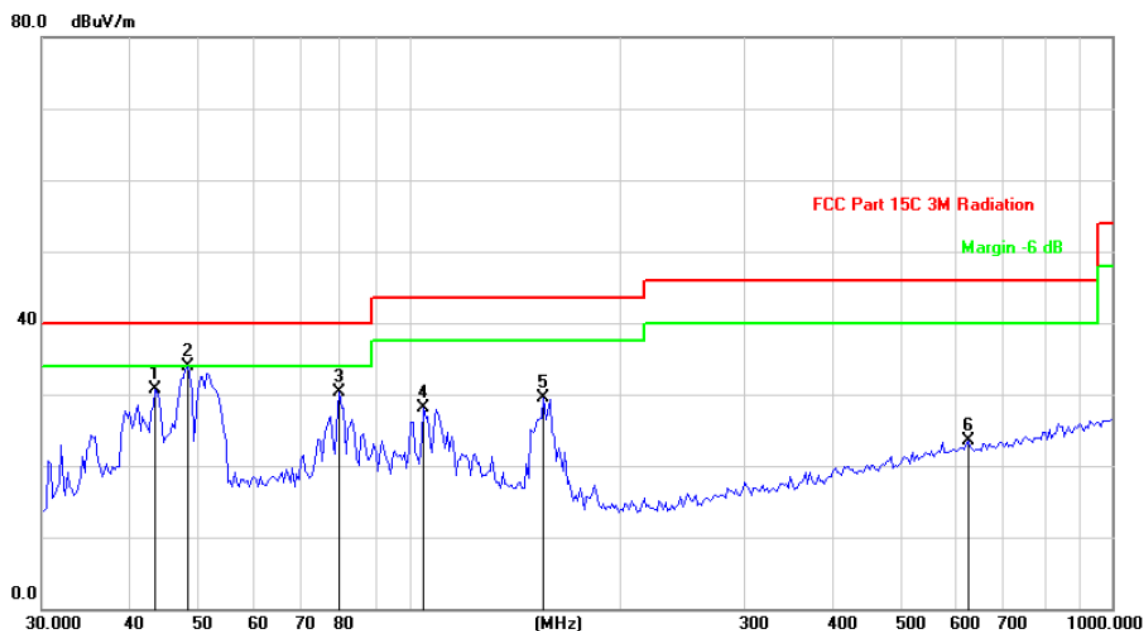
Limit: FCC Part 15C 3M Radiation

Power:

Humidity: 55 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		50.4614	30.43	-10.12	20.31	40.00	-19.69	peak
2	*	84.2839	35.88	-14.01	21.87	40.00	-18.13	peak
3		110.0818	32.46	-8.89	23.57	43.50	-19.93	peak
4		157.5290	37.81	-15.91	21.90	43.50	-21.60	peak
5		185.1626	34.50	-14.67	19.83	43.50	-23.67	peak
6		300.6988	33.34	-10.90	22.44	46.00	-23.56	peak

Vertical:



Site

Polarization: **Vertical**

Temperature: 25

Limit: FCC Part 15C 3M Radiation

Power:

Humidity: 55 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		43.5380	41.38	-10.69	30.69	40.00	-9.31	peak
2	*	48.3780	43.99	-10.18	33.81	40.00	-6.19	peak
3		79.6764	46.96	-16.67	30.29	40.00	-9.71	peak
4		104.7979	36.54	-8.42	28.12	43.50	-15.38	peak
5		155.3305	45.53	-16.01	29.52	43.50	-13.98	peak
6		624.4897	29.23	-5.69	23.54	46.00	-22.46	peak

Note: 1. Measurements were conducted in all channels (high, middle, low), and the worst case (high channel) was submitted only.

2. Any value more than 10dB below limit have not been specifically reported.

Above 1GHz

Low channel: 2405MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
4810	H	51.85	---	-3.94	47.91	---	74	54	-6.09
7215	H	46.13	---	0.52	46.65	---	74	54	-7.35
---	---	---	---	---	---	---	---	---	---
4810	V	49.39	---	-3.94	45.45	---	74	54	-8.55
7215	V	43.08	---	0.52	43.60	---	74	54	-10.40
---	---	---	---	---	---	---	---	---	---

Middle channel: 2440MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
4880	H	51.10	---	-3.98	47.12	---	74	54	-6.88
7320	H	45.26	---	0.57	45.83	---	74	54	-8.17
---	---	---	---	---	---	---	---	---	---
4880	V	51.25	---	-3.98	47.27	---	74	54	-6.73
7320	V	44.49	---	0.57	45.06	---	74	54	-8.94
---	---	---	---	---	---	---	---	---	---

High channel: 2480MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
4960	H	52.22	---	-3.98	48.24	---	74	54	-5.76
7440	H	47.57	---	0.57	48.14	---	74	54	-5.86
---	---	---	---	---	---	---	---	---	---
4960	V	51.04	---	-3.98	47.06	---	74	54	-6.94
7440	V	45.32	---	0.57	45.89	---	74	54	-8.11
---	---	---	---	---	---	---	---	---	---

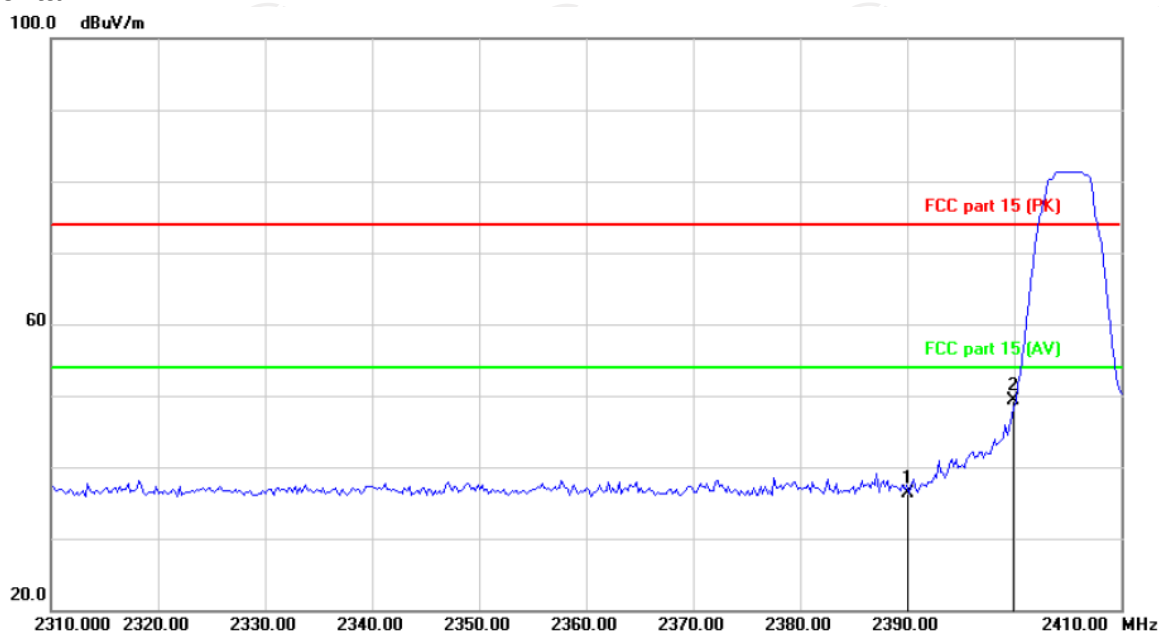
Note:

1. Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss – Pre-amplifier
2. Margin (dB) = Emission Level (Peak) (dBμV/m)-Average limit (dBμV/m)
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.
5. Data of measurement shown “---“in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.
6. All the restriction bands are compliance with the limit of 15.209.

Band Edge Requirement

Lowest channel 2405:

Horizontal:



Site

Polarization: *Horizontal*

Temperature: 25

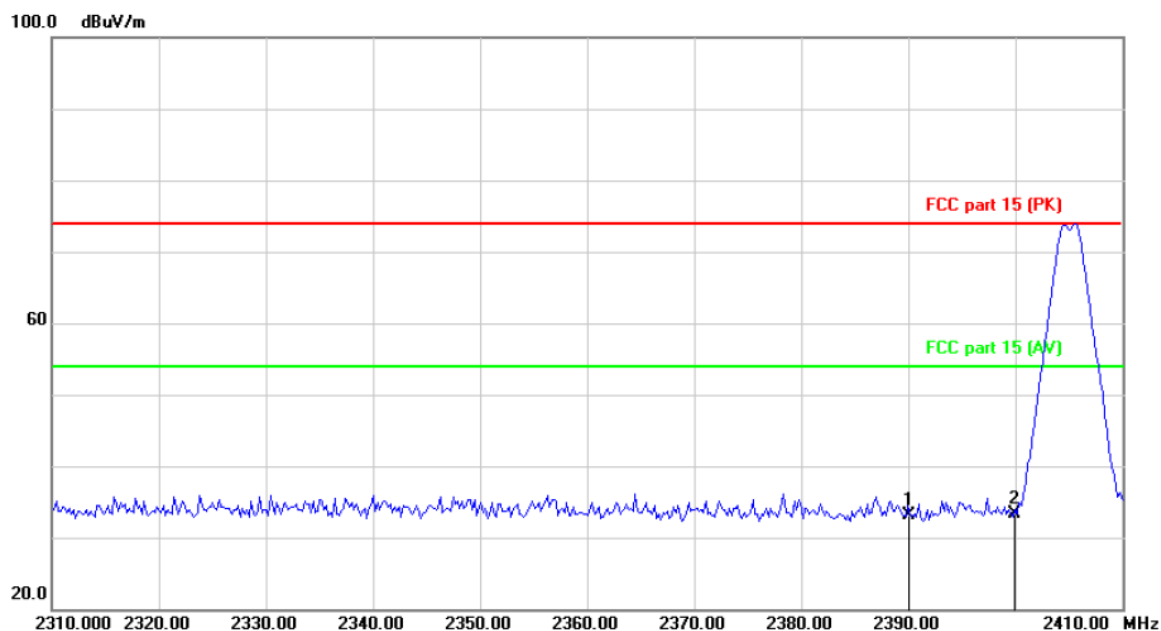
Limit: FCC part 15 (PK)

Power:

Humidity: 55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over
		MHz	dBuV	dB	dBuV/m	dB/m	dB Detector
1		2390.000	49.48	-13.15	36.33	74.00	-37.67 peak
2	*	2400.000	62.41	-13.12	49.29	74.00	-24.71 peak

Vertical:

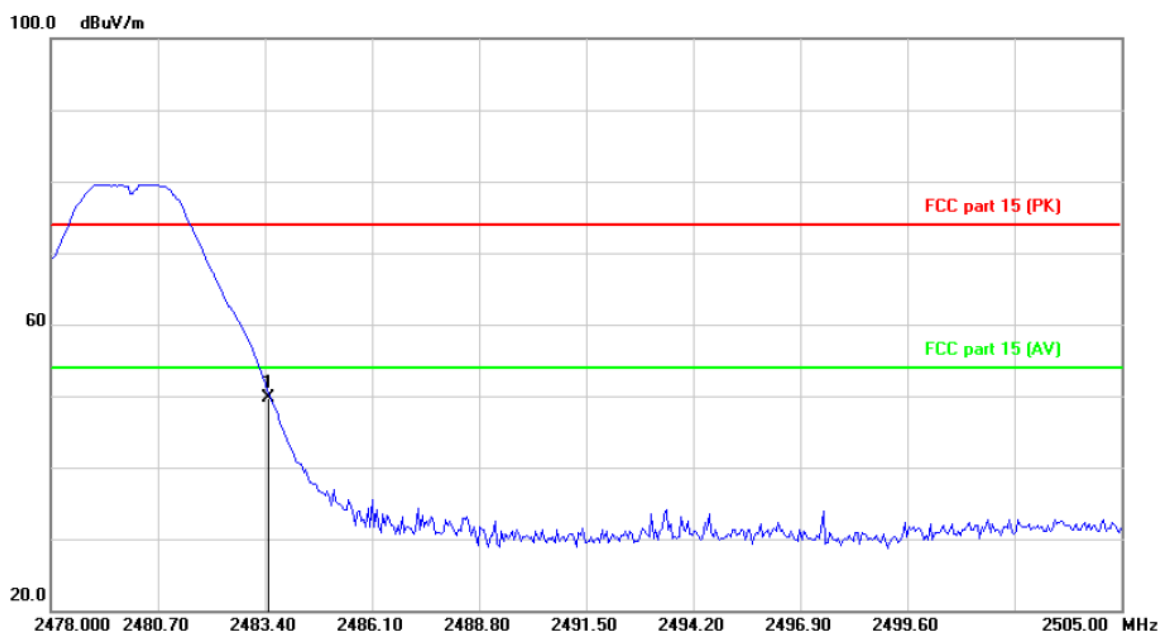


Site: Polarization: **Vertical** Temperature: 25
 Limit: FCC part 15 (PK) Power: Humidity: 55 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		2390.000	46.34	-13.15	33.19	74.00	-40.81	peak
2	*	2400.000	46.39	-13.12	33.27	74.00	-40.73	peak

Highest channel 2480:

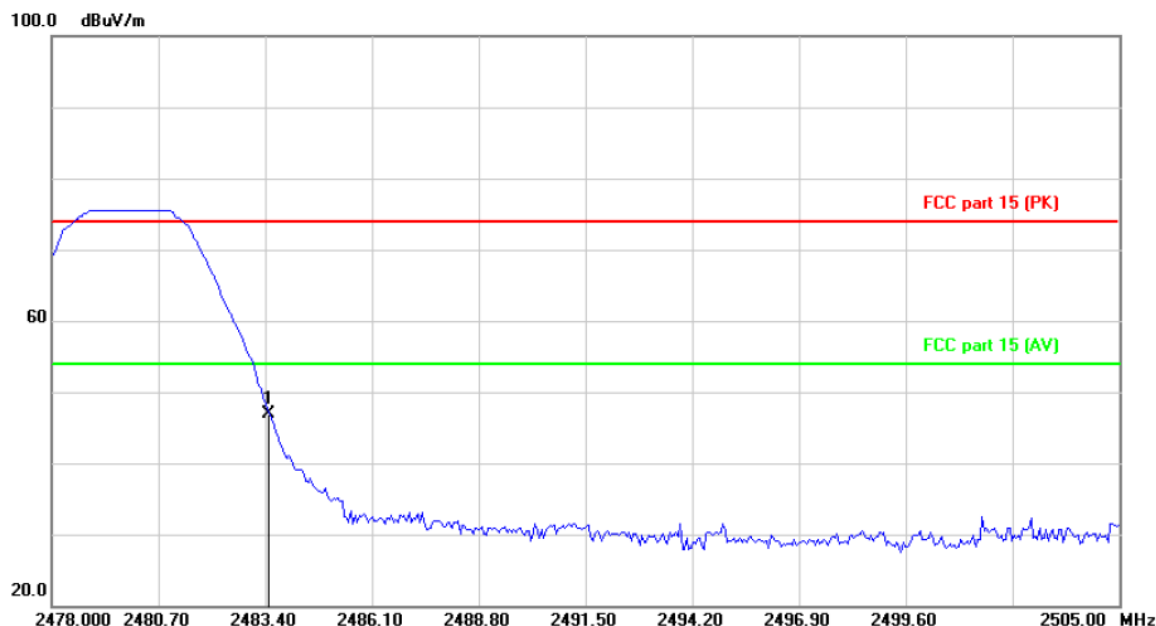
Horizontal:



Site: Polarization: **Horizontal** Temperature: 25
 Limit: FCC part 15 (PK) Power: Humidity: 55 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1	*	2483.500	62.62	-12.84	49.78	74.00	-24.22	peak

Vertical:



Site: Polarization: **Vertical** Temperature: 25
Limit: FCC part 15 (PK) Power: Humidity: 55 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1	*	2483.500	59.69	-12.84	46.85	74.00	-27.15	peak

Note: Measurements were conducted in all channels (high, middle, low), and the worst case (high channel) was submitted only.

6.4. 20dB Occupied Bandwidth

6.4.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.215(c)
Test Method:	ANSI C63.10: 2013
Limit:	N/A
	1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Use the following spectrum analyzer settings for 20dB Bandwidth measurement. Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel; RBW$\geq$1% of the 20 dB bandwidth; VBW$\geq$RBW; Sweep = auto; Detector function = peak; Trace = max hold. 4. Measure and record the results in the test report.
Test setup:	 The diagram illustrates the test setup. On the left is a green Spectrum Analyzer with a screen and two knobs. A cable connects it to a yellow rectangular box on the right labeled 'EUT'.
Test Mode:	Transmitting mode with modulation
Test results:	PASS

6.4.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	R&S	FSU	200054	Sep. 11, 2021

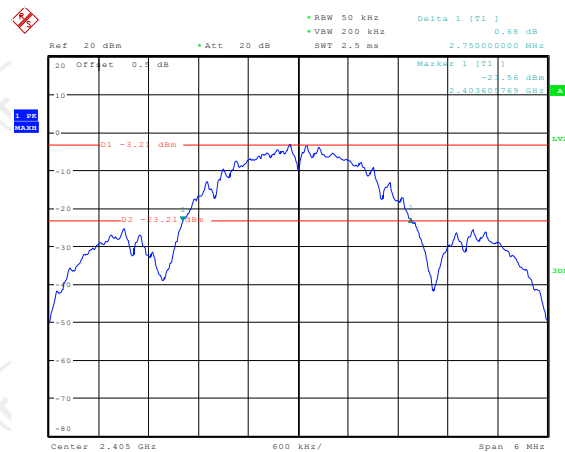
Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.4.3. Test data

Test Channel	20dB Occupy Bandwidth (kHz)	Limit	Conclusion
Lowest	2750.00	---	PASS
Middle	2750.00	---	PASS
Highest	2759.62	---	PASS

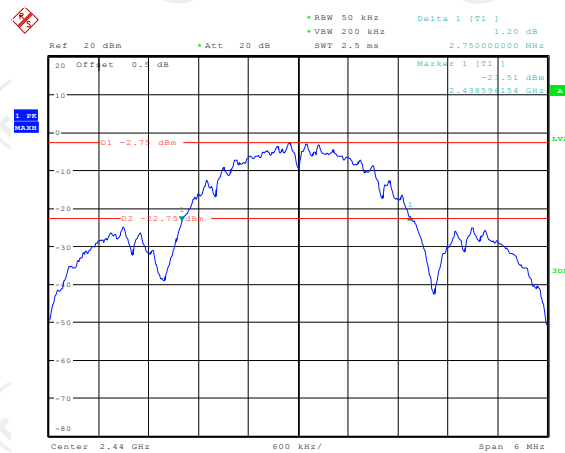
Test plots as follows:

Lowest channel



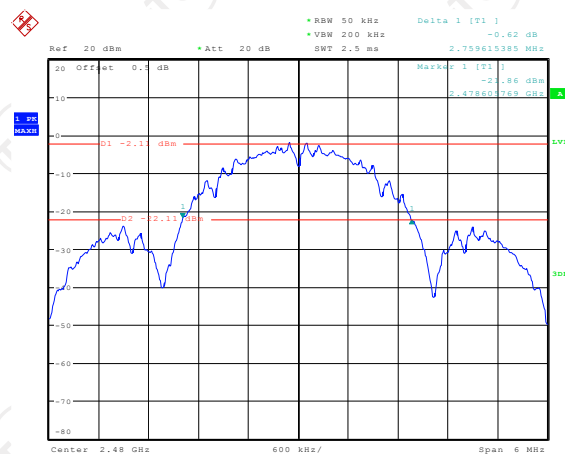
Date: 12.NOV.2020 13:56:04

Middle channel



Date: 12.NOV.2020 13:56:53

Highest channel



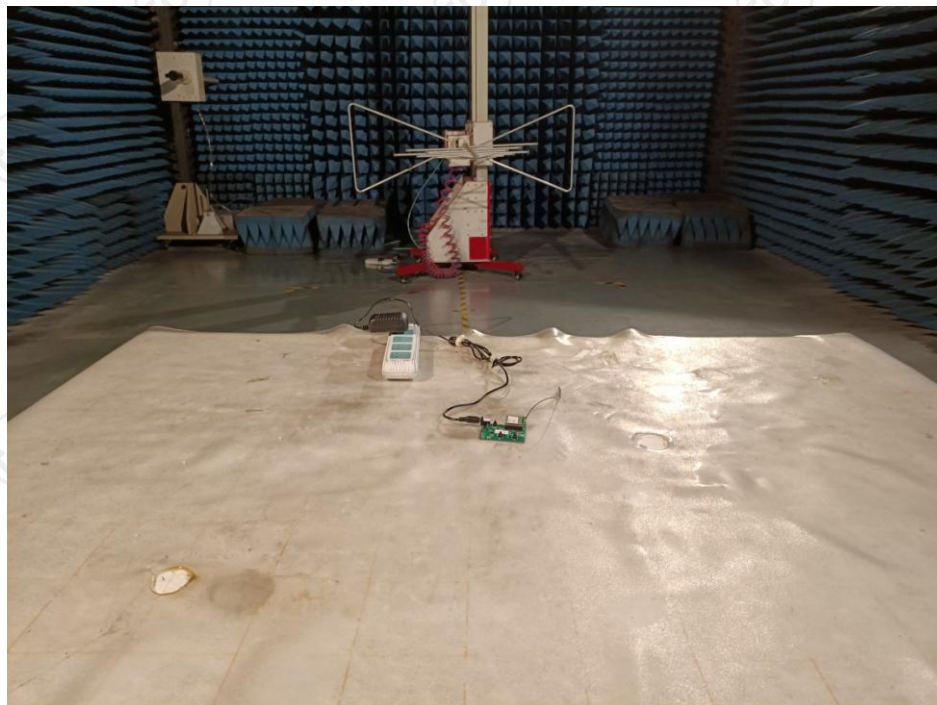
Date: 12.NOV.2020 13:57:51

Appendix A: Photographs of Test Setup

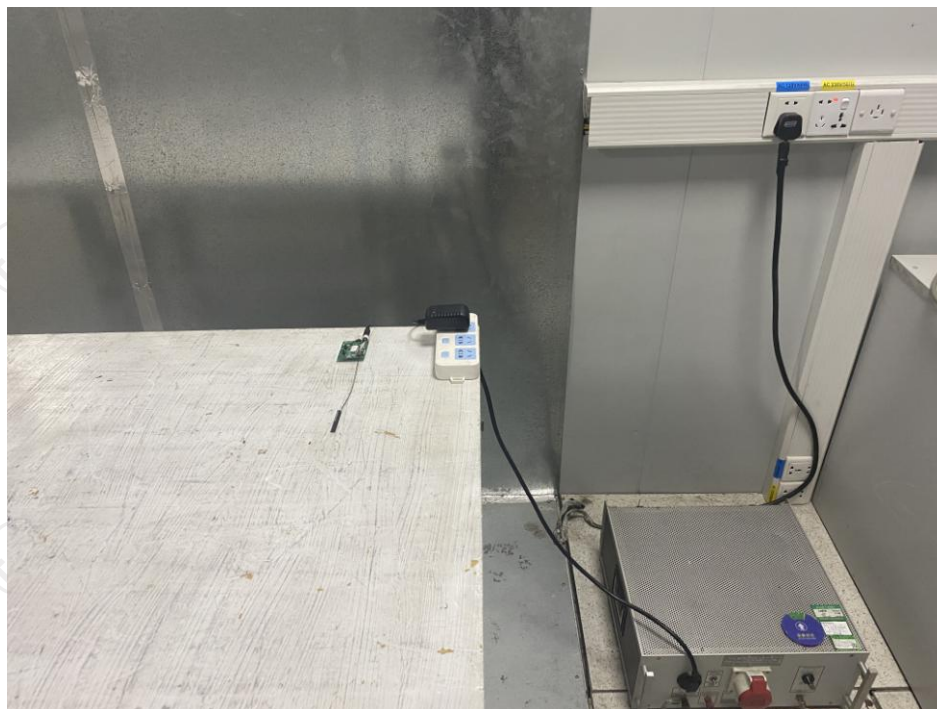
Product: Zigbee RF Module

Model: ZBM

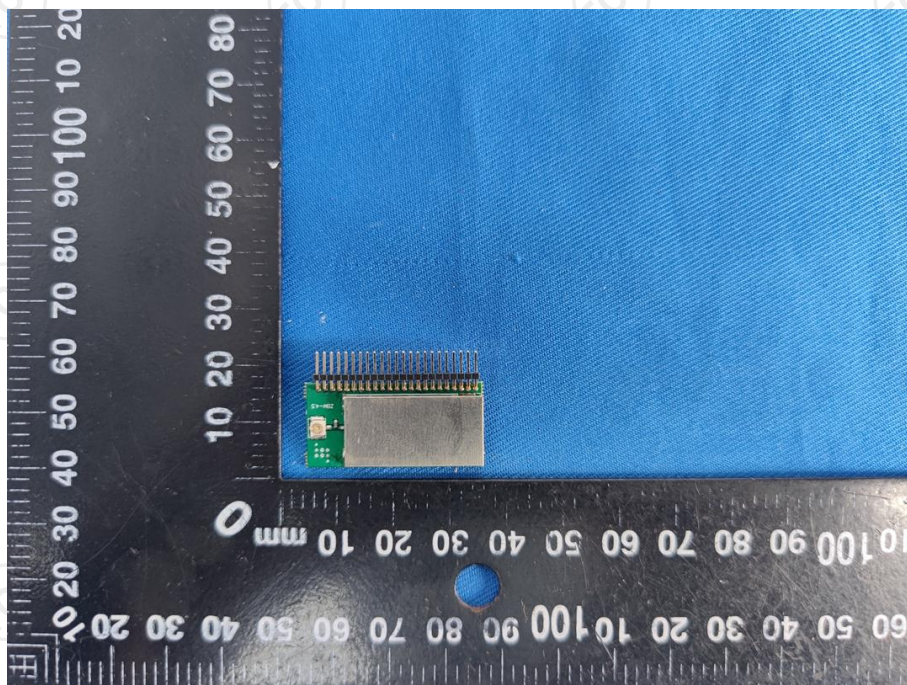
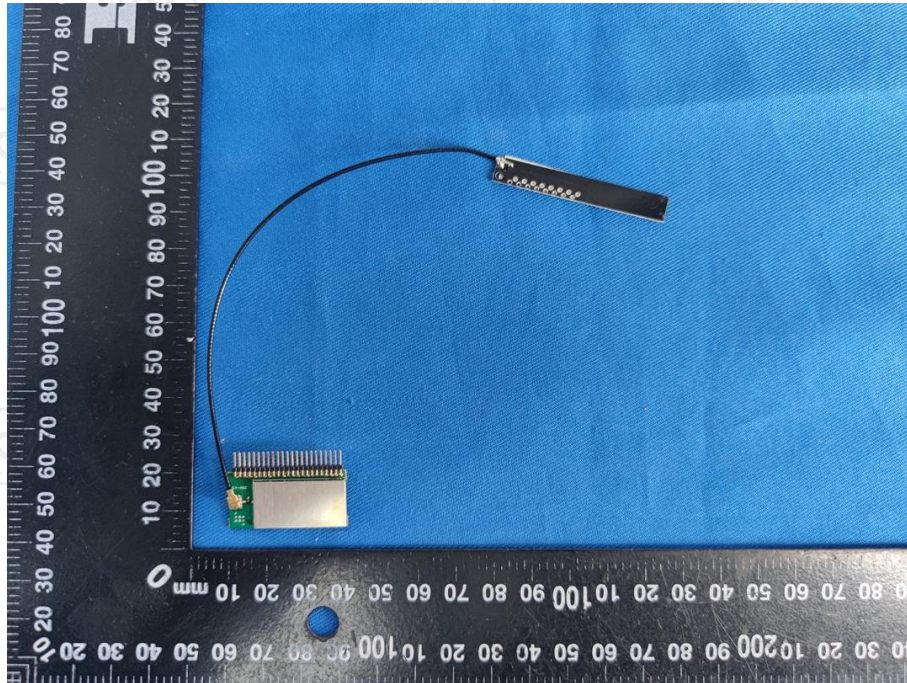
Radiated Emission

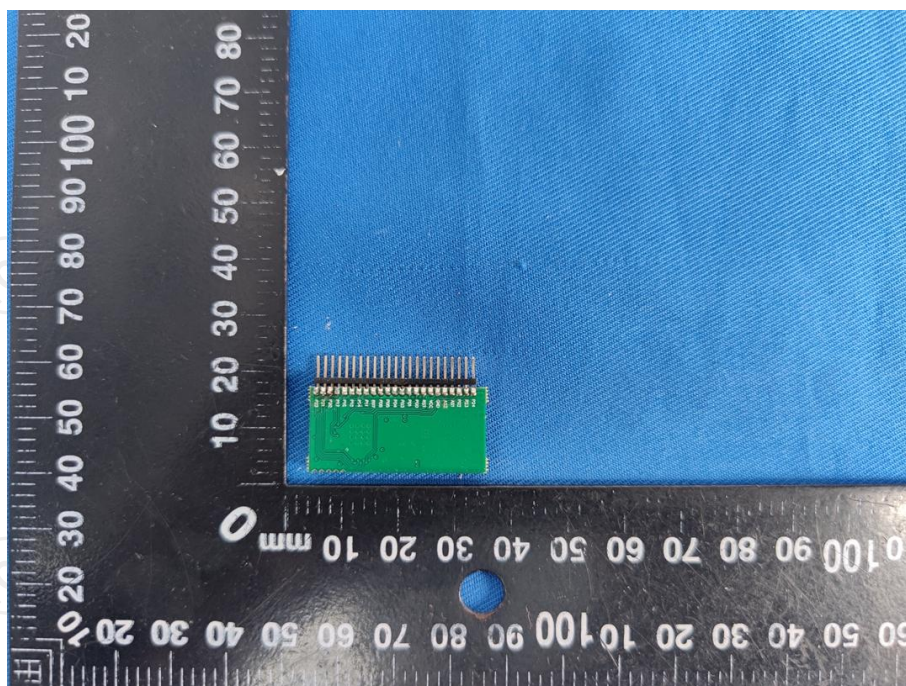


CE

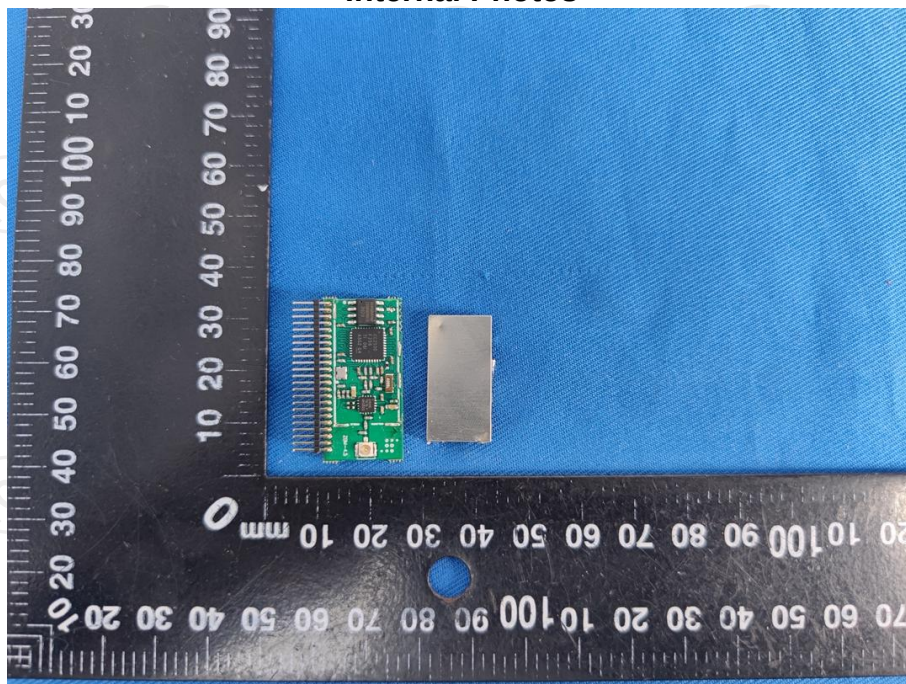


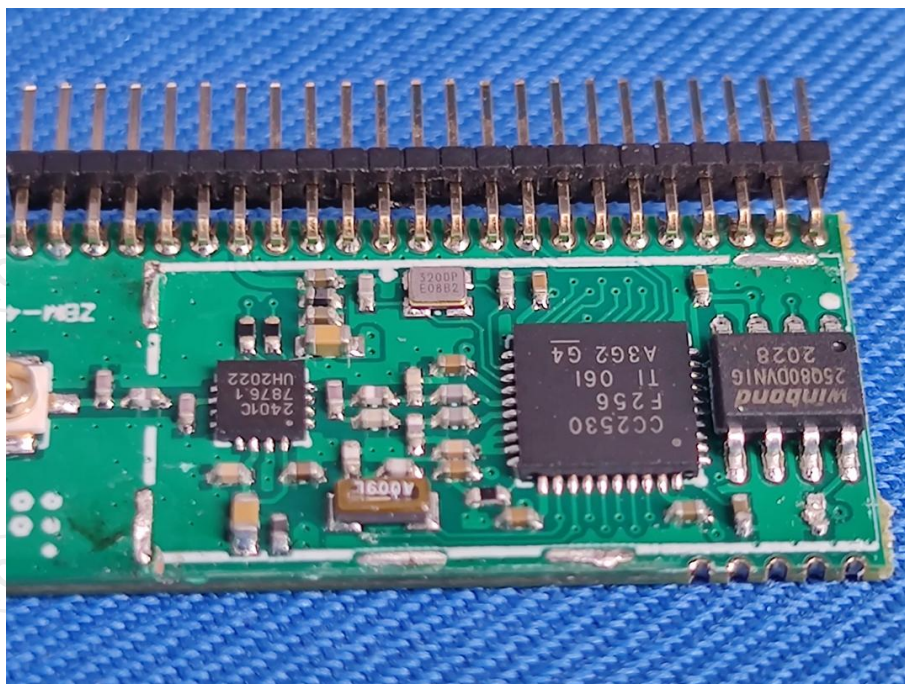
Appendix B: Photographs of EUT
Product: Zigbee RF Module
Model: ZBM
External Photos





Product: Zigbee RF Module
Model: ZBM
Internal Photos





*******END OF REPORT*******