

FCC TEST REPORT

FCC ID:2BGK68BIT-LW02H

Applicant Name..... : Xi'an 8Bit Information Technology Co., Ltd.

Address..... : Room 10908, Building C, Xian National Digital Publishing Base, Keji 6th
Road, High tech Zone, Xi'an City, China

Manufacturer Name..... : Xi'an 8Bit Information Technology Co., Ltd.

Address..... : Room 10908, Building C, Xian National Digital Publishing Base, Keji 6th
Road, High tech Zone, Xi'an City, China

Product..... : LoRaWAN module

Model(s)..... : 8BIT-LW02H

Additional Model(s)..... : /

Trademark..... : BABIT

Model Difference..... : /

Prepared by..... : Guangdong Zhonghan Testing Technology Co., Ltd.

Address..... : Room 104/201, Building 1, Yibaolai Industrial Park, Qiaotou, Fuhai
Subdistrict, Bao'an District, Shenzhen, Guangdong, China

Date of Receipt..... : Jan. 27, 2026

Date of Test(s)..... : Jan. 27, 2026 to Mar. 18, 2026

Date of Issue..... : Mar. 18, 2026

Test Requested..... : Select test(s) as requested by the client.

Standard..... : FCC Part 15 Subpart C Section 15.249

Test procedure..... : ANSI C63.10-2020

In the configuration tested, the EUT complied with the standards specified above.

Prepared by

Reviewed by:

Approved by:



Leon Li/ Engineer



Baret Wu/ Director



Levi Lee/ Manager

Note: This device described above has been tested by ZHT, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report. This report shall not be reproduced except in full, without the written approval of ZHT, this document may be altered or revised by ZHT, personal only, and shall be noted in the revision of the document.

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1.SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.249) , Subpart C			
Standard Section	Test Item	Judgment	Remark
FCC part 15.203	Antennarequirement	PASS	
FCC part 15.207	AC Power Line Conducted Emission	PASS	
FCC part 15.249	Fundamental &Radiated Spurious Emission Measurement	PASS	
FCC part 15.215 (c)	20dB Channel Bandwidth	PASS	
FCC part 15.205	Band Edge	PASS	

NOTE:

(1) " N/A" denotes test is not applicable in this Test Report

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product Name:	LoRaWAN module
Model No.:	8BIT-LW02H
Model Different.:	N/A
Hardware Version:	V1.0
Software Version:	V1.0
Sample(s) Status:	Engineer sample
Operation Frequency:	902.45-927.55MHz
Modulation Type:	LoRa
Antenna Type:	FPC antenna
Antenna gain:	2.2dBi
Sample Number:	260127111YP001
Power supply:	Input: DC 3.3V
Remark: The antenna gain is provided by the customer, if the data provided by the customer is not accurate, Guangdong Zhonghan Testing Technology Co., Ltd. does not assume any responsibility.	

Operation Frequency each of channel							
Channel	Frequency MHz	Channel	Frequency MHz	Channel	Frequency MHz	Channel	Frequency
1	902.45	33	908.85	65	915.25	97	921.65
2	902.65	34	909.05	66	915.45	98	921.85
3	902.85	35	909.25	67	915.65	99	922.05
4	903.05	36	909.45	68	915.85	100	922.25
5	903.25	37	909.65	69	916.05	101	922.45
6	903.45	38	909.85	70	916.25	102	922.65
7	903.65	39	910.05	71	916.45	103	922.85
8	903.85	40	910.25	72	916.65	104	923.05
9	904.05	41	910.45	73	916.85	105	923.25
10	904.25	42	910.65	74	917.05	106	923.45
11	904.45	43	910.85	75	917.25	107	923.65
12	904.65	44	911.05	76	917.45	108	923.85
13	904.85	45	911.25	77	917.65	109	924.05
14	905.05	46	911.45	78	917.85	110	924.25
15	905.25	47	911.65	79	918.05	111	924.45
16	905.45	48	911.85	80	918.25	112	924.65
17	905.65	49	912.05	81	918.45	113	924.85
18	905.85	50	912.25	82	918.65	114	925.05
19	906.05	51	912.45	83	918.85	115	925.25
20	906.25	52	912.65	84	919.05	116	925.45
21	906.45	53	912.85	85	919.25	117	925.65
22	906.65	54	913.05	86	919.45	118	925.85
23	906.85	55	913.25	87	919.65	119	926.05
24	907.05	56	913.45	88	919.85	120	926.25
25	907.25	57	913.65	89	920.05	121	926.45
26	907.45	58	913.85	90	920.25	122	926.65
27	907.65	59	914.05	91	920.45	123	926.85
28	907.85	60	914.25	92	920.65	124	927.05
29	908.05	61	914.45	93	920.85	125	927.25
30	908.25	62	914.65	94	921.05	126	927.45
31	908.45	63	914.85	95	921.25		
32	908.65	64	915.05	96	921.45		

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:

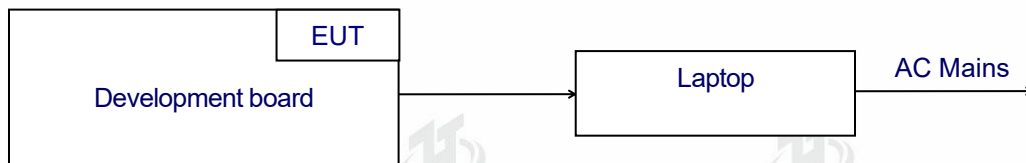
Channel	Frequency
The lowest channel	902.45MHz
The middle channel	915MHz
The Highest channel	927.45MHz

2.2 DESCRIPTION OF TEST MODES

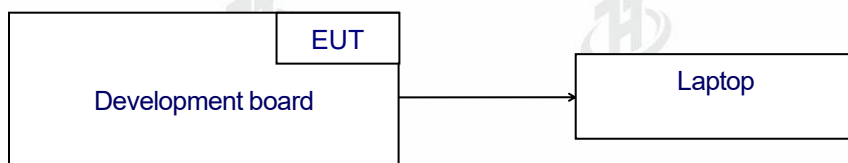
Transmitting mode	Keep the EUT in continuously transmitting mode
Remark: The EUT use new battery during the test. The test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.	

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

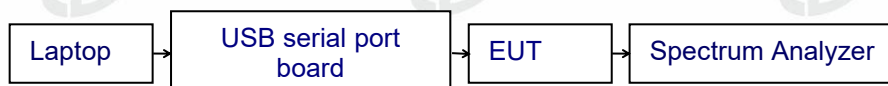
Conducted Emission



Radiated Emission



RF Conducted Emission



2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Laptop	Lenovo (Beijing) Co., Ltd	ThinkPad E480	/	AE
E-2	development board	/	8BIT-LW01x	/	AE

Item	Shielded Type	Ferrite Core	Length	Note

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) The test software is the RF_Setting V1.0 which can set the EUT into the individual test modes.
Power set point: Default value



3. TEST FACILITY AND TEST INSTRUMENT USED

3.1 TEST FACILITY

Guangdong Zhonghan Testing Technology Co., Ltd.

Add.: Room 104/201, Building 1, Yibaolai Industrial Park, Qiaotou, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

FCC Registration Number: 255941

Designation Number: CN0325

IC Registered No.: 29832

CAB identifier: CN0143

3.2 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Equipment	Manufacturer	Model	Serial No.	Last Cal.	Next Cal.
1	Receiver	R&S	ESCI	100874	May 6, 2025	May 5, 2026
2	Loop Antenna	TESEQ	HLA6121	58357	Sept. 8, 2025	Sept. 7, 2026
3	Amplifier	Schwarzbeck	BBV 9743 B	00378	May 6, 2025	May 5, 2026
4	Amplifier	Schwarzbeck	BBV 9718 B	00040	May 7, 2025	May 6, 2026
5	Bilog Antenna	Schwarzbeck	VULB9162	00498	May 15, 2025	May 14, 2026
6	Horn Antenna	Schwarzbeck	BBHA9120D	02623	May 15, 2025	May 14, 2026
7	Horn Antenna	A.H.SYSTEMS	SAS574	588	Oct. 20, 2025	Oct. 19, 2026
8	Amplifier	AEROFLEX	100KHz-40GHz	097	Oct. 20, 2025	Oct. 19, 2026
9	Spectrum Analyzer	R&S	FSV40	101413	Oct. 20, 2025	Oct. 19, 2026
10	Spectrum Analyzer	KEYSIGHT	N9020A	MY53420208	May 7, 2025	May 6, 2026
11	WIDBAND RADIO COMMUNICATION TESTER	R&S	CMW500	109863	May 7, 2025	May 6, 2026
12	Single Generator	Agilent	N5182A	MY48180575	May 7, 2025	May 6, 2026
13	Power Sensor	MWRFTest	MW100-RFCB	/	May 7, 2025	May 6, 2026
14	Power Amplifier Shielding Room	EMToni	2m3m3m	/	Nov. 25, 2021	Nov. 24, 2026
15	CABLE	EMToni	DA800-NM-NM-11000MM	/	May 6, 2025	May 5, 2026

Conduction Test equipment

Equipment	Manufacturer	Model	Serial No.	Last Cal.	Next Cal.
Receiver	R&S	ESCI	100874	May 6, 2025	May 5, 2026
LISN	R&S	ENV216	102794	May 6, 2025	May 5, 2026
ISN CAT 6	Schwarzbeck	NTFM 8158	00318	May 7, 2025	May 6, 2026
ISN CAT 5	Schwarzbeck	CAT5 8158	00343	May 7, 2025	May 6, 2026
Capacitive Voltage Probe	Schwarzbeck	CVP 9222 C	00101	May 8, 2025	May 7, 2026
Current Transformer Clamp	Schwarzbeck	SW 9605	SW9605 #209	May 8, 2025	May 7, 2026
CABLE	EMToni	G223-NM-BNCM-2000MM	/	May 7, 2025	May 6, 2026

Conducted Test Instrument

Item	Equipment	Manufacturer	Model	Serial No.	Last Cal.	Next Cal.
1	Spectrum Analyzer	R&S	FSV40	101413	Oct. 20, 2025	Oct. 19, 2026
2	Spectrum Analyzer	KEYSIGHT	N9020A	MY53420208	May 7, 2025	May 6, 2026
3	Power Sensor	MWRFTest	MW100-RFCB	/	May 7, 2025	May 6, 2026

3.3 TESTING SOFTWARE

Project	Software name	Edition
RF Conducted	MTS 8310	2.0.0.0
Conducted Emission	EZ-EMC	EMC-CON 3A1.1+
Radiated Emission	EZ-EMC	FA-03A2 RE+

3.4 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	Uncertainty
1	Conducted Emission Test	$U=0.92\text{dB}$
2	RF conducted power	$U=0.16\text{dB}$
3	Spurious emissions conducted	$U=0.21\text{dB}$
4	All radiated emissions (9k-30MHz)	$U=1.6\text{dB}$
5	All radiated emissions (<1G)	$U=5.1\text{dB}$
6	All radiated emissions (>1G)	$U=4.65\text{dB}$
7	Temperature	$U=0.5^{\circ}\text{C}$
8	Humidity	$U=2\%$
9	Occupied Bandwidth	$U=4.96\%$
10	Power Spectral Density	$U=0.71\text{dB}$

Decision Rule

- ☒ Uncertainty is not included
☐ Uncertainty is included

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10-2020
Test Frequency Range:	150KHz to 30MHz
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto

4.1.1 POWER LINE CONDUCTED EMISSION Limits

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quas-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

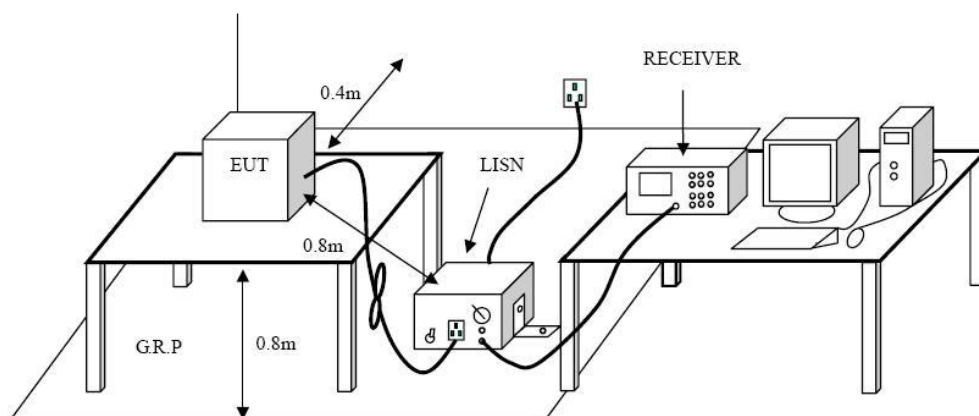
(1) *Decreases with the logarithm of the frequency.

4.1.2 TEST PROCEDURE

- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation

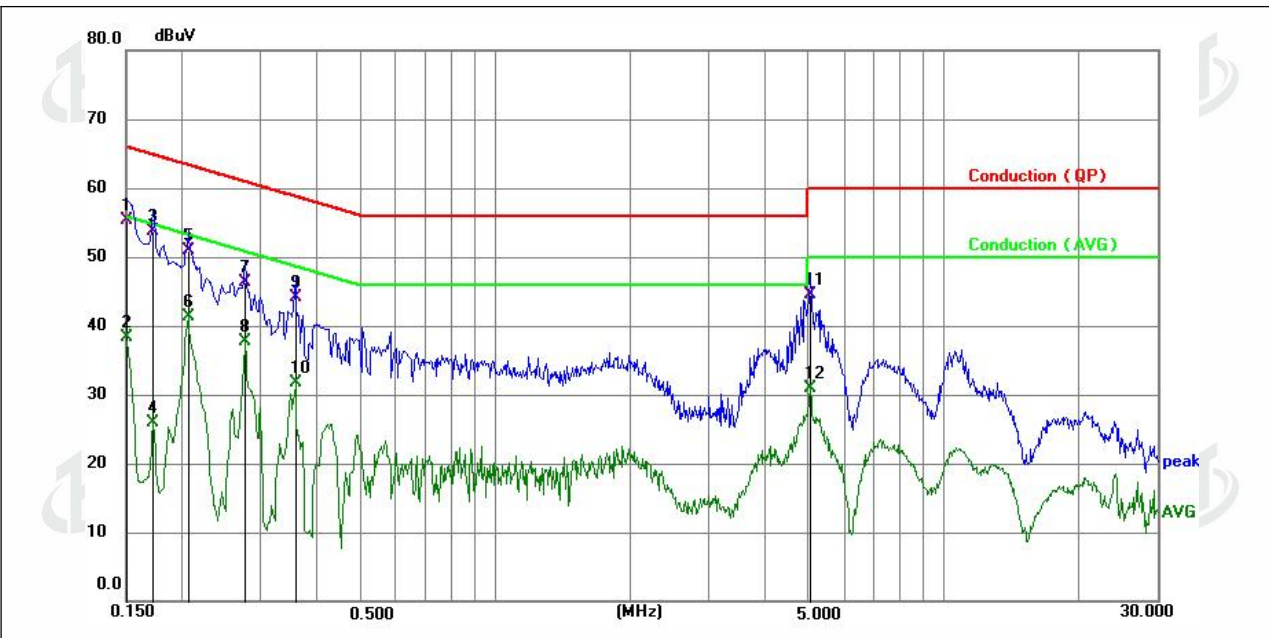


4.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

4.1.6 TEST RESULTS

Temperature:	24.3℃	Relative Humidity :	50%
Pressure:	101kPa	Phase :	L
Test Voltage:	AC 120V/60Hz		



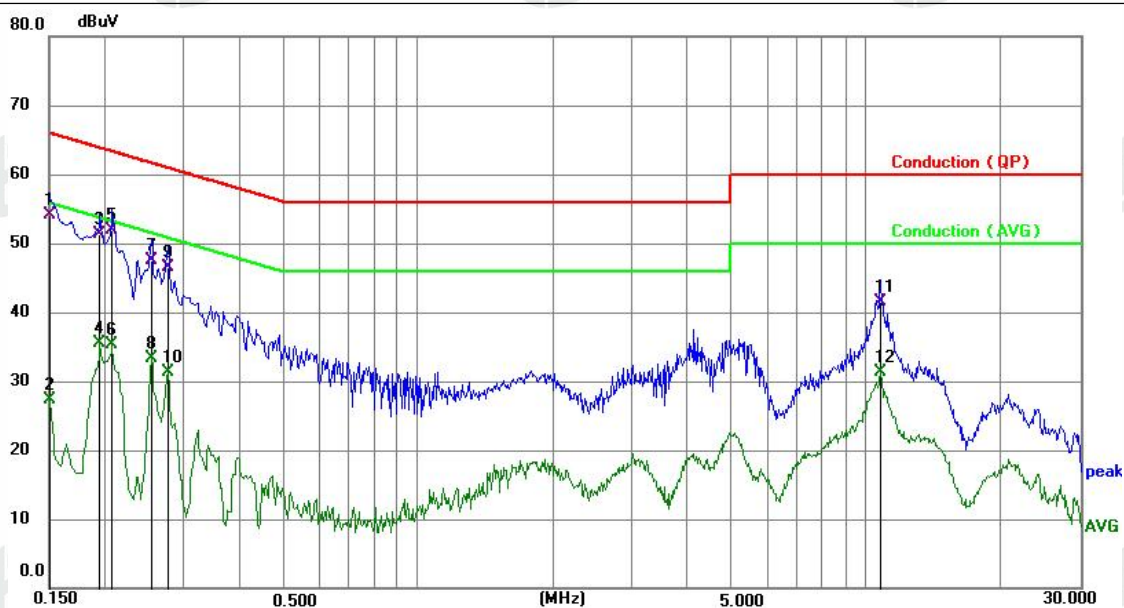
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1 *	0.1500	45.50	9.89	55.39	66.00	-10.61	QP
2	0.1500	28.45	9.89	38.34	56.00	-17.66	AVG
3	0.1722	43.87	9.90	53.77	64.85	-11.08	QP
4	0.1722	16.06	9.90	25.96	54.85	-28.89	AVG
5	0.2061	40.98	9.91	50.89	63.36	-12.47	QP
6	0.2061	31.46	9.91	41.37	53.36	-11.99	AVG
7	0.2759	36.44	9.94	46.38	60.94	-14.56	QP
8	0.2759	27.80	9.94	37.74	50.94	-13.20	AVG
9	0.3577	34.19	9.97	44.16	58.78	-14.62	QP
10	0.3577	21.81	9.97	31.78	48.78	-17.00	AVG
11	5.0312	34.47	10.12	44.59	60.00	-15.41	QP
12	5.0312	20.78	10.12	30.90	50.00	-19.10	AVG

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Measurement Level = Reading level + Correct Factor
4. The test data shows only the worst case (High Channel:927.45MHz)



Temperature:	24.3℃	Relative Humidity :	50%
Pressure:	101kPa	Phase :	N
Test Voltage:	AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1500	44.15	9.89	54.04	66.00	-11.96	QP
2	0.1500	17.34	9.89	27.23	56.00	-28.77	AVG
3	0.1944	41.31	9.91	51.22	63.85	-12.63	QP
4	0.1944	25.63	9.91	35.54	53.85	-18.31	AVG
5 *	0.2072	42.05	9.91	51.96	63.32	-11.36	QP
6	0.2072	25.34	9.91	35.25	53.32	-18.07	AVG
7	0.2534	37.61	9.93	47.54	61.64	-14.10	QP
8	0.2534	23.33	9.93	33.26	51.64	-18.38	AVG
9	0.2758	36.48	9.94	46.42	60.94	-14.52	QP
10	0.2758	21.43	9.94	31.37	50.94	-19.57	AVG
11	10.7385	31.49	10.08	41.57	60.00	-18.43	QP
12	10.7385	21.28	10.08	31.36	50.00	-18.64	AVG

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Measurement Level = Reading level + Correct Factor
4. The test data shows only the worst case (High Channel:927.45MHz)



Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.10-2020				
Test Frequency Range:	9kHz to 25GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
	150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average

4.2.1 RADIATED EMISSION LIMITS

Frequencies (MHz)	Field Strength (micровolts/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

The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

4.2.2 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 25GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-chamber test. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8m; above 1GHz, the height was 1.5m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.
- g. For the radiated emission test above 1GHz:
Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response.
The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

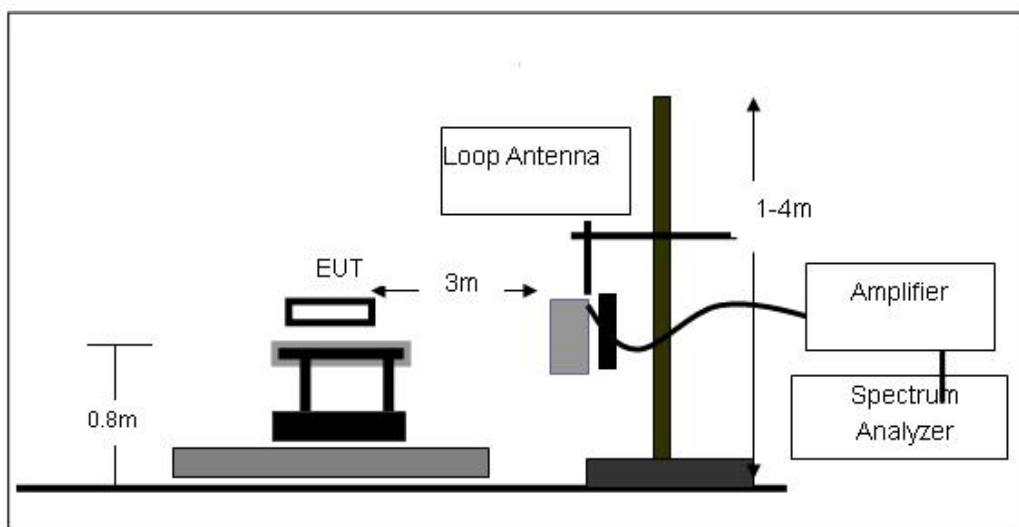
4.2.3 DEVIATION FROM TEST STANDARD

No deviation

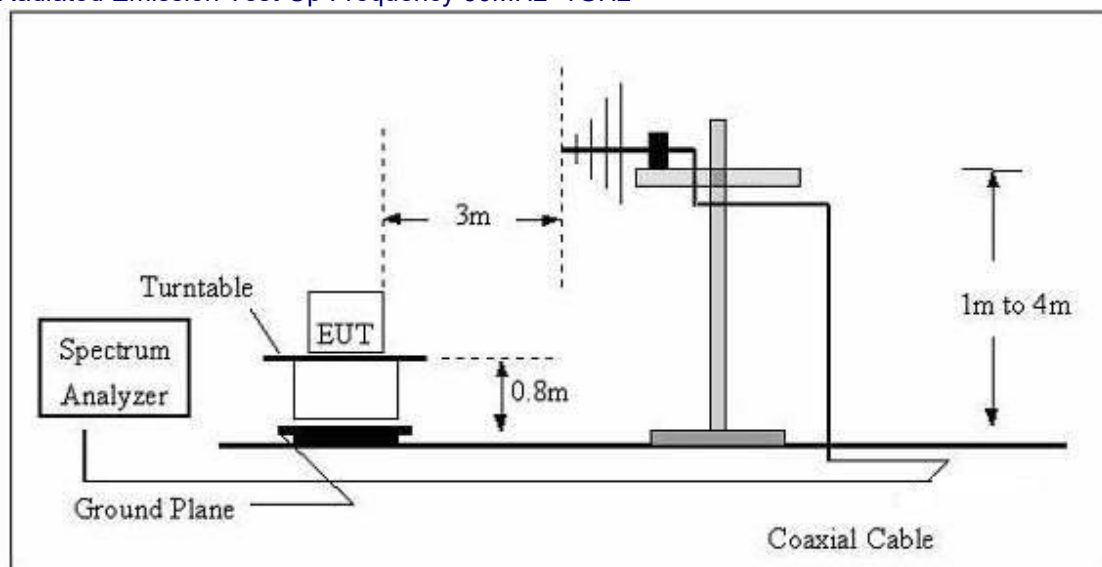


4.2.4 TEST SETUP

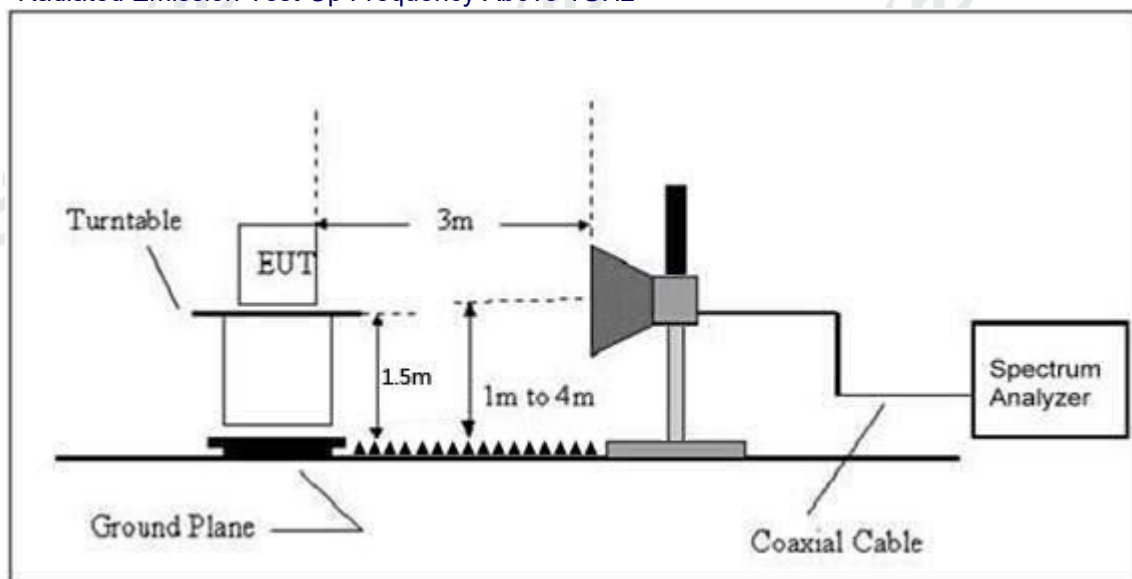
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



4.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

4.2.6 TEST RESULTS (Between 9KHz – 30 MHz)

Field strength of Harmonics and Spurious Emissions
Only the worst-case (908.4MHz TX) were record in the report.

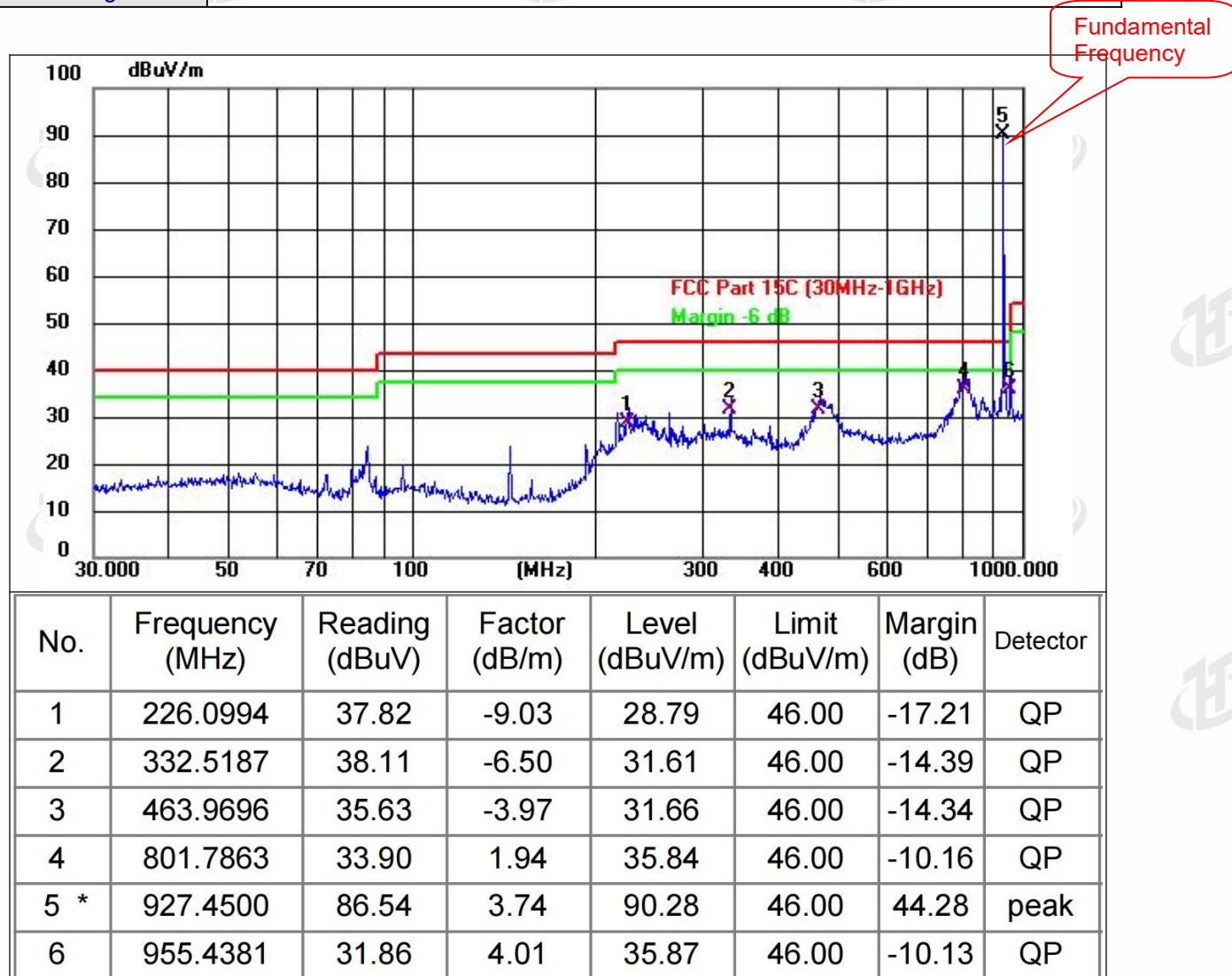
The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o), the test result no need to reported.

Field Strength of The Fundamental Signal

Note: maximum permissible field strength is 50mV/m(93.98dB μ V/m).

Between 30MHz – 1GHz

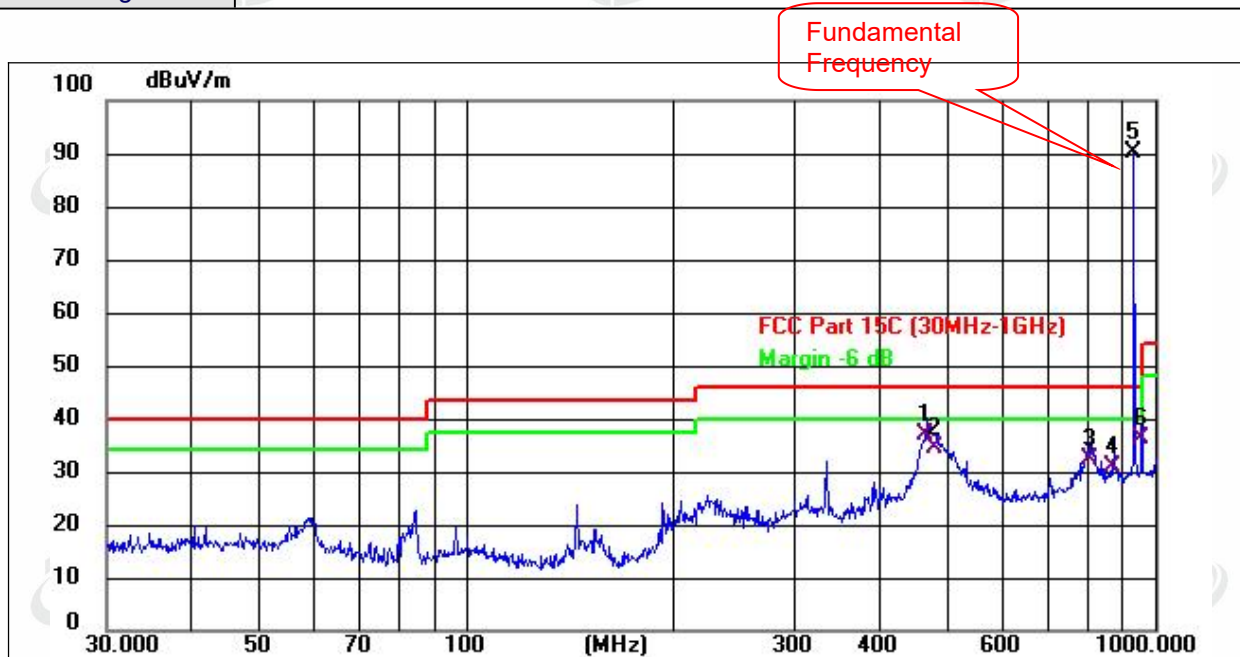
Temperature:	24.9°C	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	AC120V/60Hz		



Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Detector
927.45	86.54	3.74	90.28	93.98	-3.7	Peak



Temperature:	24.9°C	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	AC120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	463.9696	41.10	-3.97	37.13	46.00	-8.87	QP
2	478.8455	38.08	-3.72	34.36	46.00	-11.64	QP
3	801.7863	30.48	1.94	32.42	46.00	-13.58	QP
4	869.1302	27.82	2.97	30.79	46.00	-15.21	QP
5 *	927.4500	86.55	3.74	90.29	46.00	44.29	peak
6	955.4381	32.38	4.01	36.39	46.00	-9.61	QP

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Detector
927.45	86.55	3.74	90.29	93.98	-3.69	Peak

Remarks:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report
3. The test data shows only the worst case (High Channel: 927.45MHz)

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-ampli fier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Lowest Channel: 902.45MHz									
V	1804.90	55.06	30.55	5.77	24.66	54.94	74	-19.06	Pk
V	1804.90	41.3	30.55	5.77	24.66	41.18	54	-12.82	AV
V	2707.35	56.22	30.33	6.32	24.55	56.76	74	-17.24	Pk
V	2707.35	41.62	30.33	6.32	24.55	42.16	54	-11.84	AV
H	1804.90	58.32	30.55	5.77	24.66	58.2	74	-15.8	Pk
H	1804.90	42.31	30.55	5.77	24.66	42.19	54	-11.81	AV
H	2707.35	57.69	30.33	6.32	24.55	58.23	74	-15.77	Pk
H	2707.35	41.06	30.33	6.32	24.55	41.6	54	-12.4	AV
Middle Channel: 915MHz									
V	1830.00	57.42	30.55	5.77	24.66	57.3	74	-16.7	Pk
V	1830.00	41.73	30.55	5.77	24.66	41.61	54	-12.39	AV
V	2745.00	55.78	30.33	6.32	24.55	56.32	74	-17.68	Pk
V	2745.00	43.93	30.33	6.32	24.55	44.47	54	-9.53	AV
H	1830.00	57.86	30.55	5.77	24.66	57.74	74	-16.26	Pk
H	1830.00	41.97	30.55	5.77	24.66	41.85	54	-12.15	AV
H	2745.00	57.48	30.33	6.32	24.55	58.02	74	-15.98	Pk
H	2745.00	41.43	30.33	6.32	24.55	41.97	54	-12.03	AV
Highest Channel: 927.45MHz									
V	1854.90	58.34	30.55	5.77	24.66	58.22	74	-15.78	Pk
V	1854.90	41.77	30.55	5.77	24.66	41.65	54	-12.35	AV
V	2785.35	58.02	30.33	6.32	24.55	58.56	74	-15.44	Pk
V	2785.35	43.15	30.33	6.32	24.55	43.69	54	-10.31	AV
H	1854.90	55.76	30.55	5.77	24.66	55.64	74	-18.36	Pk
H	1854.90	42.28	30.55	5.77	24.66	42.16	54	-11.84	AV
H	2785.35	58.03	30.33	6.32	24.55	58.57	74	-15.43	Pk
H	2785.35	43.38	30.33	6.32	24.55	43.92	54	-10.08	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

5. CHANNEL BANDWIDTH

Test Requirement:	FCC Part15 C Section 15.249/15.215
Test Method:	ANSI C63.10-2020

5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.249) , Subpart C			
Section	Test Item	Frequency Range (MHz)	Result
15.249(c)	Bandwidth	902-928	PASS

5.2 TEST PROCEDURE

1. Set resolution bandwidth (RBW) = 1%-5%OBW.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP



5.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

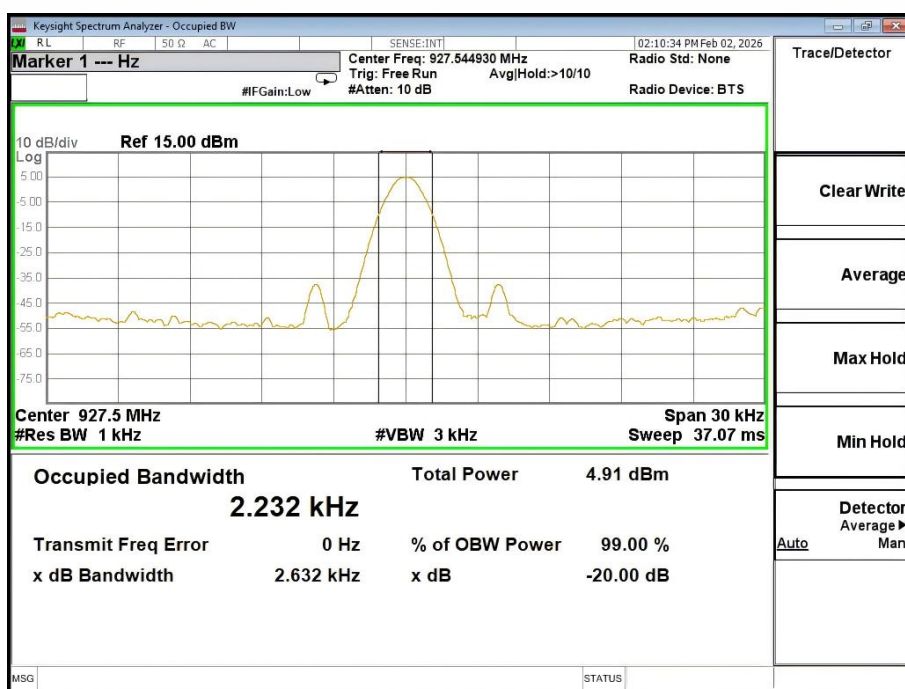
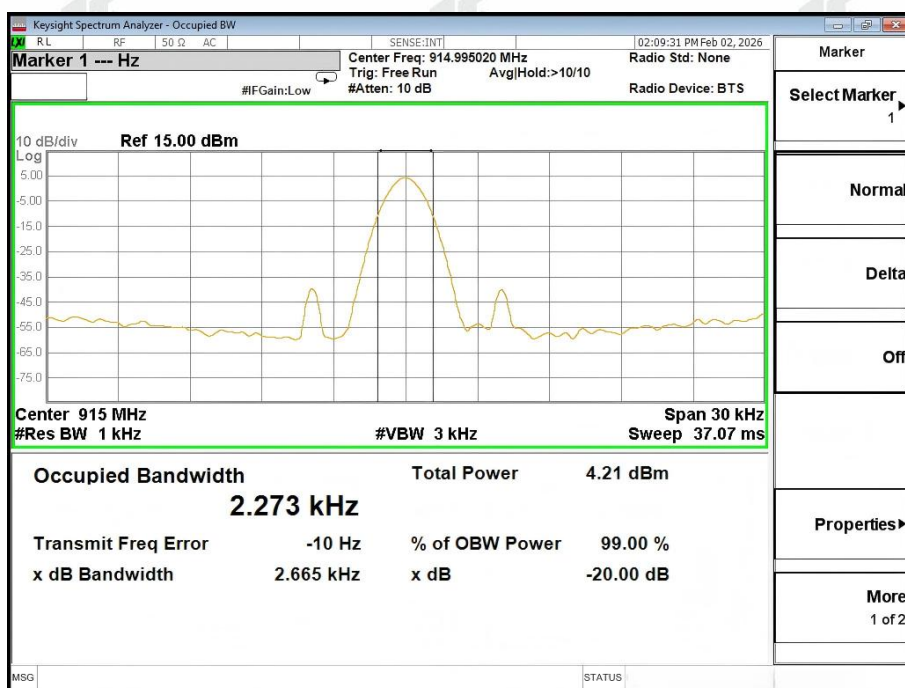
5.6 TEST RESULTS

Temperature:	25.1℃	Relative Humidity:	53%
Test Mode :	Lora	Test Voltage:	DC 3.3V

Mode	20dB Emission Bandwidth (kHz)	Result
902.45MHz	2.687	Pass
915MHz	2.665	
927.55MHz	2.632	

Test plots



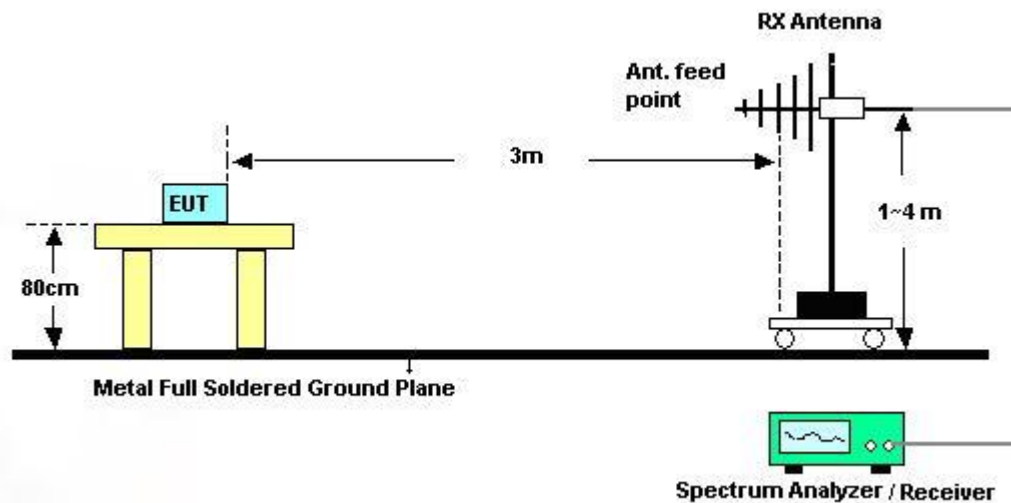


Note: Because the measured signal is CW-like, adjusting the RBW per C63.10 would not be practical since measurement bandwidth will always follow the RBW. The RBW is set to 1 KHz to perform the 20dB bandwidth test.



6. BAND EDGE TEST

6.1 BLOCK DIAGRAM OF TEST SETUP



6.2 TEST LIMIT

Radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

6.3 TEST PROCEDURE

Refer to ANSI C 63.10, Clause 6.10.

All restriction band and non- restriction band have been tested, only worse case is reported.



	Polar (H/V)	Frequenc y (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV /m)	Margi n (dB)	Detec tor Type	Result
LoRa	Low Channel: 902.45MHz										
	H	902.00	61.47	30.22	4.85	23.98	60.08	74.00	-13.92	PK	PASS
	H	902.00	46.74	30.22	4.85	23.98	45.35	54.00	-8.65	AV	PASS
	V	902.00	59.54	30.22	4.85	23.98	58.15	74.00	-15.85	PK	PASS
	V	902.00	47.78	30.22	4.85	23.98	46.39	54.00	-7.61	AV	PASS
	High Channel: 927.55MHz										
	H	928.00	61.75	30.22	4.85	23.98	60.36	74.00	-13.64	PK	PASS
	H	928.00	46.40	30.22	4.85	23.98	45.01	54.00	-8.99	AV	PASS
	V	928.00	59.30	30.22	4.85	23.98	57.91	74.00	-16.09	PK	PASS
	V	928.00	47.39	30.22	4.85	23.98	46.00	54.00	-8.00	AV	PASS

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit

7. 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.	
EUT Antenna:	
The antenna is FPC Antenna, the best case gain of the antennas are 2.2dBi, reference to the appendix II for details.	

8. TEST SETUP PHOTO

Reference to the appendix I for details.

9. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

※※※※※ **END OF REPORT** ※※※※※