

# RF TEST REPORT

FCC ID: 2BN3W-ZB-H120030-7I

Test Report No.: RF241216008-01-001

Product(s) Name: Multifunction Socket

Model(s): ZB-H120030-7I

Trade Mark.: 

Applicant: Huizhou Zhongbang Electronics Co., Ltd.

Address: Floor 1-4, No. 90 Songbai Ling Road, Sanhe Village, Tonghu Town,  
Zhongkai High-Tech Zone, Huizhou, 516121 Guangdong, P.R.  
China

Receipt Date: 2025.03.06

Test Date: 2025.03.08~2025.03.20

Issued Date: 2025.03.21

Standards: 47 CFR FCC Part 15, Subpart C;  
ANSI C63.10:2013

Testing Laboratory: Shenzhen Haiyun Standard Technical Co., Ltd.

Prepared By:	Checked By:	Approved By:	
Jason Huang	Black Ding	Tim Zhang	
Jason Huang	Black Ding	Tim Zhang	



# Table of Contents

<b>History of this test report.....</b>	<b>4</b>
<b>1. General Information.....</b>	<b>5</b>
1.1 Applicant.....	5
1.2 Manufacturer.....	5
1.3 Basic Description of Equipment Under Test.....	5
1.4 Application of Standard .....	5
1.5 Independent Operation Modes .....	5
<b>2. Summary of Test Results .....</b>	<b>6</b>
2.1 Summary of Test Items .....	6
2.2 Special Accessories and Auxiliary Equipment.....	6
2.3 Test Condition .....	6
2.4 Principle of Configuration Selection .....	6
2.5 Measurement Uncertainty.....	7
2.6 Test Location.....	7
2.7 Test Instruments.....	8
<b>3. Test Procedure And Results .....</b>	<b>9</b>
3.1 AC Power Line Conducted Emission .....	9
3.1.1 Limit .....	9
3.1.2 Test Procedure .....	9
3.1.3 Test Setup .....	9
3.1.4 Test Result.....	10
3.2 Radiated Emissions .....	12
3.2.1 Limit .....	12
3.2.2 Test Procedure .....	12
3.2.3 Test Setup .....	13
3.2.4 Test Result.....	14
3.3 20dB bandwidth measurement .....	19



3.3.1	Test standard.....	19
3.3.2	Test Procedure .....	19
3.3.3	Test Setup .....	19
3.3.4	Test results .....	19
<b>4.</b>	<b>Antenna Requirement.....</b>	<b>21</b>
	Test Specification.....	21



海蕴  
HAIYUN

## History of this test report

Original Report Issue Date: 2025.03.21

- No additional attachment
- Additional attachments were issued following record

## 1. General Information

### 1.1 Applicant

**Huizhou Zhongbang Electronics Co., Ltd.**

Floor 1-4, No. 90 Songbai Ling Road, Sanhe Village, Tonghu Town, Zhongkai High-Tech Zone, Huizhou, 516121 Guangdong, P.R. China

### 1.2 Manufacturer

**Huizhou Zhongbang Electronics Co., Ltd.**

Floor 1-4, No. 90 Songbai Ling Road, Sanhe Village, Tonghu Town, Zhongkai High-Tech Zone, Huizhou, 516121 Guangdong, P.R. China

### 1.3 Basic Description of Equipment Under Test

Sample No.	POC241216008-S001
Product Name	Multifunction Socket
Model Name	ZB-H120030-7I
Trade mark	
Power supply:	AC 120V/60Hz
WPT Output Power:	10W Max
Modulation type	ASK
Operating frequency	110-205kHz
Antenna type	Coil Antenna
Antenna Gain	0 dBi

### 1.4 Application of Standard

47 CFR FCC Part 15, Subpart C and ANSI C63.10:2013

### 1.5 Independent Operation Modes

The basic operation modes are:

- A. On, Wireless charging(Wireless Charger)
- B. Standby
- C. Off

## 2. Summary of Test Results

### 2.1 Summary of Test Items

47 CFR FCC Part 15, Subpart C		
Test Item	FCC Clause	Results
AC Power Conducted Emission	15.207	Pass
Radiated Emission	15.209	Pass
Antenna Requirement	15.203	Pass
20dB Bandwidth	15.215(c)	Pass

Note: Pass: The EUT complies with the essential requirements in the standard.

### 2.2 Special Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N
Wireless charger load	EESON	SLY-YZB-A01	/
Cement load	/	5 Ω 100W	/
Cement load	/	2.5 Ω 100W	/
Cement load	/	12 Ω 100W	/
LED	/	120V~ 500W	/

### 2.3 Test Condition

Applicable to	Environmental conditions	Input Power	Tested by
AC Power Conducted Emission	23.4°C, 52 % RH	120Vac, 60Hz	Lemon He
Radiated Emission	22.9°C, 50 % RH	120Vac, 60Hz	Albert Fan
20dB Bandwidth	23.4°C, 52 % RH	120Vac, 60Hz	Lemon He

### 2.4 Principle of Configuration Selection

**Emission:** The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

**Radio Spectrum:** The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

## 2.5 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Uncertainty	
Parameter	Uncertainty
Occupied Channel Bandwidth	±102kHz
RF power conducted	±0.377dB
Power Spectral Density	±0.743dB
Conducted Spurious Emission	±1.328dB
Conducted emission(9kHz~30MHz) AC main	±2.68dB
Radiated emission(9kHz~30MHz)	±2.74dB
Radiated emission (30MHz~1GHz)	±4.22dB
Radiated emission (1GHz~18GHz)	±5.06dB
Radiated emission (18GHz~40GHz)	±4.98dB

## 2.6 Test Location

Company:	Shenzhen Haiyun Standard Technical CO., Ltd.
Address:	No. 110-113, 115, 116, Block B, Jinyuan Business Building, Bao'an District, Shenzhen, China
CNAS Registration Number:	CNAS L18252
CAB identifier	CN0145
A2LA Certificate Number	6823.01
Telephone:	0755-26024411

## 2.7 Test Instruments

Radiated Emissions						
No.	Equipment	Manufacturer	Type No.	Serial No.	Cal. date (yyyy/mm/dd)	Cal. Due date (yyyy/mm/dd)
1	Test receiver	Rohde&Schwarz	ESU	100184	2024/4/24	2025/4/23
2	Low frequency amplifier	Unknown	LNA 0920N	2014	2024/4/24	2025/4/23
3	Loop Antenna	Schwarzbeck	FMZB1519 B	00029	2024/7/15	2025/7/14
4	Log periodic antenna	Schwarzbeck	VULB 9168	1151	2024/4/20	2025/4/19
5	Temp&Humidity Recorder	Meideshi	JR900	/	2024/4/24	2025/4/23
6	RF cable(966 chamber)9kHz-1 GHz	Unknown	Unknown	Unknown	2024/4/24	2025/4/23
7	Test software	Farad Technology Co., Ltd	EZ-EMC Ver.TW-03A2			
Conducted Emission						
1	Test receiver	Rohde&Schwarz	ESCI	100718	2024/4/24	2025/4/23
2	LISN	Rohde&Schwarz	ENV216	100075	2024/4/24	2025/4/23
3	Pulse limiter	Rohde&Schwarz	ESH3-Z2	102299	2024/4/24	2025/4/23
4	Test software	Farad Technology Co., Ltd	EZ-EMC Ver.TW-03A2			
RF Conducted Emission						
1	Test receiver	Rohde&Schwarz	ESCI	100718	2024/4/24	2025/4/23

### 3. Test Procedure And Results

#### 3.1 AC Power Line Conducted Emission

##### 3.1.1 Limit

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 ~ 0.50	79	66	66 - 56	56 - 46
0.50 ~ 5.00	73	60	56	46
5.00 ~ 30.0	73	60	60	50

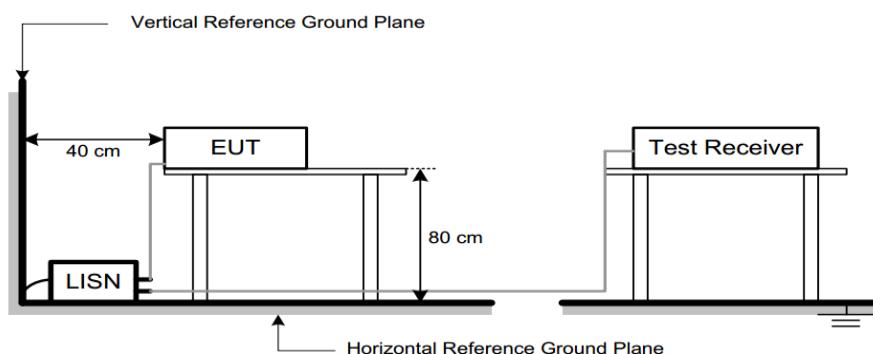
**Note:**

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

##### 3.1.2 Test Procedure

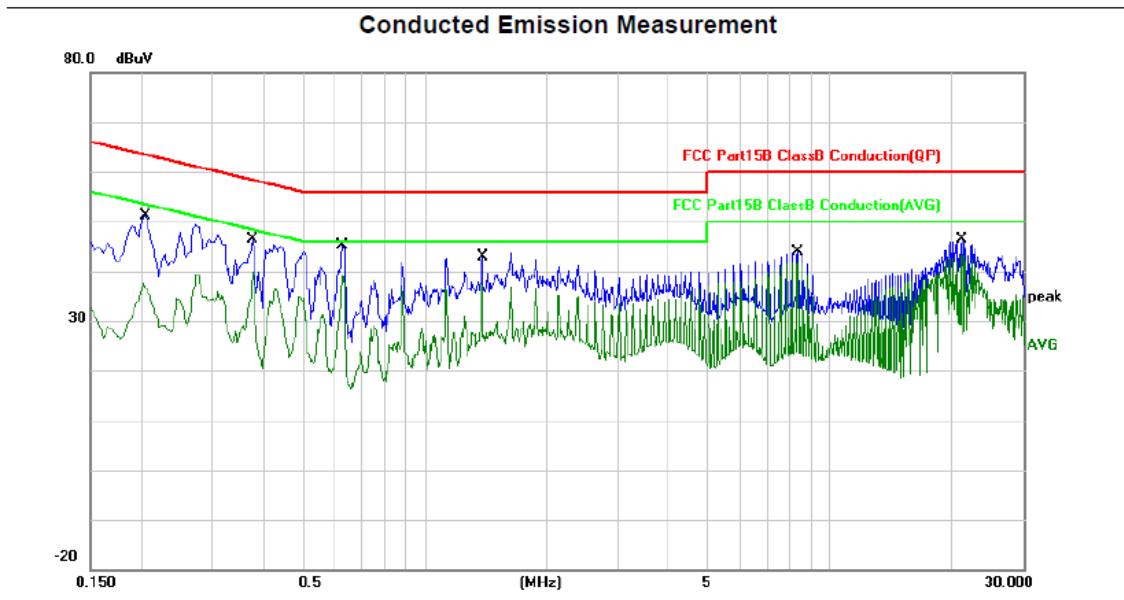
- a) The EUT was placed 0.8 m from the horizontal ground plane and 0.4 m from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (AMN). All other support equipment powered from additional AMN. The AMN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b) Interconnecting cables that hang closer than 0.4 m to the ground plane shall be folded back and forth in the center forming a bundle 0.3 m to 0.4 m long.
- c) The frequency range from 150 kHz to 30 MHz was searched.
- d) Actual test configuration, please refer to the related Item – EUT Test Photos.
- e) The thickness of the insulation shall not be more than 150 mm.

##### 3.1.3 Test Setup



### 3.1.4 Test Result

Test Frequency range:	150kHz~30MHz
Test mode:	A
Test voltage:	AC 120V/60Hz
Phase	Line

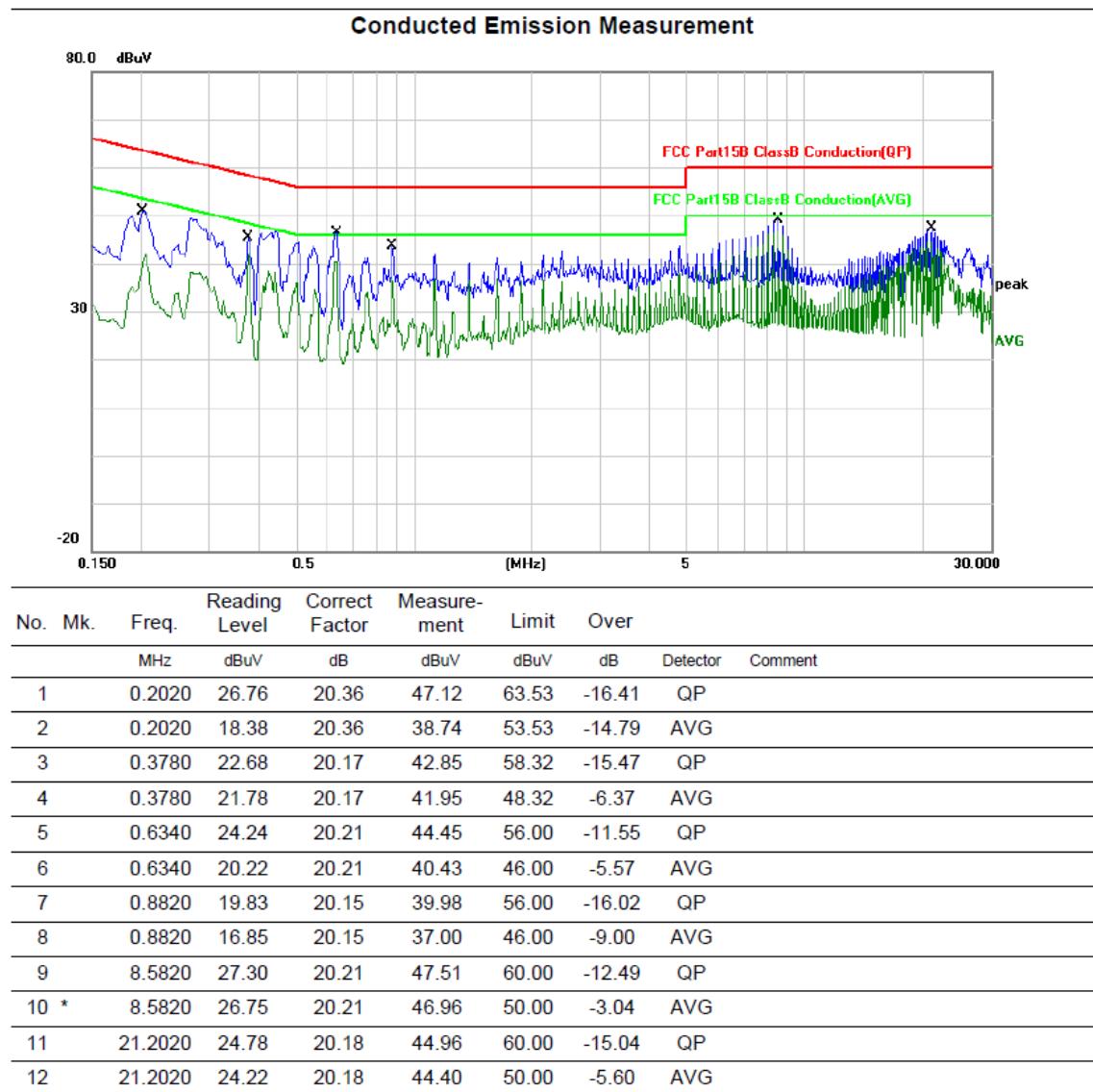


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dB	Detector	Comment
1		0.2060	25.90	20.04	45.94	63.37	-17.43	QP
2		0.2060	16.27	20.04	36.31	53.37	-17.06	AVG
3		0.3780	22.01	20.23	42.24	58.32	-16.08	QP
4		0.3780	19.27	20.23	39.50	48.32	-8.82	AVG
5		0.6300	23.18	20.03	43.21	56.00	-12.79	QP
6		0.6300	18.60	20.03	38.63	46.00	-7.37	AVG
7		1.3900	19.00	20.08	39.08	56.00	-16.92	QP
8		1.3900	16.11	20.08	36.19	46.00	-9.81	AVG
9		8.3260	22.26	20.10	42.36	60.00	-17.64	QP
10		8.3260	21.65	20.10	41.75	50.00	-8.25	AVG
11		21.1860	15.23	20.13	35.36	60.00	-24.64	QP
12 *		21.1860	23.26	20.13	43.39	50.00	-6.61	AVG

**Note:**

1. Correct Factor = LISN Factor + Cable Loss + Pulse Limiter Factor, the value was added to Original Receiver Reading by the software automatically.
2. Measurement = Reading Level + Correct Factor.
3. Over = Measurement - Limit

Test Frequency range:	150kHz~30MHz
Test mode:	A
Test voltage:	AC 120V/60Hz
Phase	Neutral



**Note:**

1. Correct Factor = LISN Factor + Cable Loss + Pulse Limiter Factor, the value was added to Original Receiver Reading by the software automatically.
2. Measurement = Reading Level + Correct Factor.
3. Over = Measurement - Limit

## 3.2 Radiated Emissions

### 3.2.1 Limit

Emissions radiated outside of the specified bands, shall be according to the general radiated limits as following:

Frequencies (MHz)	Field strength (microvolts/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

Note: (1) The lower limit shall apply at the transition frequencies.

(2) Emission level (dB<sub>B</sub>V/m) = 20 log Emission level (uV/m).

(3) As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

(4) The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

### 3.2.2 Test Procedure

#### Below 30MHz

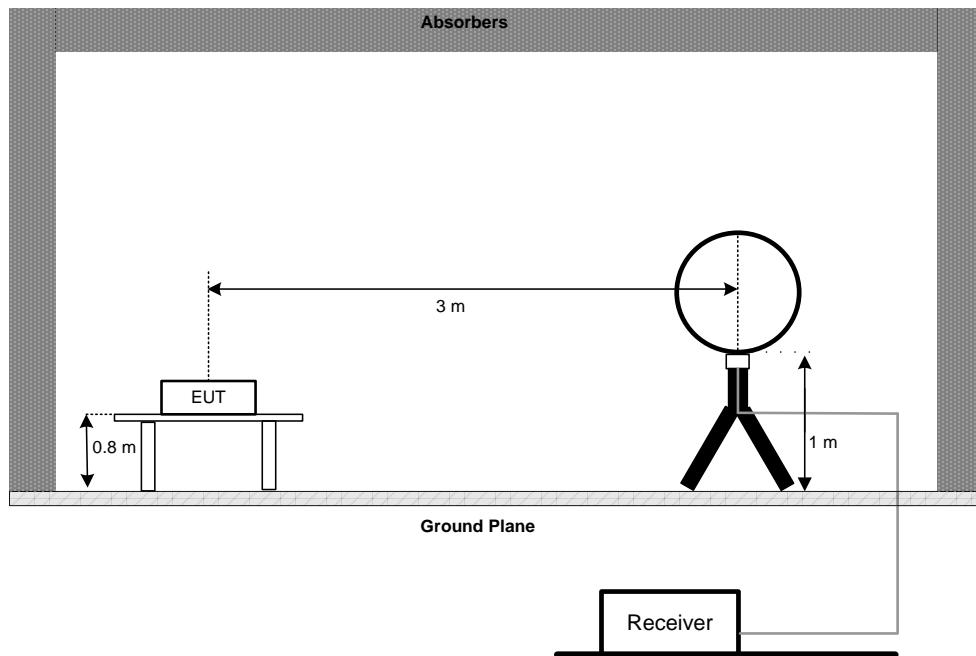
- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter Semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The height of antenna 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.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

### 30MHz~1GHz

- a) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c) The antenna is a broadband antenna, and its 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.
- d) 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.
- e) The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

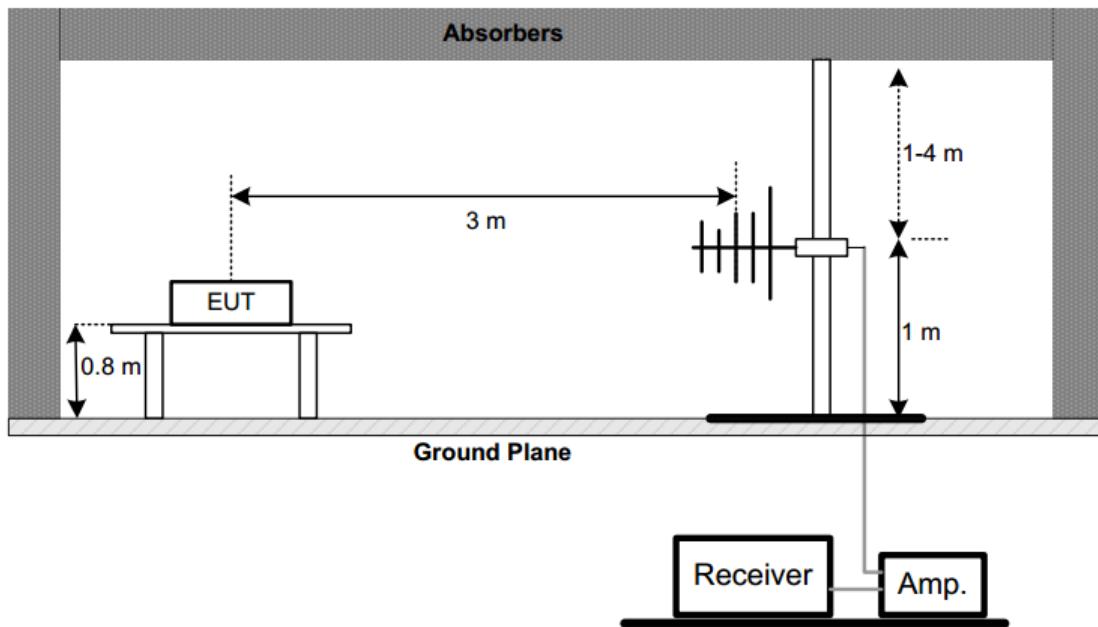
#### 3.2.3 Test Setup

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





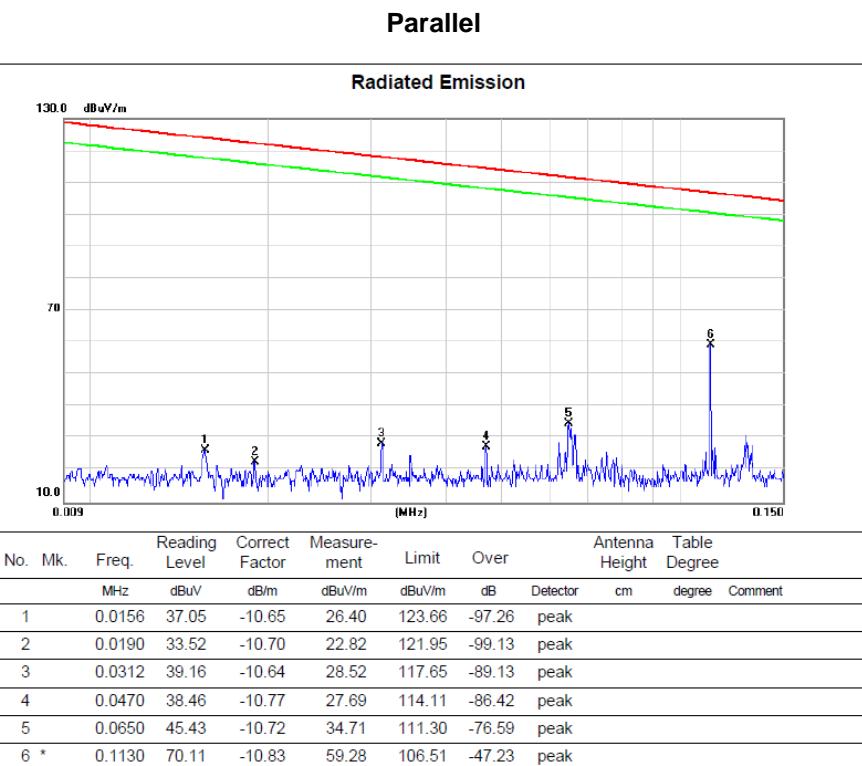
(B) Radiated Emission Test Set-Up Frequency Below 1 GHz



### 3.2.4 Test Result

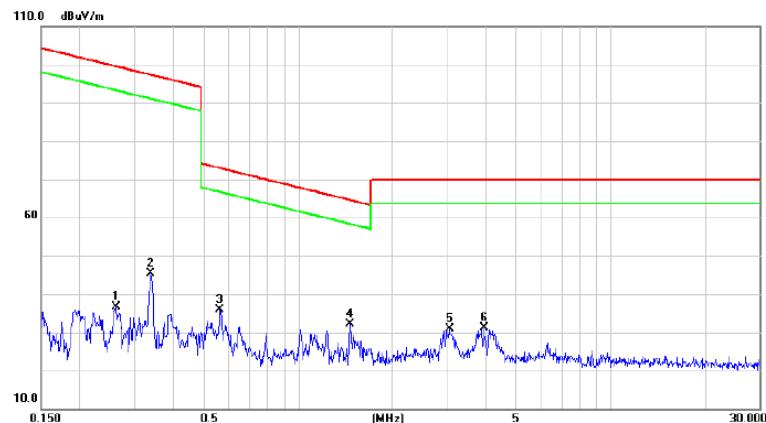
The worst measurement data as follows:

Below 30MHz	Test mode: A
-------------	--------------





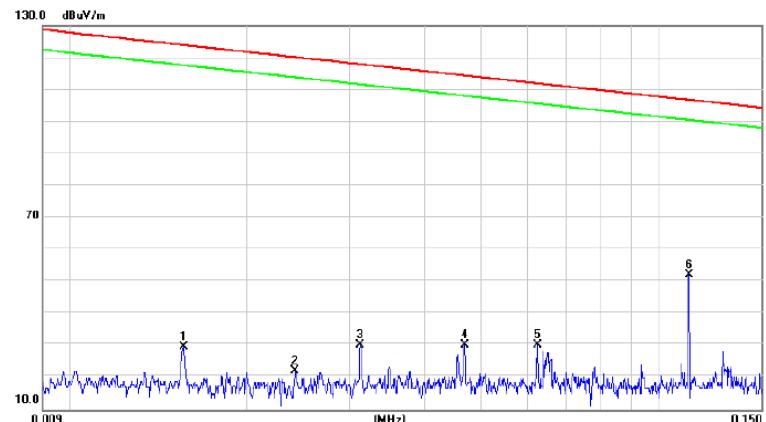
### Radiated Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		0.2602	47.57	-10.96	36.61	99.27	-62.66	peak			
2		0.3373	56.28	-11.02	45.26	97.03	-51.77	peak			
3		0.5611	47.19	-11.23	35.96	72.62	-36.66	peak			
4 *		1.4640	43.70	-11.64	32.06	64.29	-32.23	peak			
5		3.0414	42.53	-11.58	30.95	69.54	-38.59	peak			
6		3.9221	42.75	-11.52	31.23	69.54	-38.31	peak			

### Perpendicular

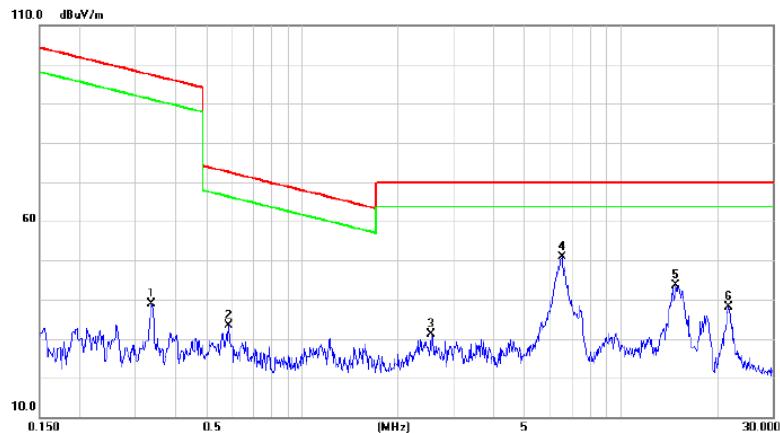
#### Radiated Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		0.0156	40.17	-10.65	29.52	123.57	-94.05	peak			
2		0.0241	32.73	-10.69	22.04	119.82	-97.78	peak			
3		0.0312	40.75	-10.64	30.11	117.59	-87.48	peak			
4		0.0470	41.17	-10.77	30.40	114.05	-83.65	peak			
5		0.0623	40.96	-10.72	30.24	111.61	-81.37	peak			
6 *		0.1128	62.97	-10.83	52.14	106.49	-54.35	peak			



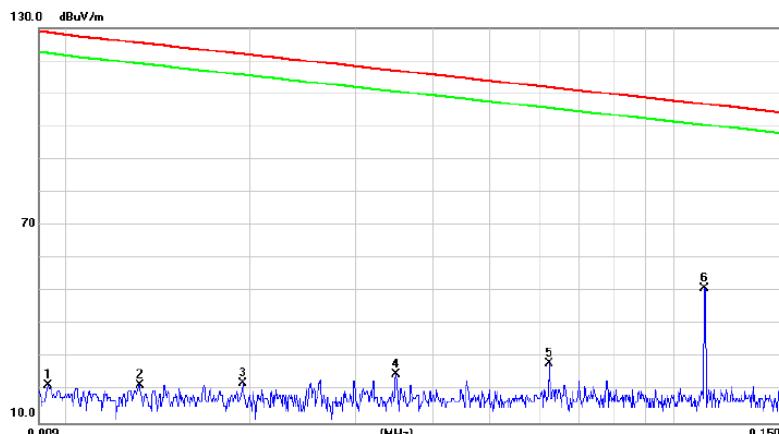
#### Radiated Emission



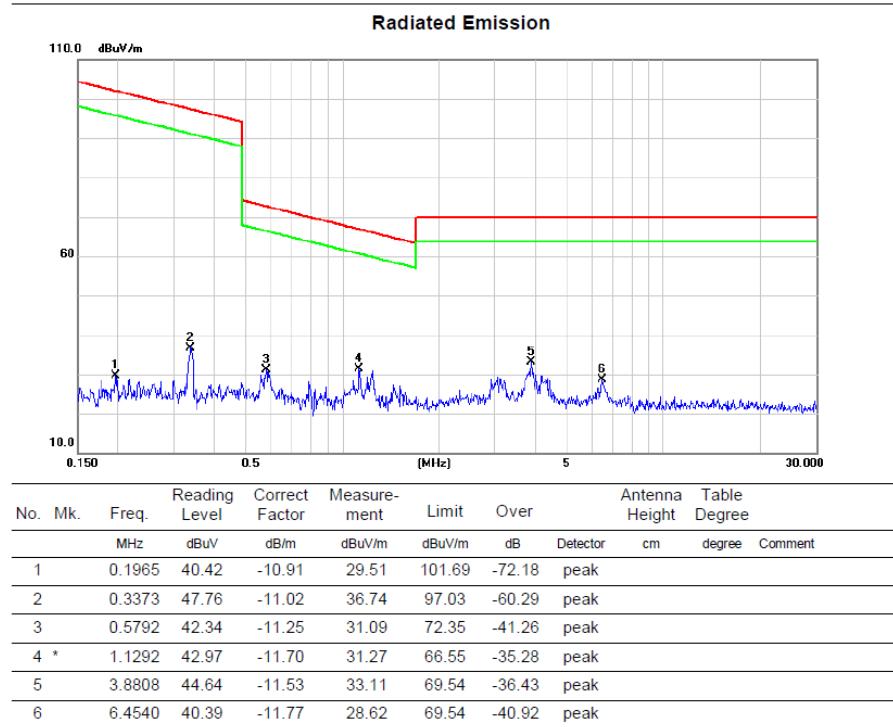
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	Degree	Comment
			Level	Factor	ment						
1		0.3373	49.81	-11.02	38.79	97.03	-58.24	peak			
2		0.5885	44.69	-11.26	33.43	72.21	-38.78	peak			
3		2.5400	42.82	-11.57	31.25	69.54	-38.29	peak			
4 *		6.5226	62.67	-11.78	50.89	69.54	-18.65	peak			
5		14.8280	55.31	-11.63	43.68	69.54	-25.86	peak			
6		21.7150	49.48	-11.35	38.13	69.54	-31.41	peak			

#### Ground- parallel

#### Radiated Emission



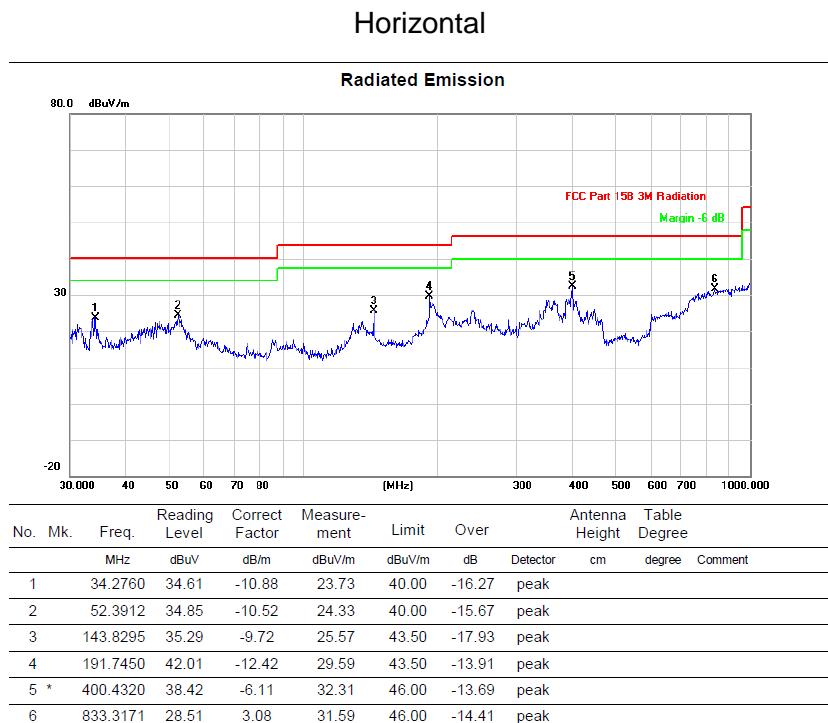
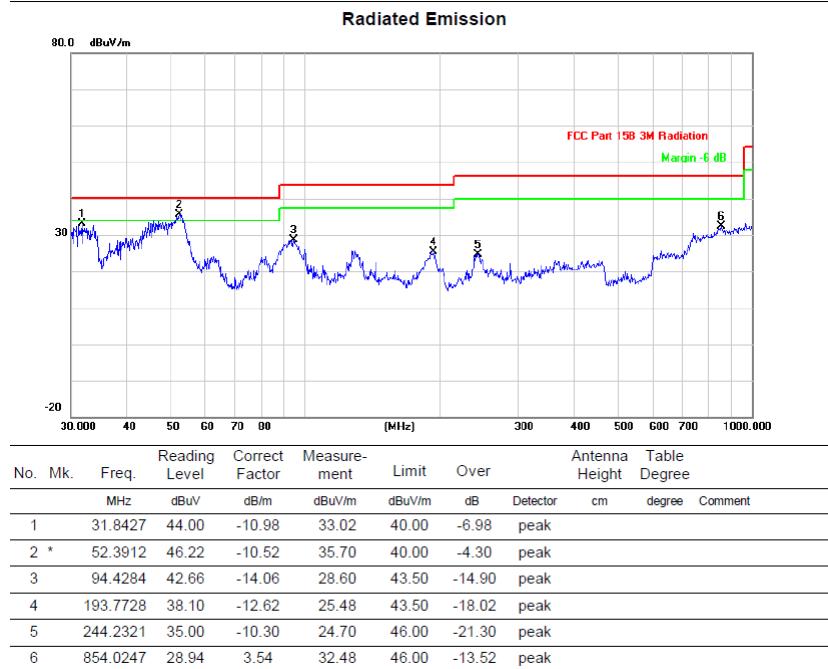
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	Degree	Comment
			Level	Factor	ment						
1		0.0093	32.16	-10.66	21.50	128.04	-106.5	peak			
2		0.0132	32.17	-10.59	21.58	125.02	-103.4	peak			
3		0.0195	32.72	-10.71	22.01	121.65	-99.64	peak			
4		0.0350	35.58	-10.67	24.91	116.59	-91.68	peak			
5		0.0624	38.88	-10.72	28.16	111.60	-83.44	peak			
6 *		0.1126	61.88	-10.82	51.06	106.50	-55.44	peak			



**Note:**

1. Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain, the value was added to Original Receiver Reading by the software automatically.
2. Level = Reading + Correct Factor.
3. Margin = Level – Limit

30MHz~1GHz	Test mode: A
Vertical	



**Note:**

1. Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain, the value was added to Original Receiver Reading by the software automatically.
2. Measurement = Reading Level + Correct Factor.
3. Over = Measurement – Limit

### 3.3 20dB bandwidth measurement

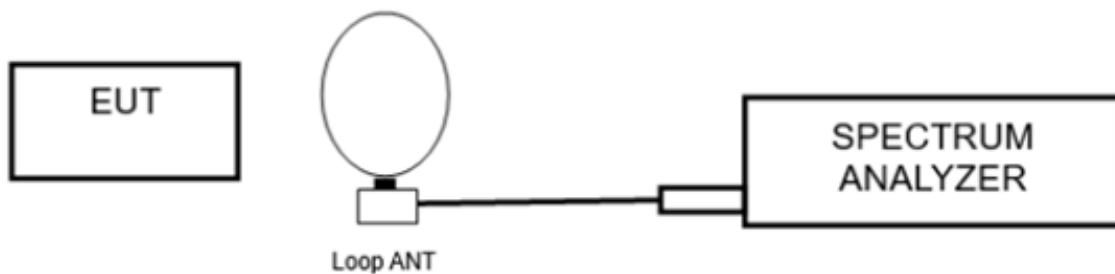
#### 3.3.1 Test standard

FCC Part 15.215(c)

#### 3.3.2 Test Procedure

Test Method	
● Conducted Measurement	<input type="radio"/> Radiated Measurement
Environmental Conditions	
● Normal	<input type="radio"/> Normal and Extreme
Note: ● : Test    ○ : No Test	

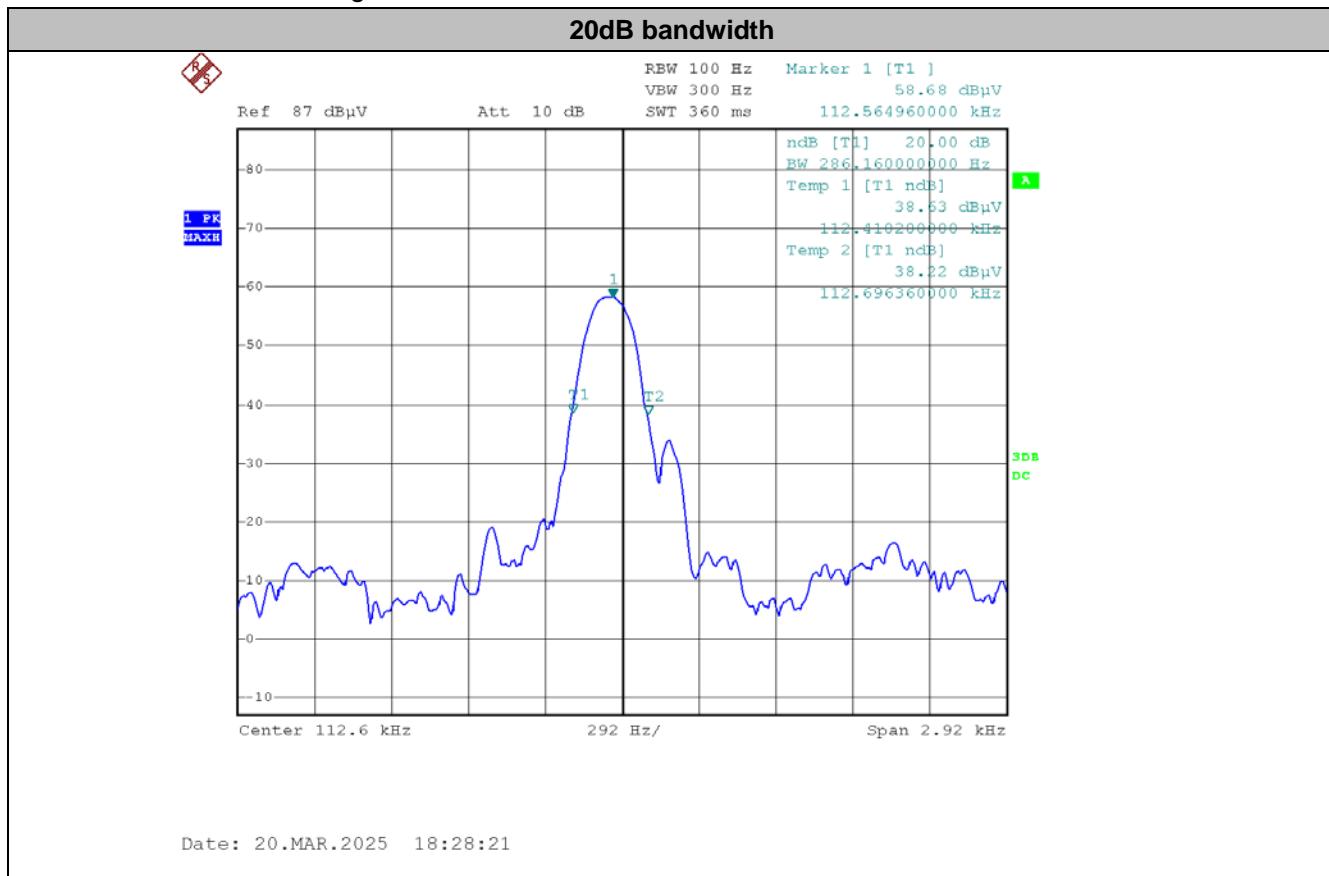
#### 3.3.3 Test Setup



#### 3.3.4 Test results

Test mode	20dB bandwidth (kHz)
A	0.286

For details refer to following test result.





## 4. Antenna Requirement

### Test Specification

Test standard : Part 15.203

According to the manufacturer declared, the EUT has a Coil antenna, and the antenna is permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

## Statement

1. The report is invalid without the official seal or special seal of Shenzhen Haiyun Standard Technical Co., Ltd. (hereinafter referred to as the unit).
2. The report is invalid without the signature of the approver.
3. The report is invalid if altered arbitrarily.
4. The report shall not be partially copied without the written approval of the unit.
5. The reported test results are only valid for the tested samples.
6. If there is any objection to the test report, it shall be submitted to the test unit within 15 days from the date of receiving the report, and the overdue shall not be accepted.

## Shenzhen Haiyun Standard Technical Co., Ltd.

Address: Room 110, 111, 112, 113, 115, 116, Block B, Jinyuan Business Building, No. 302, Xixiang Avenue, Labor Community, Xixiang Street, Baoan District, Shenzhen, China

Tel: 0755-26024411

Email: service@hy-lab.cn

(END OF REPORT)