

FCC TEST REPORT

For

Zhejiang Zhangzhou Electric Technology Co., Ltd
Intelligent WIFI Circuit Breaker

Model No. ZWF-63AVP, ZWF-63T, ZWF-63B

Prepared for Zhejiang Zhangzhou Electric Technology Co., Ltd
Address No. 1166 Liujiang Road, Daxing Village, Beibaixiang Town,
 Yueqing City, Wenzhou City, Zhejiang Province

Prepared by Guangdong Lintek Certification Group Co., Ltd.
Address Room 318, No.116-2, Guanlan Road, Fucheng Street,
 Longhua District, Shenzhen, Guangdong, China

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TEST REPORT DECLARATION

Applicant : Zhejiang Zhangzhou Electric Technology Co., Ltd
No. 1166 Liujiang Road, Daxing Village, Beibaixiang Town,
Yueqing City, Wenzhou City, Zhejiang Province

Manufacturer : Shenzhen Jinfei Electronics Co., Ltd
2nd Floor, Building 5, No. 156 Yanluo Road, Songgang Street,
Bao'an District, Shenzhen City, China

Product : Intelligent WIFI Circuit Breaker

(A) Model No. : ZWF-63AVP, ZWF-63T, ZWF-63B
(B) Trademark : N/A
(C) Ratings Supply : Un:230/240V, Ui:500V
(D) Test Voltage : 120Vac

Measurement Standard Used:

FCC Rules and Regulations Part 15 Subpart B Class B,
ANSI C63.4-2014

The device described above is tested by Guangdong Lintek Certification Group Co., Ltd. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The test results are contained in this test report and Guangdong Lintek Certification Group Co., Ltd. is assumed full responsibility for the accuracy and completeness of test. Also, this report shows that the EUT is technically compliant with the FCC Part 15 Subpart B Class B requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Guangdong Lintek Certification Group Co., Ltd.

Tested by (name + signature).....:	Sunny Yuan Test Engineer	
Approved by (name + signature).....:	Kevin Chen Project Manager	
Date of issue.....:	Apr. 09, 2025	

1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION			
Description of Test Item	Standard	Limits	Results
Power Line Conducted Emission Test	FCC Part 15 ANSI C63.4: 2014	Class B	PASS
Radiated Emission Test	FCC Part 15 ANSI C63.4: 2014	Class B	PASS
N/A is an abbreviation for Not Applicable.			

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Description : Intelligent WIFI Circuit Breaker

Classification : Class III

Model Number : ZWF-63AVP, ZWF-63T, ZWF-63B

DIFF. : All models are the same except model name and color, The model ZWF-63AVP was selected to be tested

Trademark : N/A

Applicant : Zhejiang Zhangzhou Electric Technology Co., Ltd

Address : No. 1166 Liujiang Road, Daxing Village, Beibaixiang Town, Yueqing City, Wenzhou City, Zhejiang Province

Manufacturer : Zhejiang Zhangzhou Electric Technology Co., Ltd

Address : No. 1166 Liujiang Road, Daxing Village, Beibaixiang Town, Yueqing City, Wenzhou City, Zhejiang Province

Sample Type : Prototype production

2.2. Block Diagram of connection between EUT and simulators



EUT: Intelligent WIFI Circuit Breaker

2.3. Test Facility

2.3.1. Laboratory Name:

Guangdong Lintek Certification Group Co., Ltd.

2.3.2. Site Location :

Room 318, No.116-2, Guanlan Road, Fucheng Street, Longhua District, Shenzhen, Guangdong, China

2.4. Measurement Uncertainty

(95% confidence levels, k=2)

Test Item	Uncertainty	U _{cispr}
Uncertainty for Conduction emission test	2.50dB	3.8 dB
Uncertainty for Radiation Emission test	3.04 dB (Distance: 3m Polarize: V)	5.2 dB
	3.02 dB (Distance: 3m Polarize: H)	
Uncertainty for Power Clamp Test	3.94 dB	4.5 dB
Uncertainty for Flicker test	0.05%	N/A
Uncertainty for Harmonic test	1.8%	N/A

2.5. Test mode Description

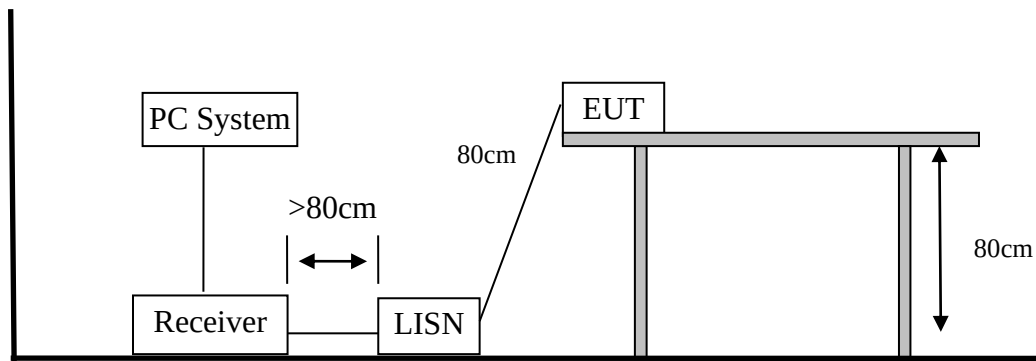
No.	Test Mode
1	Normal working
Note:	

3. POWER LINE CONDUCTED EMISSION TEST

3.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	100873	May 06, 24	1 Year
2.	L.I.S.N.#1	Schwarzbeck	NSLK8126	8126-466	May 06, 24	1 Year
3.	RF Cable	Schwarzbeck	Cable 2	2M	May 06, 24	1 Year
4.	Coaxial Switch	Schwarzbeck	CX-210	N/A	May 06, 24	1 Year
5.	Pulse Limiter	Schwarzbeck	9516F	9618	May 06, 24	1 Year

3.2. Block Diagram of Test Setup



3.3. Conducted Disturbance at Mains Terminals Test Standard and Limit

Frequency	At mains terminals (dB μ V)	
	Quasi-peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 *	56 ~ 46 *
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. Emission level=Read level+LISN factor-Preamplifier factor+Cable loss

2* Decreasing linearly with logarithm of frequency.

3. The lower limit shall apply at the transition frequencies.

3.4. EUT Configuration on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to

maximize its emission characteristics in a normal application.

3.5. Operating Condition of EUT

3.5.1. Setup the EUT as shown in section 3.2.

3.5.2. Turned on the power of all equipments.

3.5.3. Let the EUT worked in test mode 15 minutes after taking the test.

3.6. Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N. #1). The power line was checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4 on Conducted Disturbance at Mains Terminals test.

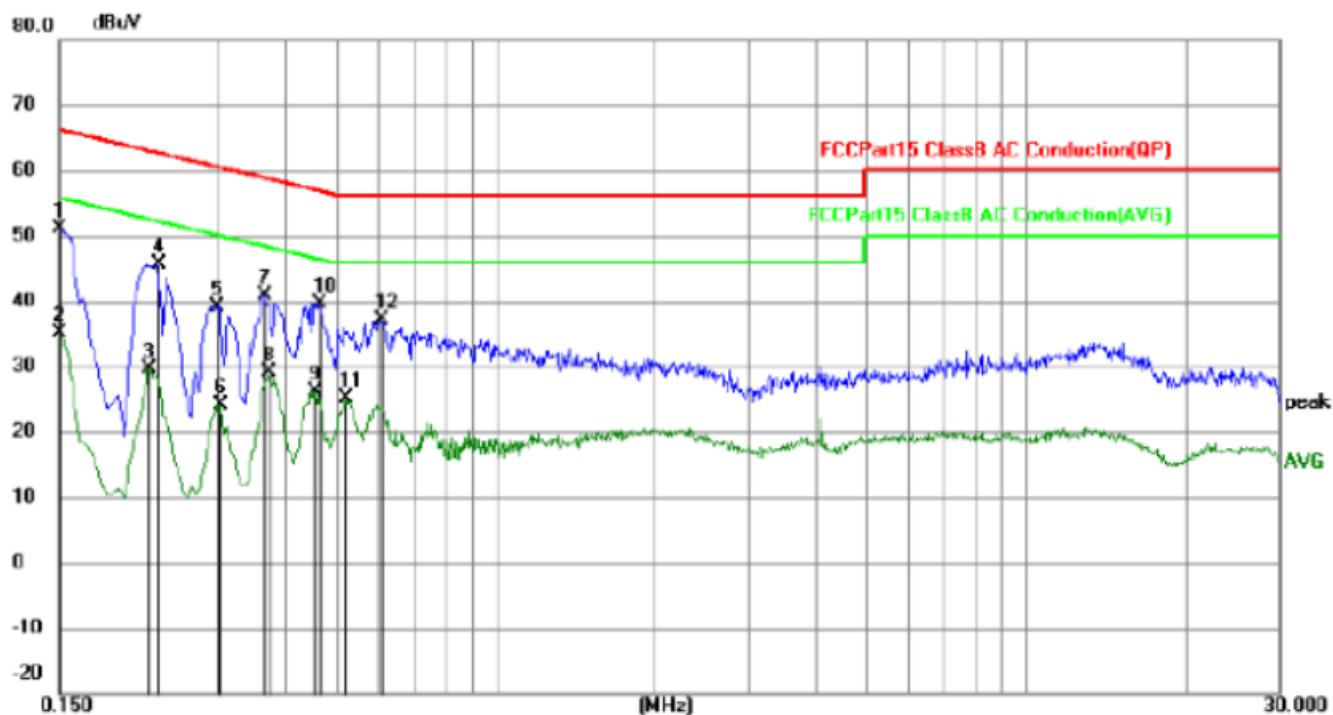
The bandwidth of test receiver (R & S ESCI) is set at 10kHz.

The frequency range from 150kHz to 30MHz is checked. The test result are reported on Section 3.7.

3.7. Conducted Disturbance at Mains Terminals Test Results

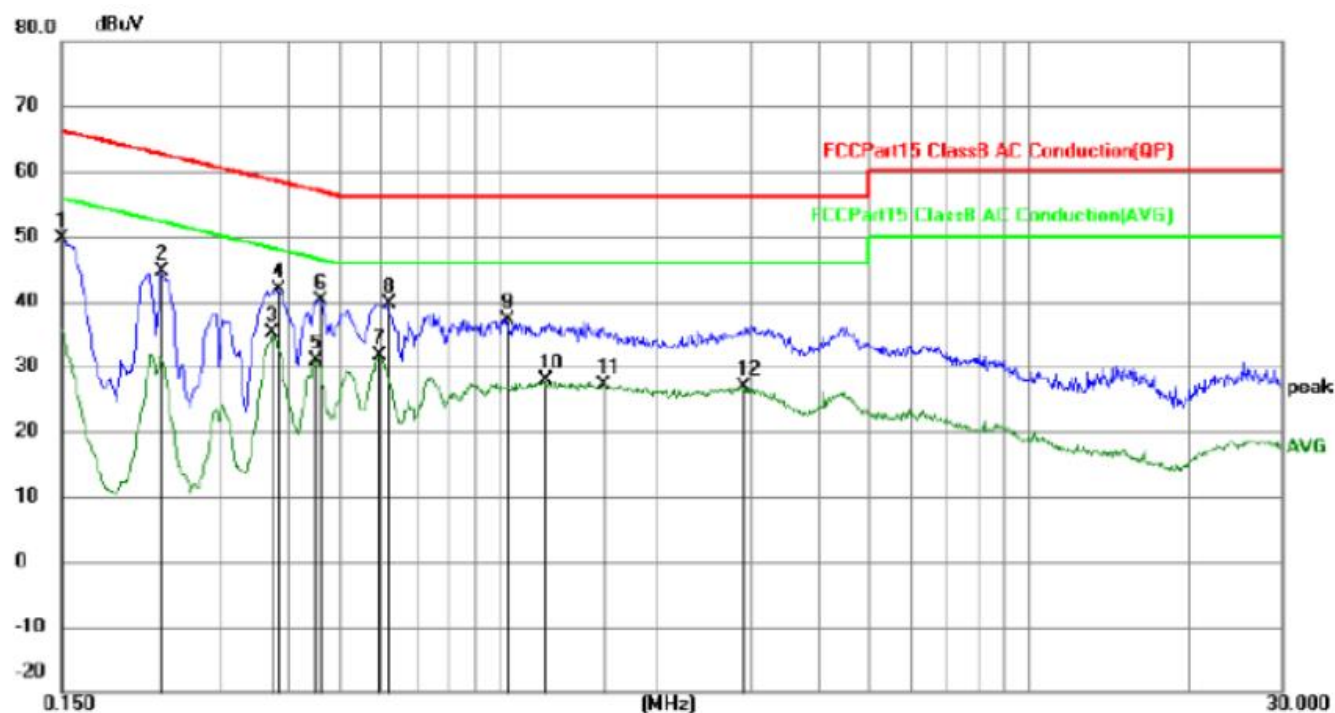
Pass

L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1500	38.60	12.49	51.09	66.00	-14.91	peak	P	
2	0.1500	22.75	12.49	35.24	56.00	-20.76	AVG	P	
3	0.2220	17.08	12.44	29.52	52.74	-23.22	AVG	P	
4	0.2310	33.31	12.44	45.75	62.41	-16.66	peak	P	
5	0.2985	26.82	12.39	39.21	60.28	-21.07	peak	P	
6	0.3029	11.74	12.39	24.13	50.16	-26.03	AVG	P	
7	0.3660	28.61	12.38	40.99	58.59	-17.60	peak	P	
8	0.3750	16.76	12.38	29.14	48.39	-19.25	AVG	P	
9	0.4560	13.81	12.37	26.18	46.77	-20.59	AVG	P	
10	0.4650	27.34	12.37	39.71	56.60	-16.89	peak	P	
11	0.5190	12.69	12.36	25.05	46.00	-20.95	AVG	P	
12	0.6045	24.78	12.35	37.13	56.00	-18.87	peak	P	

N



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1500	37.20	12.49	49.69	66.00	-16.31	peak	P	
2	0.2310	32.09	12.44	44.53	62.41	-17.88	peak	P	
3	0.3750	22.70	12.38	35.08	48.39	-13.31	AVG	P	
4	0.3840	29.40	12.38	41.78	58.19	-16.41	peak	P	
5	0.4515	18.62	12.37	30.99	46.85	-15.86	AVG	P	
6	0.4605	27.88	12.37	40.25	56.68	-16.43	peak	P	
7	0.5955	19.18	12.35	31.53	46.00	-14.47	AVG	P	
8	0.6180	27.39	12.34	39.73	56.00	-16.27	peak	P	
9	1.0410	24.95	12.29	37.24	56.00	-18.76	peak	P	
10	1.2164	15.62	12.29	27.91	46.00	-18.09	AVG	P	
11	1.5765	14.93	12.30	27.23	46.00	-18.77	AVG	P	
12	2.8905	14.66	12.31	26.97	46.00	-19.03	AVG	P	

4. RADIATED EMISSION TEST

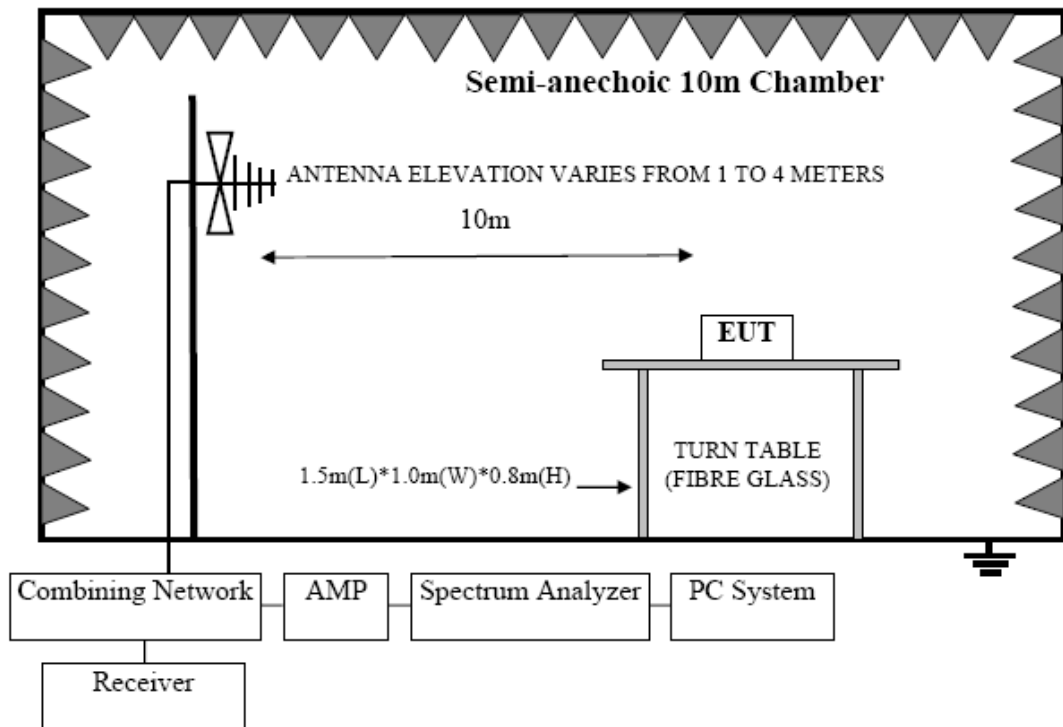
4.1. Test Equipments

4.1.1. For frequency range 30MHz~1000MHz (At Semi Anechoic Chamber)

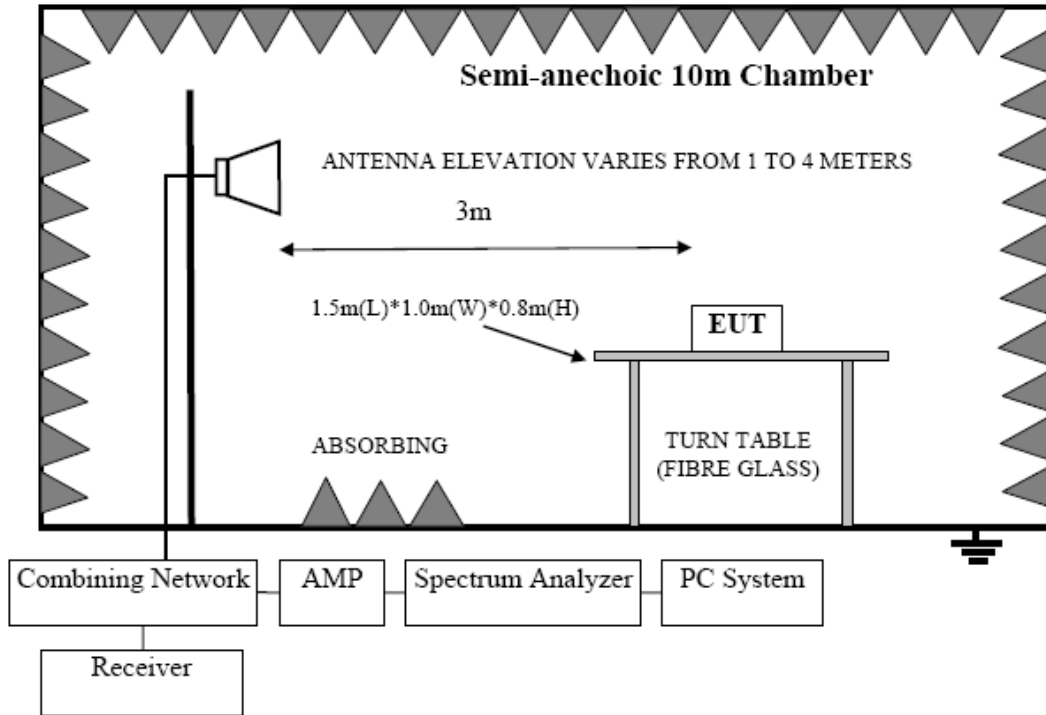
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Test Receiver	Rohde&Schwarz	ESCI	101165	May 06, 24	1 Year
2	Amplifier	QuieTek	AP/0100A	0506005	May 06, 24	1 Year
3	Coaxial Switch	ANRITSUCORP	MP5913	6200615651	N/A	N/A
4	Bilog Antenna	Schwarzbeck	VULB 9168	9168-438	May 06, 24	1 Year
5	Spectrum Analyzer	Agilent	E4407B	MY49510055	May 06, 24	1 Year
6	Horn Antenna	Schwarzbeck	BBHA 9120 D	BBHA 9120 D(1201)	May 06, 24	1 Year
7	Amplifier	Quietek	AP-180C	CHM-0602012	May 06, 24	1 Year

4.2. Block Diagram of Test Setup

4.2.1. In Semi Anechoic Chamber (3m) Test Setup Diagram for 30MHz~1000MHz



4.2.2. In Semi Anechoic Chamber (3m) Test Setup Diagram for 1000MHz~6000MHz



4.3. Radiated Emission Limit

All emanations from a devices or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

Frequency MHz	Distance (Meters)	Field Strengths Limits dB(μV)/m
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216 ~ 960	3	46.0
960 ~ 1000	3	54.0
1000 ~ 6000	3	74(Peak) 54(Average)

- Remark: (1) Emission level = Read level+Antenna Factor-Preamplifier Factor +Cable Loss
 (2) The smaller limit shall apply at the cross point between two frequency bands.
 (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.4. EUT Configuration on Test

The following equipment are installed on Radiated Emission Test to meet the commission requirements and operating regulations in a manner that tends to maximize its emission characteristics in normal application.

4.4.1. Support Equipments : As Tested Supporting System Detail, in Section 2.2.

4.5. Operating Condition of EUT

4.5.1. Setup the EUT and simulator as shown as Section 5.2.

4.5.2. Turned on the power of all equipment.

4.5.3. Let the EUT work in test mode 15 minutes after taking the test.

4.6. Test Procedure

The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. An antenna was located 3m from the EUT on an adjustable mast. A pre-scan was first performed in order to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all the interface cables were changed according to EN ANSI C63.4 on Radiated Emission test.

The bandwidth setting on the test receiver (Rohde&Schwarz Test Receiver ESCI) is 120 kHz.

4.7. Test result

PASS. (All emissions not reported below are too low against the prescribed limits. Only report the worst result for all 4 models)

The EUT with the following test mode was tested and read QP values, the test results are listed in next pages.

Temperature: 24.2°C Humidity: 54%

The details of test mode is as follows :

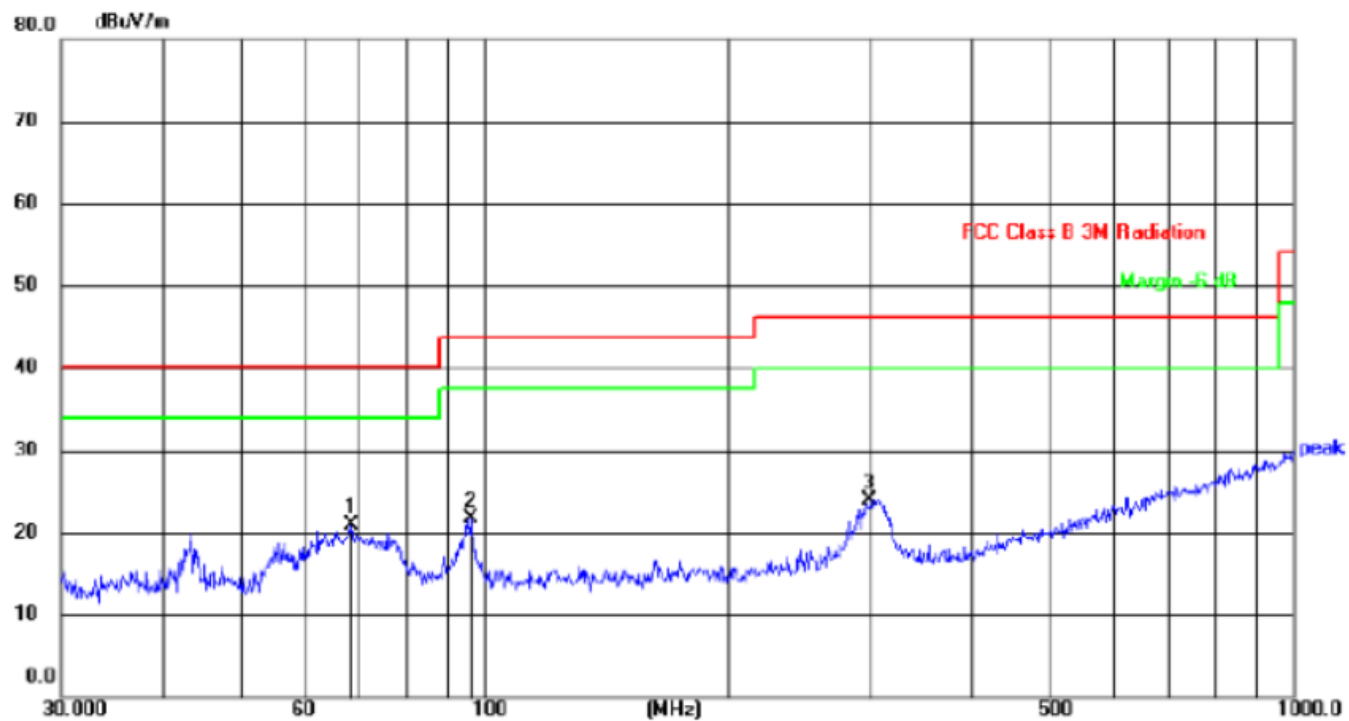
No.	Test Mode
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1	Normal working
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For frequency range 1GHz~6GHz

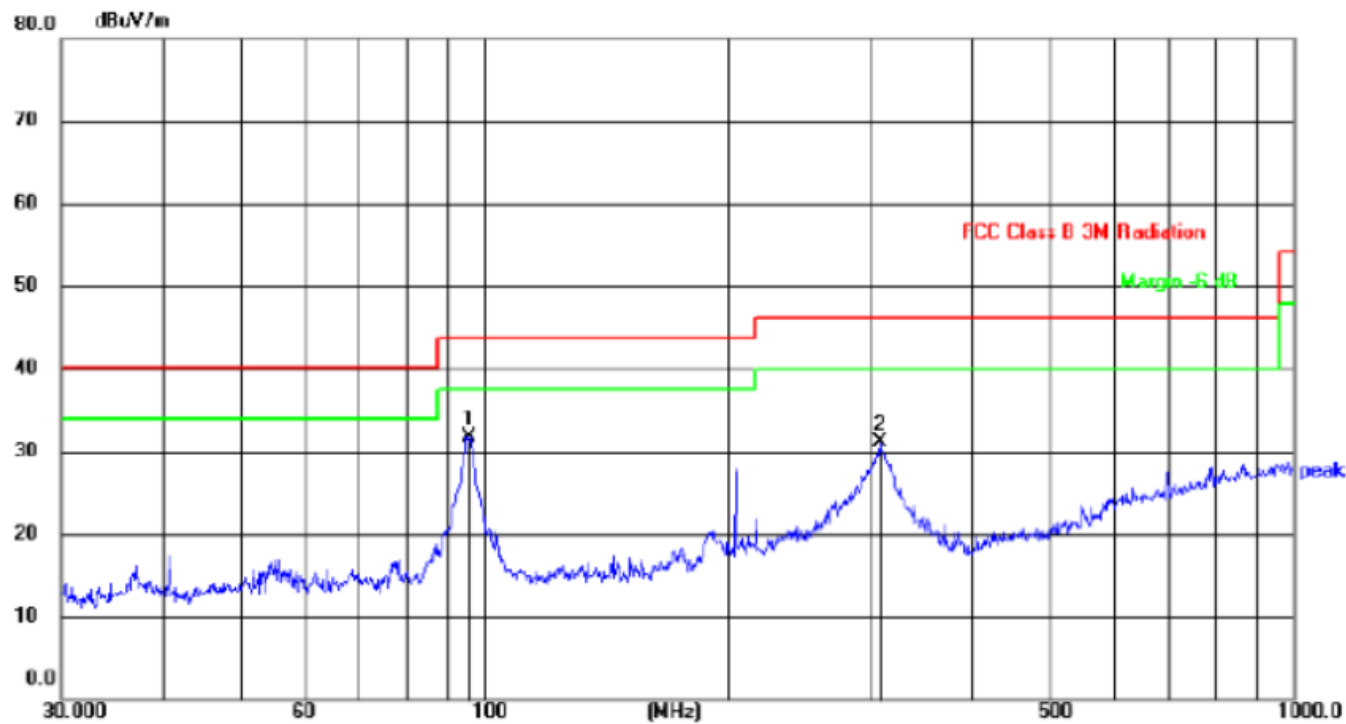
The highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. So the frequency rang 1GHz-6GHz radiation test not applicable.

Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	68.3908	41.51	-20.58	20.93	40.00	-19.07	peak				
2	96.0986	41.74	-20.01	21.73	43.50	-21.77	peak				
3	300.3672	41.97	-18.02	23.95	46.00	-22.05	peak				

Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	95.4270	51.85	-20.15	31.70	43.50	-11.80	peak				
2	307.8313	49.48	-18.36	31.12	46.00	-14.88	peak				

5. Photo of the EUT



Photo 1

-----THE END OF REPORT-----