



FCC Part 15, Subpart B, Class B  
ZHENGZHOU YSAIR TECHNOLOGY CO.,LTD  
Wireless Calling System-Alarm Receiver  
Test Model: TH103

Additional Model No.: TH101, TH102, TH104

Prepared for : ZHENGZHOU YSAIR TECHNOLOGY CO.,LTD  
Address : ROOM 709, SANJIANG BUILDING, NO.170  
NANYANG ROAD, HUIJI DISTRICT, ZHENGZHOU  
HENAN CHINA

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Date of receipt of test sample : October 25, 2022  
Number of tested samples : 2  
Sample No. : A102522005  
Serial number : Prototype  
Date of Test : October 25, 2022 ~ October 27, 2022  
Date of Report : October 28, 2022





FCC Part 15, Subpart B, Class B
FCC 47 CFR Part 15 Subpart B, Class B, ANSI C63.4 -2014

Report Reference No. .... : LCSA102522005E

Date Of Issue ..... : October 28, 2022

Testing Laboratory Name .... : Shenzhen LCS Compliance Testing Laboratory Ltd.

Address ..... : 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park
Yabianxueziwei, Shajing Street, Baoan District, Shenzhen,
518000, China

Testing Location/ Procedure... : Full application of Harmonised standards ■
Partial application of Harmonised standards □
Other standard testing method □

Applicant's Name..... : ZHENGZHOU YSAIR TECHNOLOGY CO.,LTD

Address ..... : ROOM 709, SANJIANG BUILDING, NO.170 NANYANG
ROAD, HUIJI DISTRICT, ZHENGZHOU HENAN CHINA

Test Specification

Standard..... : FCC 47 CFR Part 15 Subpart B, Class B, ANSI C63.4
-2014

Test Report Form No..... : LCSEMC-1.0

TRF Originator..... : Shenzhen LCS Compliance Testing Laboratory Ltd.

Master TRF..... : Dated 2011-03

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context.

Test Item Description..... : Wireless Calling System-Alarm Receiver

Test Model ..... : TH103

Trade Mark ..... : RETEKESS

Input: 12V~1A

Ratings ..... : For Adapter Input: 100-240V~, 50/60Hz, 0.5A Max

For Adapter Output: 12V~1000mA

Result ..... : Positive

Compiled by:

Vera Deng

Vera Deng/ Administrator

Supervised by:

Cary Luo

Cary Luo/ Technique principal

Approved by:

Gavin Liang

Gavin Liang/ Manager





### FCC -- TEST REPORT

**Test Report No. : LCSA102522005E**

October 28, 2022

Date of issue

Test Model ..... : TH103

EUT..... : Wireless Calling System-Alarm Receiver

**Applicant..... : ZHENGZHOU YSAIR TECHNOLOGY CO.,LTD**

Address..... : ROOM 709, SANJIANG BUILDING, NO.170 NANYANG ROAD, HUIJI DISTRICT, ZHENGZHOU HENAN CHINA

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**Manufacturer..... : ZHENGZHOU YSAIR TECHNOLOGY CO.,LTD**

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Telephone..... : /

Fax..... : /

**Factory..... : Henan Eshow Electronic Commerce Co., Ltd.**

Address..... : Room 722, Sanjiang Building, No.170 Nanyang Road, Huiji District, Zhengzhou, Henan, China

Telephone..... : /

Fax..... : /

**Test Result** according to the standards on page 6: **Positive**

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.





### Revision History

Report Version	Issue Date	Revision Content	Revised By
000	October 28, 2022	Initial Issue	---





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# 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
Conducted disturbance at mains terminals	FCC 47 CFR Part 15 Subpart B, Class B, ANSI C63.4 -2014	Class B	PASS
Radiated disturbance	FCC 47 CFR Part 15 Subpart B, Class B, ANSI C63.4 -2014	Class B	PASS
N/A is an abbreviation for Not Applicable.			

Test mode:		
Mode 1	433.92MHz(RX) operation	Record





## 2. GENERAL INFORMATION

### 2.1. Description of Device (EUT)

- EUT : Wireless Calling System-Alarm Receiver
- Trade Mark : RETEKESS
- Test Model : TH103
- Additional Model No. : TH101, TH102, TH104
- Model Declaration : PCB board, structure and internal of these model(s) are the same, So no additional models were tested
- Power Supply : Input: 12V $\overline{=}$ 1A  
For Adapter Input: 100-240V~, 50/60Hz, 0.5A Max  
For Adapter Output: 12V $\overline{=}$ 1000mA
- Highest internal frequency (Fx) : Fx >108 MHz
- Antenna(Only RX) : Internal antenna
- Antenna Gain : 0dBi(Max.)

### 2.2. Support Equipment List

Manufacturer	Description	Model	Serial Number	Certificate
Shenzhen Boshenggao Technology Co Ltd	ADAPTER	BSG012D-120 1000US	---	FCC

### 2.3 External I/O Cable

I/O Port Description	Quantity	Cable
Power Port	1	N/A





### 2.4. Description of Test Facility

#### Site Description

EMC Lab. : NVLAP Accreditation Code is 600167-0.  
 FCC Designation Number is CN5024.  
 CAB identifier is CN0071.  
 CNAS Registration Number is L4595.  
 FCC Test Firm Registration Number: 254912.

### 2.5. Statement of the 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 CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS 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.

### 2.6. Measurement Uncertainty

Test	Parameters	Expanded Uncertainty (Ulab)	Expanded Uncertainty (Ucisp)
Conducted Emission	Level accuracy (9kHz to 150kHz) (150kHz to 30MHz)	± 2.63 dB ± 2.35 dB	± 3.8 dB ± 3.4 dB
Radiated Emission	Level accuracy (30MHz to 1000MHz)	± 3.48 dB	± 5.3 dB
Radiated Emission	Level accuracy (above 1000MHz)	± 3.90 dB	± 5.2 dB

(1) Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.

(2) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.





### 3. TEST RESULTS

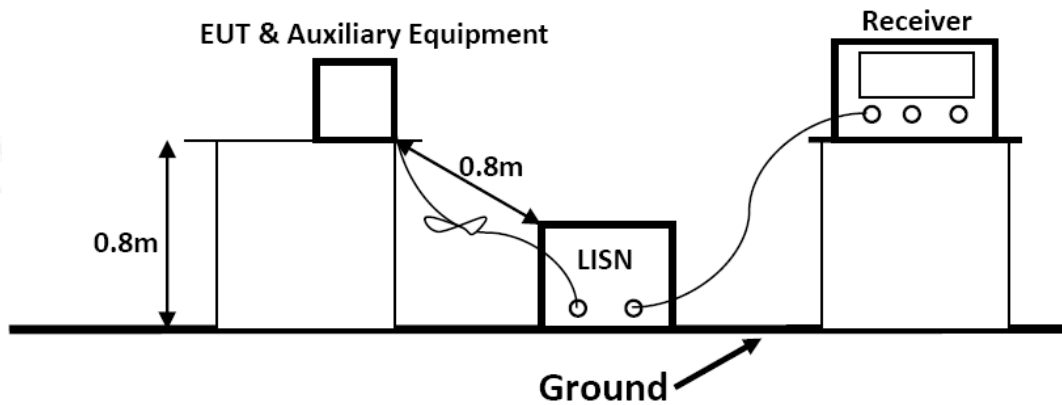
#### 3.1. POWER LINE CONDUCTED EMISSION MEASUREMENT

##### 3.1.1. Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	EMI Test Software	AUDIX	E3	/	N/A	N/A
2	EMI Test Receiver	R&S	ESR3	102312	2022-02-18	2023-02-17
3	Artificial Mains	R&S	ENV216	101288	2022-06-16	2023-06-15
4	Pulse Limiter	R&S	ESH3-Z2	102750-NB	2022-08-17	2023-08-16
5	Impedance Stabilization Network	TESEQ	ISN T800	45130	2021-11-16	2022-11-15

##### 3.1.2. Block Diagram of Test Setup



##### 3.1.3. Test Standard

###### Power Line Conducted Emission Limits (Class B)

Frequency (MHz)			Limit (dB $\mu$ V)	
			Quasi-peak Level	Average Level
0.15	~	0.50	66.0 ~ 56.0 *	56.0 ~ 46.0 *
0.50	~	5.00	56.0	46.0
5.00	~	30.00	60.0	50.0

NOTE1-The lower limit shall apply at the transition frequencies.  
 NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.





### 3.1.4.EUT Configuration on Test

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

### 3.1.5.Operating Condition of EUT

3.1.5.1.Setup the EUT as shown on Section 3.1.2

3.1.5.2.Turn on the power of all equipments.

3.1.5.3.Let the EUT work in measuring Mode 1 and measure it.

### 3.1.6.Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC/ANSI C63.4-2014 on Conducted Emission Measurement.

The bandwidth of the test receiver is set at 9kHz.

The frequency range from 150kHz to 30MHz is investigated

### 3.1.7.Test Results

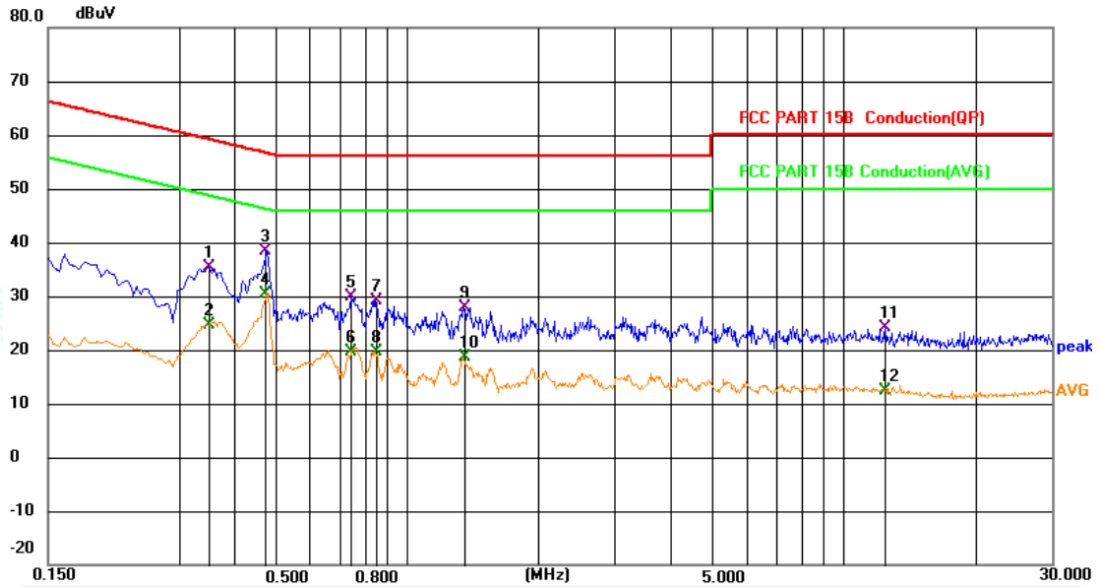
**PASS.**

The test result please refer to the next page.





<b>Test Model</b>	TH103	<b>Test Mode</b>	Mode 1
<b>Environmental Conditions</b>	23.8°C, 53.0% RH	<b>Test Engineer</b>	Taylor Hu
<b>Pol</b>	Line	<b>Test Voltage</b>	AC 120V/60Hz

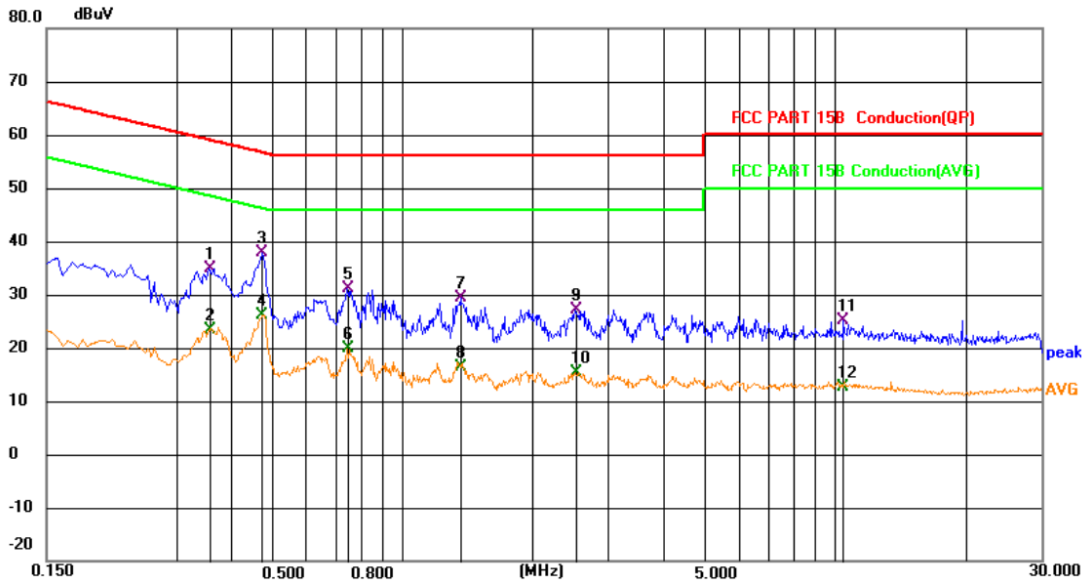


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.3526	15.80	19.63	35.43	58.90	-23.47	QP	
2		0.3526	5.10	19.63	24.73	48.90	-24.17	AVG	
3		0.4741	18.86	19.64	38.50	56.44	-17.94	QP	
4	*	0.4741	10.65	19.64	30.29	46.44	-16.15	AVG	
5		0.7440	10.30	19.65	29.95	56.00	-26.05	QP	
6		0.7440	0.05	19.65	19.70	46.00	-26.30	AVG	
7		0.8476	9.41	19.64	29.05	56.00	-26.95	QP	
8		0.8476	-0.13	19.64	19.51	46.00	-26.49	AVG	
9		1.3471	8.28	19.66	27.94	56.00	-28.06	QP	
10		1.3471	-1.05	19.66	18.61	46.00	-27.39	AVG	
11		12.4756	4.39	19.84	24.23	60.00	-35.77	QP	
12		12.4756	-7.38	19.84	12.46	50.00	-37.54	AVG	





<b>Test Model</b>	TH103	<b>Test Mode</b>	Mode 1
<b>Environmental Conditions</b>	23.8°C, 53.0% RH	<b>Test Engineer</b>	Taylor Hu
<b>Pol</b>	Neutral	<b>Test Voltage</b>	AC 120V/60Hz



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.3571	15.25	19.63	34.88	58.80	-23.92	QP	
2		0.3571	3.67	19.63	23.30	48.80	-25.50	AVG	
3	*	0.4741	18.12	19.64	37.76	56.44	-18.68	QP	
4		0.4741	6.40	19.64	26.04	46.44	-20.40	AVG	
5		0.7440	11.46	19.65	31.11	56.00	-24.89	QP	
6		0.7440	0.15	19.65	19.80	46.00	-26.20	AVG	
7		1.3651	9.68	19.66	29.34	56.00	-26.66	QP	
8		1.3651	-3.20	19.66	16.46	46.00	-29.54	AVG	
9		2.5126	7.34	19.68	27.02	56.00	-28.98	QP	
10		2.5126	-4.38	19.68	15.30	46.00	-30.70	AVG	
11		10.4821	5.16	19.85	25.01	60.00	-34.99	QP	
12		10.4821	-7.13	19.85	12.72	50.00	-37.28	AVG	

\*\*\*Note: 1) Pre-scan all modes and recorded the worst case results in this report.

2) Margin=Reading level + Correct – Limit, Correct Factor= Lism Factor+Cable Factor



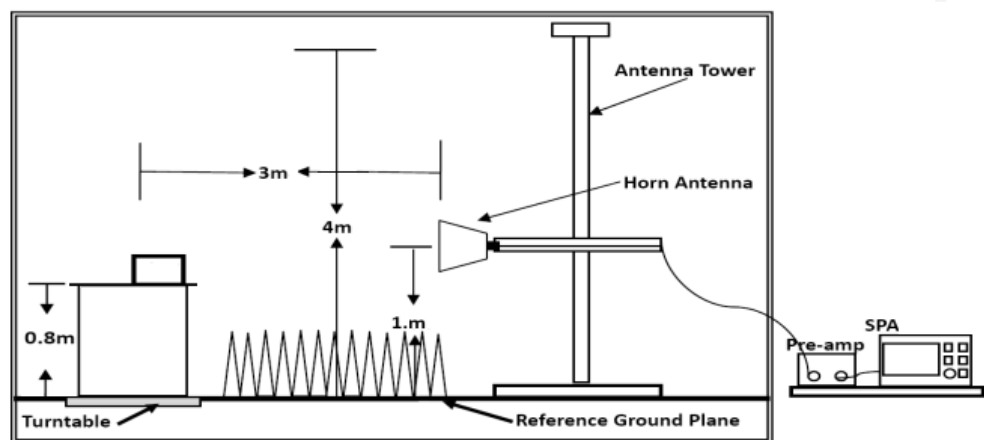
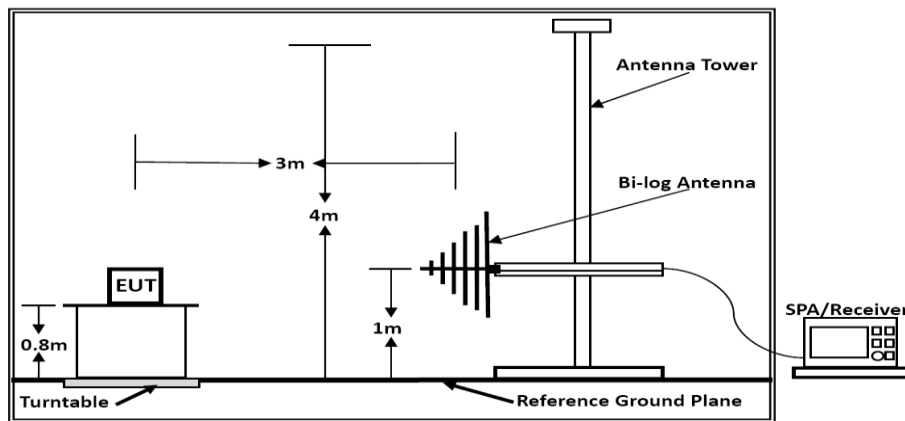
### 3.2. Radiated emission Measurement

#### 3.2.1. Test Equipment

The following test equipments are used during the radiated emission measurement:

Item	Test equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	EMI Test Software	AUDIX	E3	/	N/A	N/A
2	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2022-06-16	2023-06-15
3	Positioning Controller	Max-Full	MF7802BS	MF780208586	N/A	N/A
4	By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2021-09-12	2024-09-11
5	Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2021-09-05	2024-09-04
6	EMI Test Receiver	R&S	ESPI	101940	2022-08-17	2023-08-16
7	Broadband Preamp	/	BP-01M18G	P190501	2022-06-16	2023-06-15
8	MXA Signal Analyzer	Agilent	N9020A	MY50510140	2021-11-15	2022-11-14
9	RS SPECTRUM ANALYZER	R&S	FSP40	100503	2021-11-16	2022-11-15

#### 3.2.2. Block Diagram of Test Setup





### 3.2.3. Radiated Emission Limit (Class B)

Limits for Radiated Disturbance Below 1GHz

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
30 ~ 88	3	100	40
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46
960 ~ 1000	3	500	54
Remark: (1) Emission level (dB)μV = 20 log Emission level μV/m (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.			
Limits for Radiated Emission Above 1GHz			
Frequency (MHz)	Distance (Meters)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)
Above 1000	3	74	54
***Note: The lower limit applies at the transition frequency.			

### 3.2.4. EUT Configuration on Measurement

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

### 3.2.5. Operating Condition of EUT

3.2.5.1. Setup the EUT as shown in Section 3.2.2.

3.2.5.2. Let the EUT work in test Mode 1 and measure it.

### 3.2.6. Test Procedure

EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated by-log antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2014 on radiated emission measurement.

### 3.2.7. Measuring Instruments and Setting

Please refer to equipment list in this report. The following table is the setting of spectrum analyzer and receiver





Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB/VB 200Hz/1KHz for QP/AVG
Start ~ Stop Frequency	150kHz~30MHz / RB/VB 9kHz/30KHz for QP/AVG
Start ~ Stop Frequency	30MHz~1000MHz / RB/VB 120kHz/1MHz for QP

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 1/B kHz for Average
RB / VB (Emission in non-restricted band)	1MHz / 1MHz for Peak, 1 MHz / 1/B kHz for Average

The frequency range from 30MHz to 1000MHz and above 1000MHz is checked.

### 3.2.8. Radiated Emission Noise Measurement Result

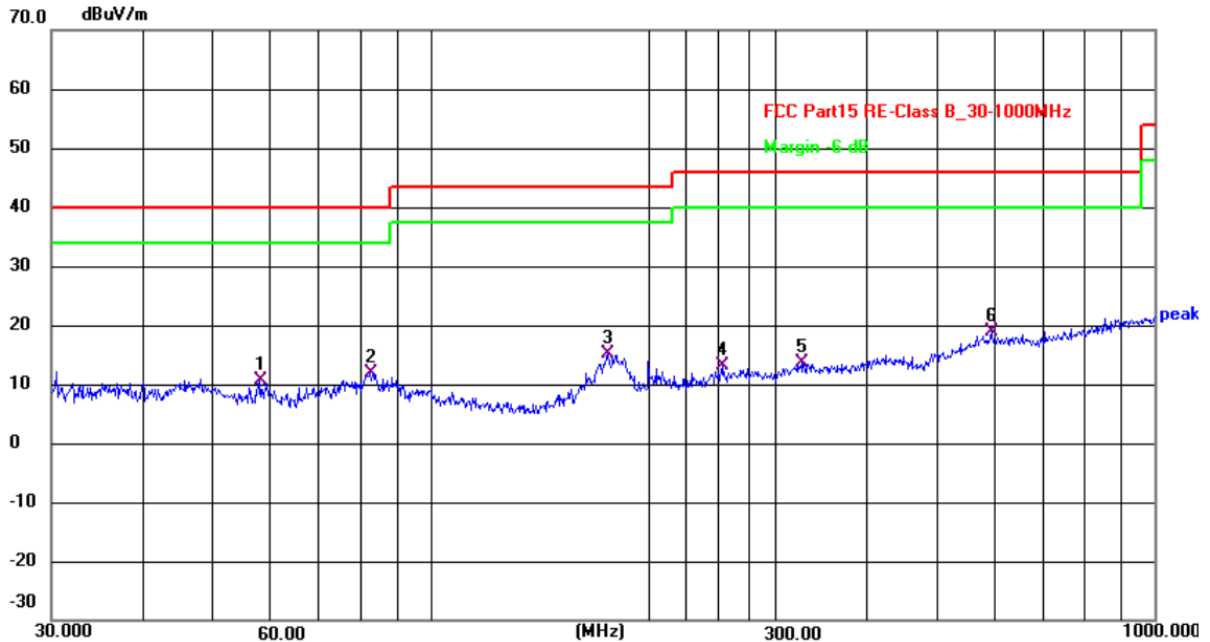
**PASS.**

The scanning waveforms please refer to the next page.





<b>Test Model</b>	TH103	<b>Test Mode</b>	Mode 1
<b>Environmental Conditions</b>	23.8°C, 52.3% RH	<b>Detector Function</b>	Quasi-peak
<b>Pol</b>	Vertical	<b>Distance</b>	3m
<b>Test Engineer</b>	Taylor Hu	<b>Test Voltage</b>	AC 120V/60Hz



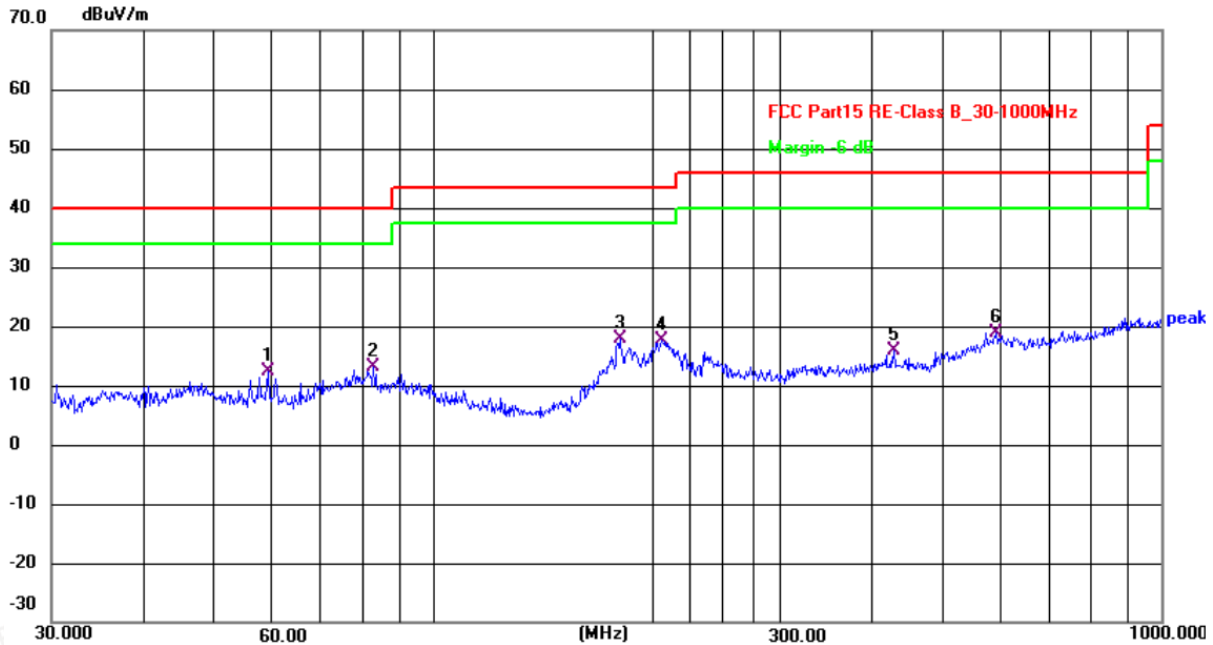
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	58.2029	29.20	-18.53	10.67	40.00	-29.33	QP
2	82.6481	31.53	-19.62	11.91	40.00	-28.09	QP
3	175.6516	34.23	-19.05	15.18	43.50	-28.32	QP
4	253.8366	28.65	-15.57	13.08	46.00	-32.92	QP
5	325.5958	27.79	-14.21	13.58	46.00	-32.42	QP
6	595.1327	29.37	-10.52	18.85	46.00	-27.15	QP







<b>Test Model</b>	TH103	<b>Test Mode</b>	Mode 1
<b>Environmental Conditions</b>	23.8°C, 52.3% RH	<b>Detector Function</b>	Quasi-peak
<b>Pol</b>	Horizontal	<b>Distance</b>	3m
<b>Test Engineer</b>	Taylor Hu	<b>Test Voltage</b>	AC 120V/60Hz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	59.4405	31.14	-18.75	12.39	40.00	-27.61	QP
2	82.9384	32.64	-19.59	13.05	40.00	-26.95	QP
3	180.6488	36.49	-18.60	17.89	43.50	-25.61	QP
4	206.3975	34.79	-17.23	17.56	43.50	-25.94	QP
5	429.5228	29.56	-13.70	15.86	46.00	-30.14	QP
6	593.0496	29.41	-10.56	18.85	46.00	-27.15	QP

Note: 1). Pre-Scan all mode, Thus record worse case mode result in this report.

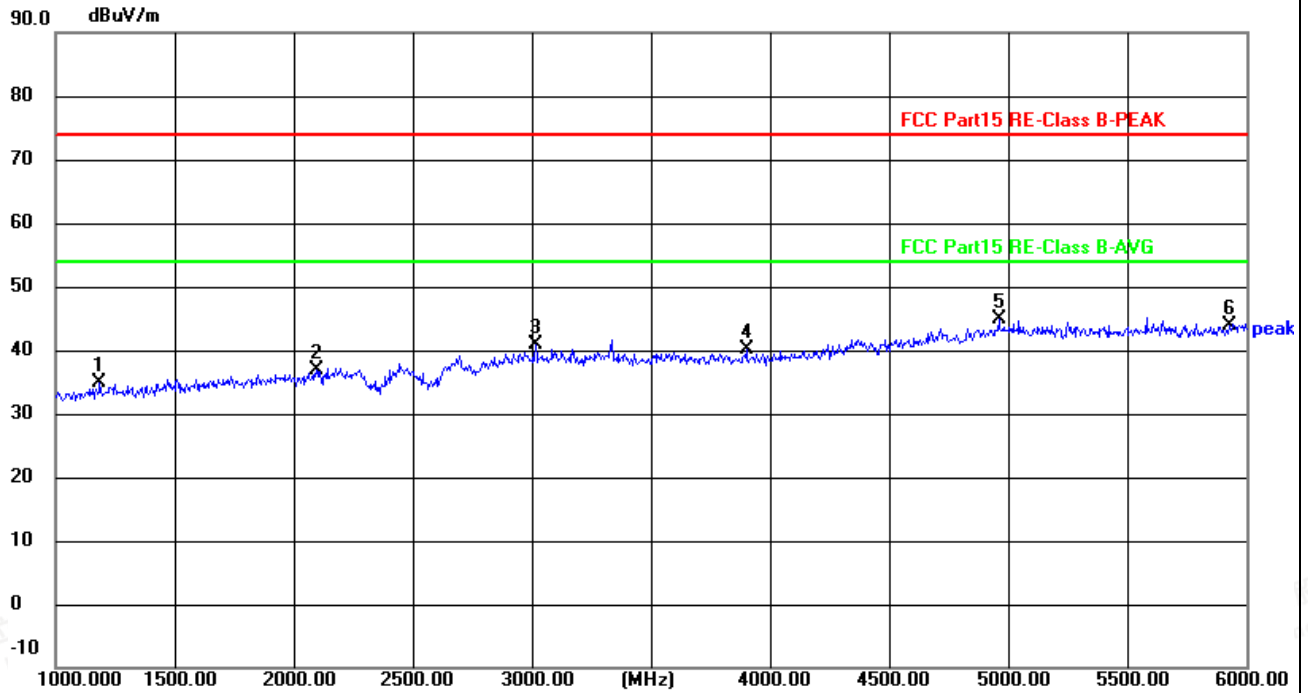
2) Margin=Reading level + Correct – Limit

Correct Factor=Antenna Factor+Cable Factor- Pre-amplifier Factor





<b>Test Model</b>	TH103	<b>Test Mode</b>	Mode 1 (Above 1GHz)
<b>Environmental Conditions</b>	23.8°C, 52.3% RH	<b>Detector Function</b>	Peak + AV
<b>Pol</b>	Vertical	<b>Distance</b>	3m
<b>Test Engineer</b>	Taylor Hu	<b>Test Voltage</b>	AC 120V/60Hz

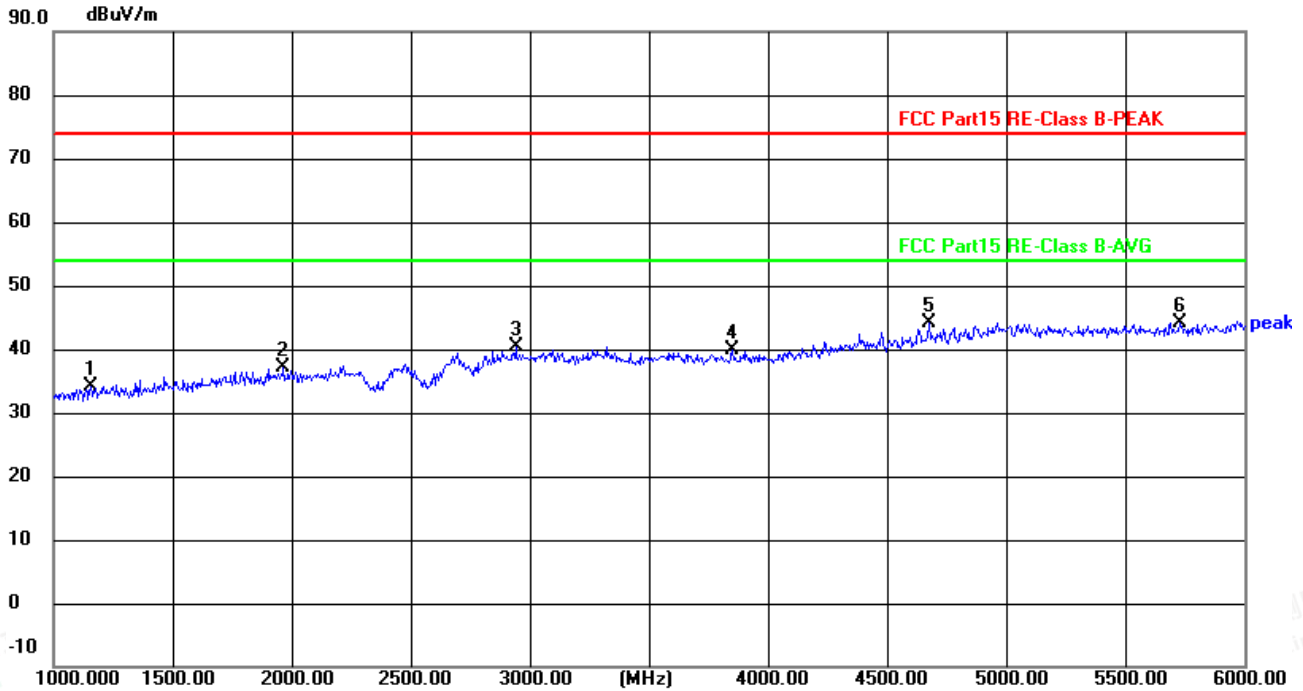


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1185.000	50.20	-15.22	34.98	74.00	-39.02	peak
2	2095.000	49.72	-12.77	36.95	74.00	-37.05	peak
3	3015.000	50.50	-9.59	40.91	74.00	-33.09	peak
4	3900.000	48.79	-8.71	40.08	74.00	-33.92	peak
5	4960.000	49.10	-4.32	44.78	74.00	-29.22	peak
6	5930.000	47.59	-3.62	43.97	74.00	-30.03	peak





<b>Test Model</b>	TH103	<b>Test Mode</b>	Mode 1 (Above 1GHz)
<b>Environmental Conditions</b>	23.8°C, 52.3% RH	<b>Detector Function</b>	Peak + AV
<b>Pol</b>	Horizontal	<b>Distance</b>	3m
<b>Test Engineer</b>	Taylor Hu	<b>Test Voltage</b>	AC 120V/60Hz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1155.000	49.43	-15.26	34.17	74.00	-39.83	peak
2	1965.000	50.42	-13.29	37.13	74.00	-36.87	peak
3	2940.000	50.12	-9.80	40.32	74.00	-33.68	peak
4	3850.000	48.69	-8.80	39.89	74.00	-34.11	peak
5	4675.000	49.76	-5.72	44.04	74.00	-29.96	peak
6	5730.000	47.45	-3.42	44.03	74.00	-29.97	peak

Note: 1. Pre-Scan all mode, Thus record worse case mode result in this report.

2) Margin=Reading level + Correct – Limit

Correct Factor=Antenna Factor+Cable Factor- Pre-amplifier Factor





#### 4. TEST SETUP PHOTOGRAPHS OF EUT

Please refer to separated files for Test Setup Photos of the EUT.

#### 5. EXTERIOR PHOTOGRAPHS OF THE EUT

Please refer to separated files for External Photos of the EUT.

#### 6. INTERIOR PHOTOGRAPHS OF THE EUT

Please refer to separated files for Internal Photos of the EUT.

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

