FCC TEST REPORT
FCC ID: 2AWX7-FYSJP101CWL

Product	:	Face Recognition Infrared Thermal Imaging Thermometer
Model Name	:	FY-SJP101CWL FY-SJP101CW FY-SJP101S FY-SJP101SL FY-SJP08CWL
Brand	:	FUYING
Report No.	:	PTC20091803802E-FC01

Prepared for

Fuying Technology (Shenzhen) Co., LTD.

Floor 6,Building B,Chengjia Technology Park,Fengxin Road,Xinhu Street, Guangming New District,Shenzhen

Prepared by

Precise Testing & Certification Corp., Ltd.

Building 1, No.6 Tongxin Road, Dongcheng Street, Dongguan,China

1 TEST RESULT CERTIFICATION

Applicant's name	:	Fuying Technology (Shenzhen) Co., LTD.
Address	:	Floor 6,Building B,Chengjia Technology Park,Fengxin Road,Xinhu Street, Guangming New District,Shenzhen
Manufacture's name	:	Fuying Technology (Shenzhen) Co., LTD.
Address	:	Floor 6,Building B,Chengjia Technology Park,Fengxin Road,Xinhu Street, Guangming New District,Shenzhen
Product name	:	Face Recognition Infrared Thermal Imaging Thermometer
Model name Serial Model	:	FY-SJP101CWL FY-SJP101CW FY-SJP101S FY-SJP101SL FY-SJP08CWL
Standards	:	FCC CFR47 Part 15 Subpart C
Test procedure	:	ANSI C63.10:2013
Test Date	:	Oct. 11, 2020 to Oct. 26, 2020
Date of Issue	:	Oct. 27, 2020
Test Result	:	Pass

This device described above has been tested by PTC, 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.

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Test Engineer:

Leo Yang / Engineer

Technical Manager:

Chris Du / Manager

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2 Summary of test results

Description of Test Item	Standard	Results
20dB Bandwidth and 99% Bandwidth	FCC Part 15: 15.215 ANSI C63.10:2013	PASS
Frequency tolerance	FCC Part 15:15.225 ANSI C63.10:2013	PASS
Radiated Emission	FCC Part 15: 15.209 FCC Part 15: 15.225 ANSI C63.10:2013	PASS
Power Line Conducted Emissions	FCC Part 15: 15.207 ANSI C63.10:2013	PASS
Antenna requirement	FCC Part 15: 15.203 ANSI C63.10:2013	PASS
Note: N/A is an abbreviation for Not Applicable.		

3 General test information

3.1 Description of EUT

Product Name	:	**Face Recognition Infrared Thermal Imaging Thermometer**
Model Name	:	FY-SJP101CWL FY-SJP101CW FY-SJP101S FY-SJP101SL FY-SJP08CWL
Operation Frequency	:	13.56MHz
Type of Modulation	:	ASK
Antenna installation	:	Inductive loop coil antenna
Power supply	:	POWER ADAPTER Model: GA 1202000 Input: AC 120V,60Hz 0.6A Max Output: DC 12V 2000mA
Hardware Version	:	N/A
Software Version	:	N/A

3.2 Test laboratory

Precise Testing & Certification Corp., Ltd.

Building 1, No.6 Tongxin Road, Dongcheng Street, Dongguan,China

FCC Registration Number: 790290

A2LA Certificate No.: 4408.01

IC Registration Number: 12191A-1

4 Measurement uncertainty

4.1 Equipments List

RF Conducted Test

Name of Equipment	Manufacturer	Model	Serial No.	Characteristics	Last Calibration
MXG Signal Analyzer	Agilent	N9020A	MY56070279	10Hz-30GHz	Sep. 18, 2020
Coaxial Cable	CDS	79254	46107086	10Hz-30GHz	Sep. 18, 2020
Power Meter	Anritsu	ML2495A	0949003	300MHz-40GHz	Sep. 18, 2020
Power Sensor	Anritsu	MA2411B	0917017	300MHz-40GHz	Sep. 18, 2020

Remark: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

Radiated Emissions

Name of Equipment	Manufacturer	Model	Serial No.	Characteristics	Last Calibration
EMI Test Receiver	Rohde&Schwarz	ESCI	101417	9KHz-3GHz	Sep. 18, 2020
Loop Antenna	Schwarzbeck	FMZB 1519	012	9 KHz -30MHz	Sep. 18, 2020
Bilog Antenna	SCHWARZBECK	VULB9160	9160-3355	25MHz-2GHz	Sep. 18, 2020
Preamplifier (low frequency)	SCHWARZBECK	BBV 9475	9745-0013	1MHz-1GHz	Sep. 18, 2020
Cable	Schwarzbeck	PLF-100	549489	9KHz-3GHz	Sep. 18, 2020
Spectrum Analyzer	Agilent	E4407B	MY45109572	9KHz-40GHz	Sep. 18, 2020
Horn Antenna	SCHWARZBECK	9120D	9120D-1246	1GHz-18GHz	Sep. 18, 2020
Power Amplifier	LUNAR EM	LNA1G18-40	J10100000081	1GHz-26.5GHz	Sep. 18, 2020
Horn Antenna	SCHWARZBECK	BBHA 9170	9170-181	14GHz-40GHz	Sep.25, 2019
Amplifier	SCHWARZBECK	BBV 9721	9721-205	18GHz-40GHz	Sep. 18, 2020
Cable	H+S	CBL-26	N/A	1GHz-26.5GHz	Sep. 18, 2020
RF Cable	R&S	R204	R21X	1GHz-40GHz	Sep. 18, 2020
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	9K-30MHz	Sep. 18, 2020

Conducted Emissions

Name of Equipment	Manufacturer	Model	Serial No.	Characteristics	Last Calibration
EMI Test Receiver	Rohde&Schwarz	ESCI	101417	9KHz-3GHz	Sep. 18, 2020
Artificial Mains Network	Rohde&Schwarz	L2-16B	000WX31025	9KHz-300MHz	Sep. 18, 2020
Artificial Mains Network	Rohde&Schwarz	ENV216	101342	9KHz-300MHz	Sep. 18, 2020

4.2 Measurement Uncertainty

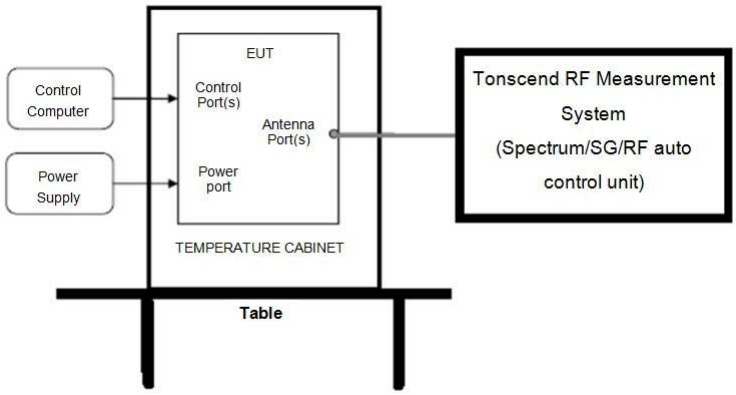
Parameter	Uncertainty
RF output power, conducted	±1.0dB
Power Spectral Density, conducted	±2.2dB
Radio Frequency	± 1 x 10^{-6}
Bandwidth	± 1.5 x 10^{-6}
Time	±2%
Duty Cycle	±2%
Temperature	±1°C
Humidity	±5%
DC and low frequency voltages	±3%
Conducted Emissions (150kHz~30MHz)	±3.64dB
Radiated Emission(30MHz~1GHz)	±5.03dB
Radiated Emission(1GHz~25GHz)	±4.74dB

4.3 Test environment conditions

/	Normal Conditions	Extreme Conditions
Temperature range:	21-25℃	0℃ and 50℃
Humidity range:	40-75%	40-75%
Pressure range:	86-106kPa	86-106kPa
Power supply	AC 120V 60Hz	AC 102V and AC 138V
Note: The Extreme temperature range and extreme voltages are declared by the manufacturer.		

5 20dB Bandwidth and 99% Bandwidth

5.1 Block diagram of test setup



5.2 Limits

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in § 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

5.3 Test Procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) Set the spectrum analyzer as follows:

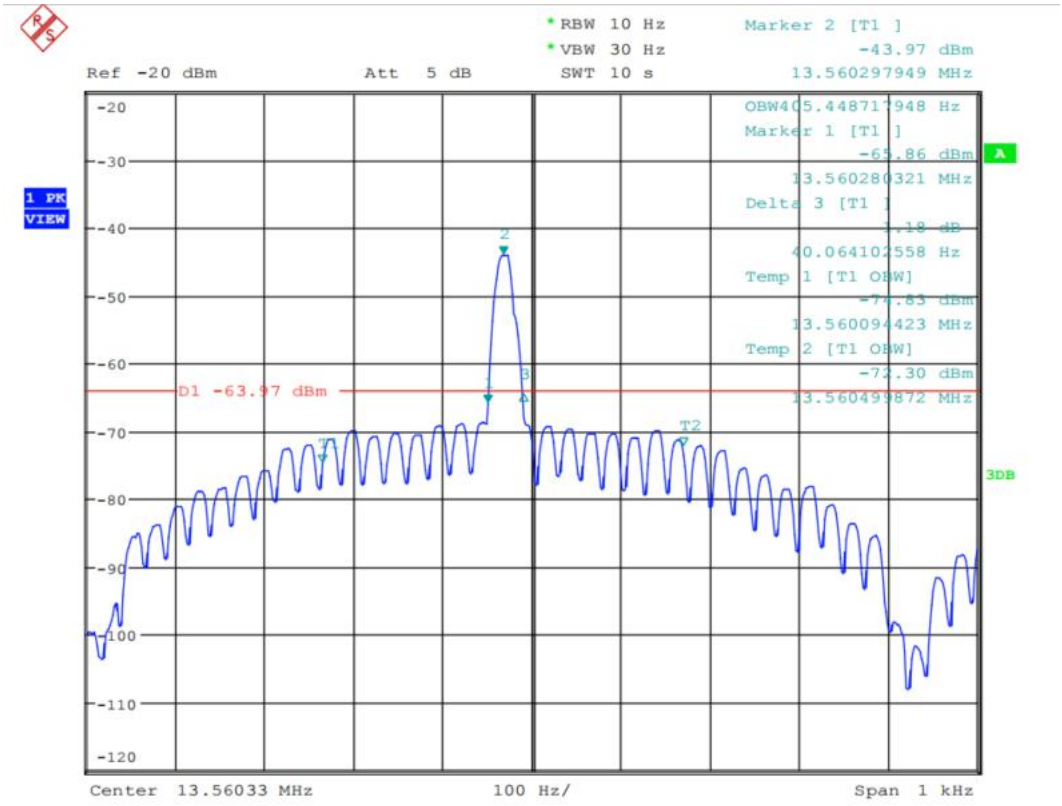
RBW:	10Hz
VBW:	30Hz
Detector Mode:	Peak
Sweep time:	auto
Trace mode	Max hold

(3) Allow the trace to stabilize, measure the 20dB and 99% bandwidth of signal.

5.4 Test Result

Mode	Freq. (MHz)	20dB bandwidth Result (Hz)	99% bandwidth Result (Hz)	Conclusion
ASK	13.56	40.064	405.449	PASS

5.5 Original test data

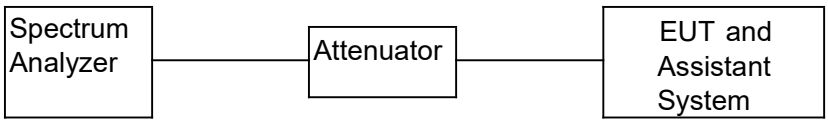


6 Frequency Tolerance

6.1 Limit

As contained in § 15.225 the frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency over a temperature variation of −20 degrees to +50 degrees C at normal supply Voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

6.2 Block diagram of test setup



6.3 Test Procedure

(1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the

Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the channel under test.

Resolution BW: 10 KHz.

Video BW: 10 KHz.

Span: 1MHz.

Detector: Peak.

Trace Mode: Max Hold.

(2) When the trace is complete, find the peak value of the power envelope and record the frequency.

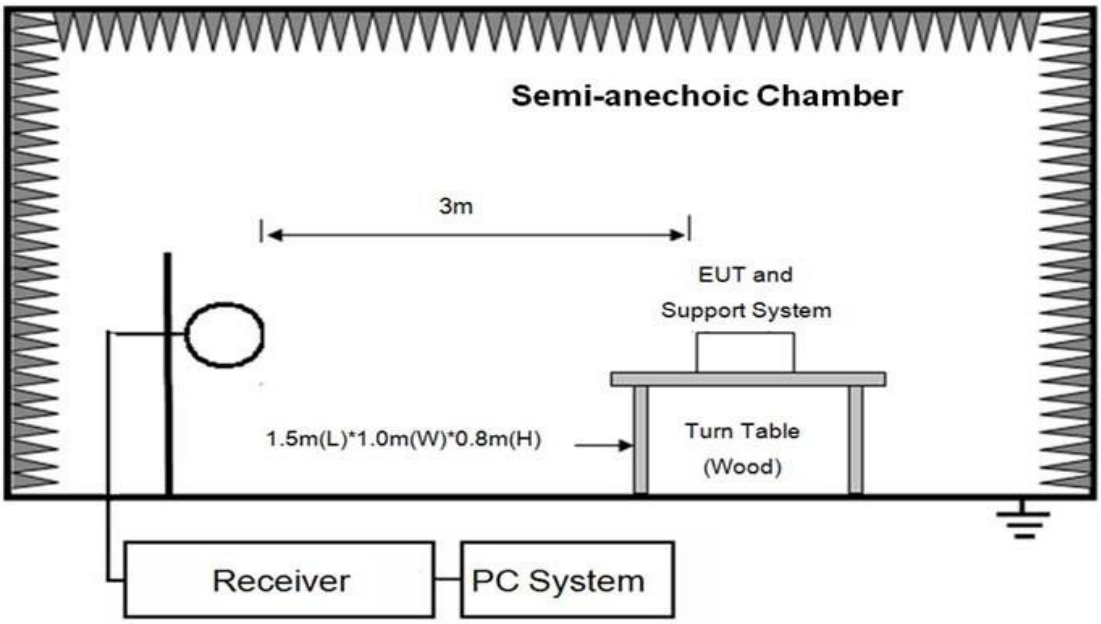
6.4 Test result

Mode	Condition		Result			Limit
	Temperature (℃)	Voltage (V)	Measured (MHz)	Tolerance (kHz)	Tolerance (ppm)	ppm
Carrier Tx Mode	NT	NV	13.5604	0.4	29.50	100
	0	NV	13.5604	0.4	29.50	100
	50	NV	13.5605	0.5	36.87	100
	NT	102	13.5605	0.5	36.87	100
	NT	138	13.5608	0.8	59.00	100
Note: NT:20℃,NV:AC 120V 60Hz						

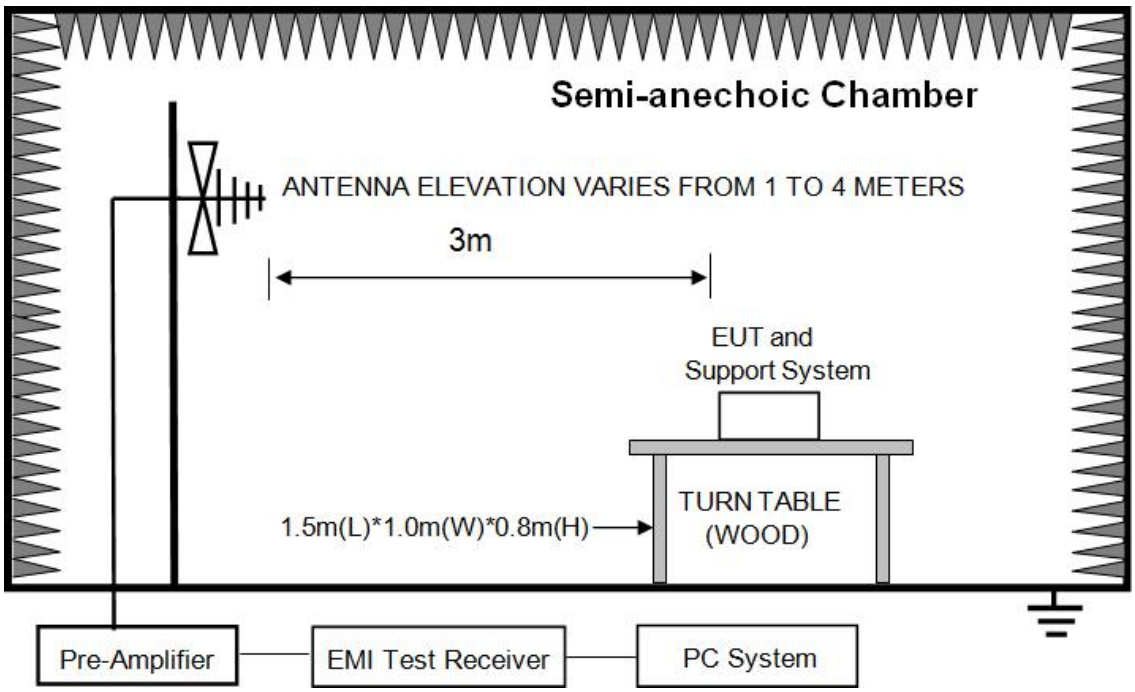
7 Radiated emission

7.1 Block diagram of test setup

In 3m Anechoic Chamber Test Setup Diagram for 9kHz~30MHz



In 3m Anechoic Chamber Test Setup Diagram for 30MHz~1GHz



7.2 Limit

Operation within the band 13.110-14.010 MHz as contained in §15.225:

(a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.
(b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter
at 30 meters.
(c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at
30 meters.
(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in §15.209.

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
0.009 ~ 0.490	300	2400/F(KHz)	67.6-20log(F)
0.490 ~ 1.705	30	24000/F(KHz)	87.6-20log(F)
1.705 ~ 13.110	30	30	29.54
13.110 ~ 13.410	30	106	40.51
13.410~ 13.553	30	334	50.47
13.553~13.567	30	15848	84.00
13.567~13.710	30	334	50.47
13.710~14.010	30	106	40.51
14.010~30	30	30	29.54
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0

Note: (1)The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9-90KHz, 110-490KHz and above 1000MHz.Radiated emissions limits in these three bands are based on measurements employing an average detector.

(2) At frequencies below 30MHz, measurement may be performed at a distance closer then that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$$Limit_{3m}(dBuV/m) = Limit_{300m}(dBuV/m) + 40Log(300m/3m) = Limit_{300m}(dBuV/m) + 80$$
$$Limit_{3m}(dBuV/m) = Limit_{30m}(dBuV/m) + 40Log(30m/3m) = Limit_{30m}(dBuV/m) + 40$$

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT dB(μV)/m
0.009 ~ 0.490	3	147.6-20log(F)
0.490 ~ 1.705	3	127.6-20log(F)
1.705 ~ 13.110	3	69.54
13.110 ~ 13.410	3	80.51
13.410 ~ 13.553	3	90.47
13.553 ~ 13.567	3	124.00
13.567 ~ 13.710	3	90.47

13.710 ~ 14.010	3	80.51
14.010 ~ 30	3	69.54
30 ~ 88	3	40.00
88 ~ 216	3	43.50
216 ~ 960	3	46.00
960 ~ 1000	3	54.00

7.3 Test Procedure

(1) EUT was placed on a non-metallic table, 100 cm above the ground plane inside a semi-anechoic chamber.

(2) Test antenna was located 3m from the EUT on an adjustable mast, and the antenna used as below table.

Test frequency range	Test antenna used	Test antenna distance
9KHz-30MHz	Active Loop antenna	3m
30MHz-1GHz	Trilog Broadband Antenna	3m

According ANSI C63.10:2013 clause 6.4.4.2 and 6,5.3, for measurements below 30 MHz, the loop antenna was positioned with its plane vertical from the EUT and rotated about its vertical axis for maximum response at each azimuth position around the EUT. And the loop antenna also be positioned with its plane horizontal at the specified distance from the EUT. The center of the loop is 1 m above the ground. for measurement above 30MHz, the Trilog Broadband Antenna or Horn Antenna was located 3m from EUT, Measurements were made with the antenna positioned in both the horizontal and vertical planes of Polarization, and the measurement antenna was varied from 1 m to 4 m. in height above the reference ground plane to obtain the maximum signal strength.

(3) Below pre-scan procedure was first performed in order to find prominent frequency spectrum radiated emissions from 9KHz to 1GHz:

(a) Scanning the peak frequency spectrum with the antenna specified in step (3), and the EUT was rotated 360 degree, the antenna height was varied from 1m to 4m(Except loop antenna, it's fixed 1m above ground.)

(b) Change work frequency or channel of device if practicable.

(c) Change modulation type of device if practicable.

(d) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions. Spectrum frequency from 9KHz to 1GHz (tenth harmonic of fundamental frequency) was investigated.

(4) For final emissions measurements at each frequency of interest, the EUT was 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 of the interface cables were changed according to ANSI C63.10 2013 on Radiated Emission test.

(5) The emissions from 9KHz to 1GHz were measured based on CISPR QP detector except for the frequency bands 9-90KHz, 110-490KHz, for emissions from 9KHz-90KHz,110KHz-490KHz and above 1GHz were measured based on average detector, for emissions above 1GHz, peak emissions also be measured and need comply with Peak limit.

(6) The emissions from 9KHz to 1GHz, QP or average values were measured with EMI receiver with below RBW.

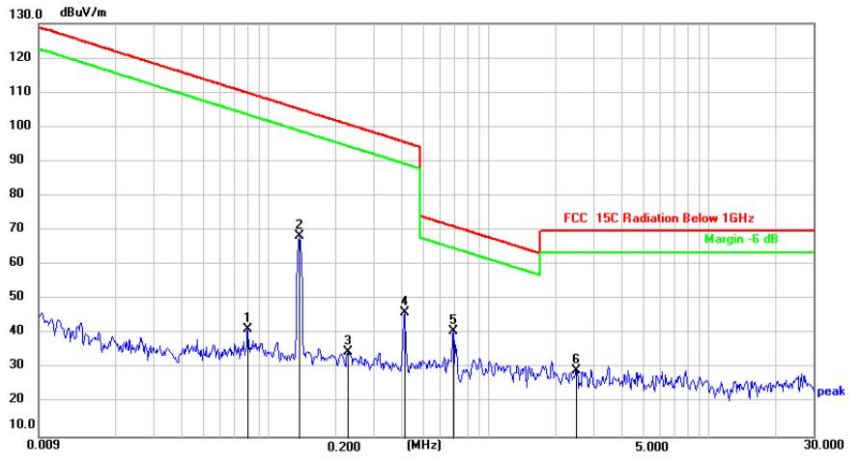
Frequency band	RBW
9KHz-150KHz	200Hz
150KHz-30MHz	9KHz
30MHz-1GHz	120KHz

(7) The conducted emission at 120V and 240V has been evaluated. All modulation modes have passed the test,and the emission at 120V represents the worst mode (TX 802.11b low channel). The data is recorded on the following page. Other modulation methods are not Limit Exceeded.

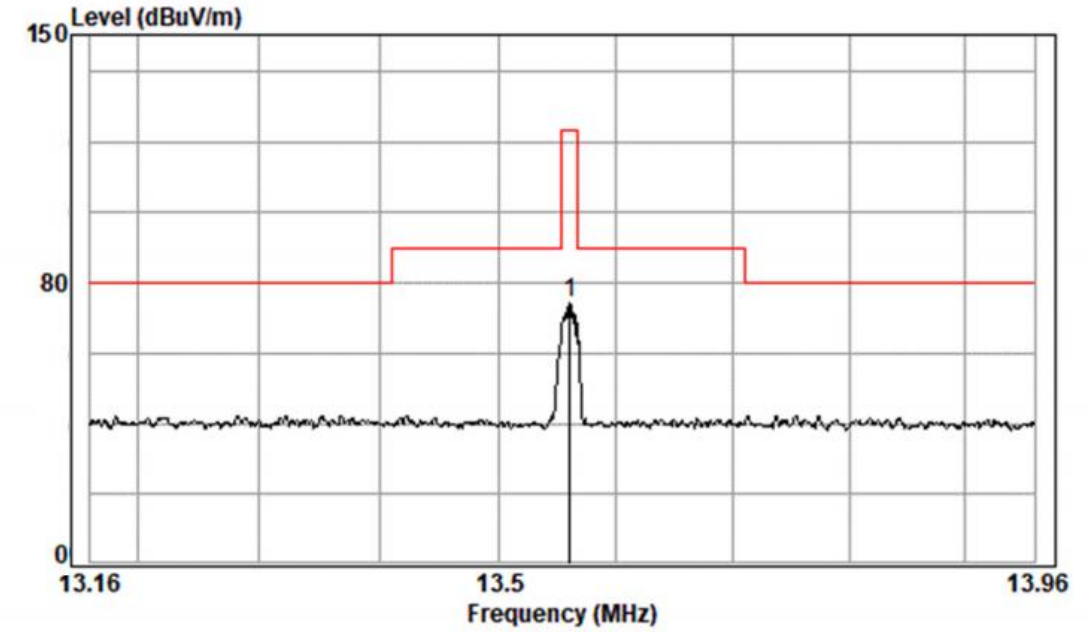
7.4 Test result

PASS. (See below detailed test result，detector: PK>QP>AV)

Below 30MHz:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.0803	20.88	20.61	41.49	109.51	-68.02	peak
2	0.1374	48.25	20.11	68.36	104.84	-36.48	peak
3	0.2290	14.49	20.17	34.66	100.41	-65.75	peak
4	0.4140	25.95	20.29	46.24	95.26	-49.02	peak
5 *	0.6902	20.45	20.44	40.89	70.83	-29.94	peak
6	2.5068	9.03	20.31	29.34	69.50	-40.16	peak

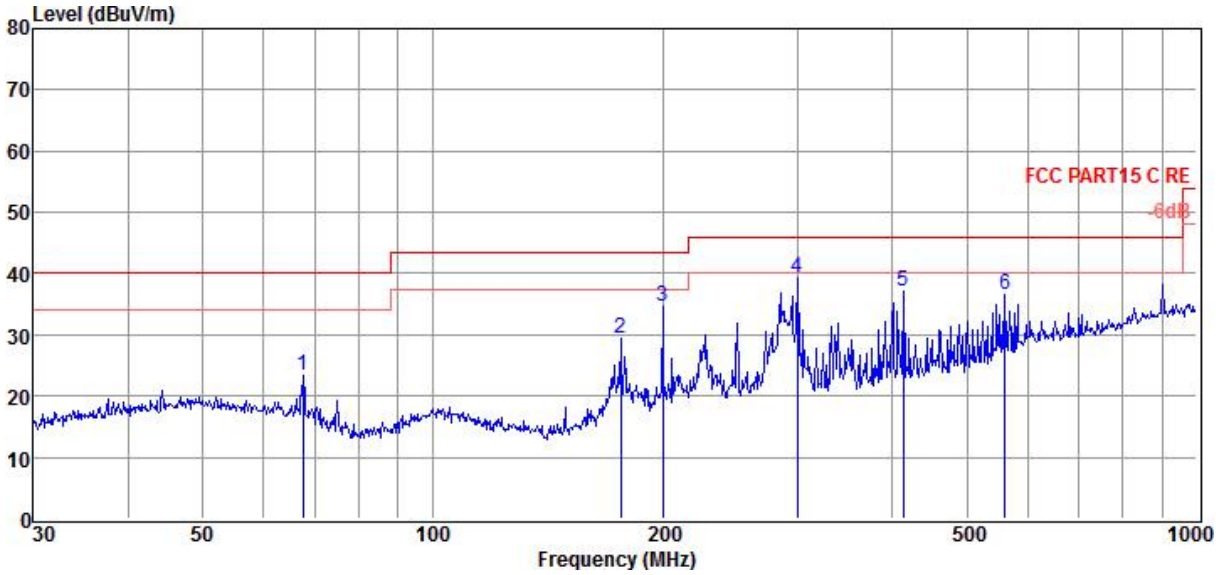


Test Mode: 01

	Freq	Ant Factor	Preamp Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	**13.561**	**13.30**	**32.35**	**0.62**	**77.27**	**56.84**	**124**	**-67.16**	**QP**

Above 30MHz:

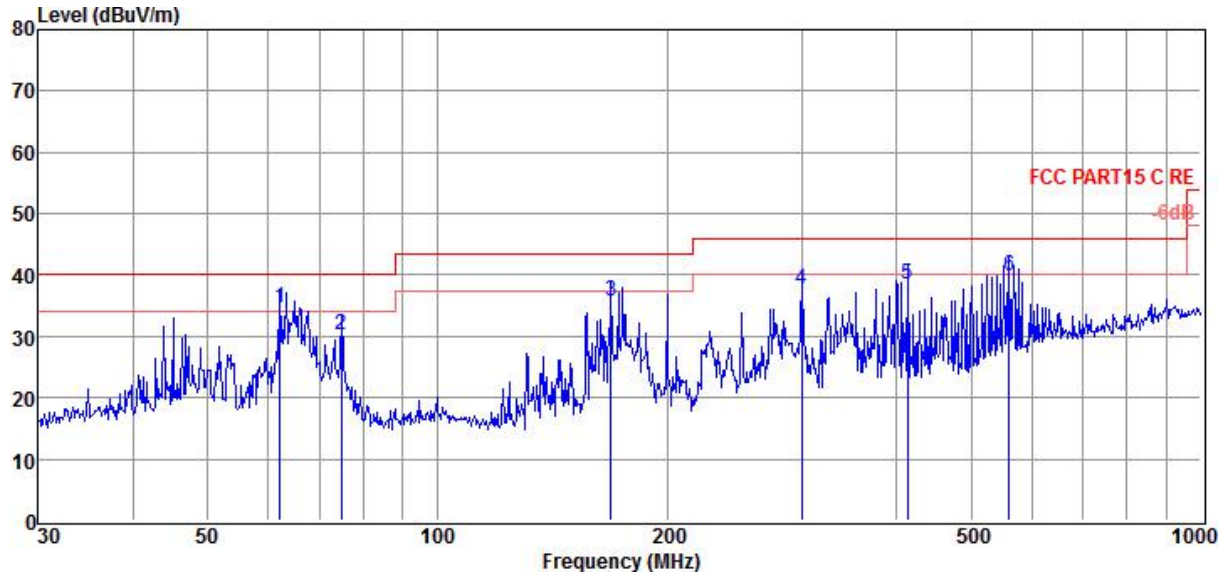
HORIZONTAL



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	67.68	9.57	9.68	4.16	23.41	40.00	-16.59	QP	HORIZONTAL
2	176.27	14.91	9.50	4.91	29.32	43.50	-14.18	QP	HORIZONTAL
3	199.99	18.18	11.50	5.02	34.70	43.50	-8.80	QP	HORIZONTAL
4	300.37	20.37	13.31	5.52	39.20	46.00	-6.80	QP	HORIZONTAL
5	413.27	15.62	15.54	5.86	37.02	46.00	-8.98	QP	HORIZONTAL
6	560.69	11.64	18.69	6.17	36.50	46.00	-9.50	QP	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

VERTICAL

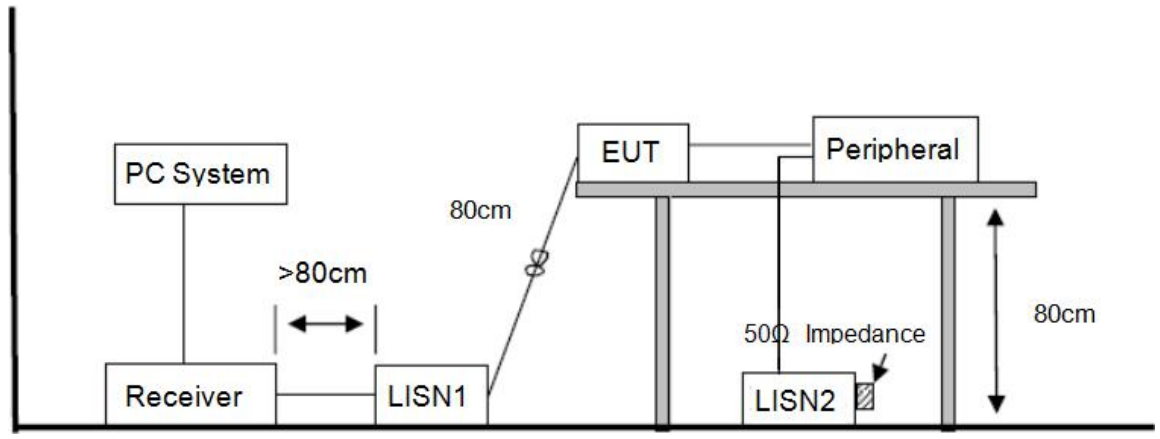


Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	62.21	19.67	10.88	4.11	34.66	40.00	-5.34	QP	VERTICAL
2	74.92	17.78	8.39	4.21	30.38	40.00	-9.62	QP	VERTICAL
3	169.01	21.78	9.11	4.87	35.76	43.50	-7.74	QP	VERTICAL
4	300.37	18.88	13.31	5.52	37.71	46.00	-8.29	QP	VERTICAL
5	413.27	17.20	15.54	5.86	38.60	46.00	-7.40	QP	VERTICAL
6	560.69	14.92	18.69	6.17	39.78	46.00	-6.22	QP	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

8 Power Line Conducted Emission

8.1 Block diagram of test setup



8.2 Power Line Conducted Emission Limits

Frequency	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Note 1: * Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

8.3 Test Procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.4 and test equipment as described in clause 102 of this report.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in clause 2.4 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions.

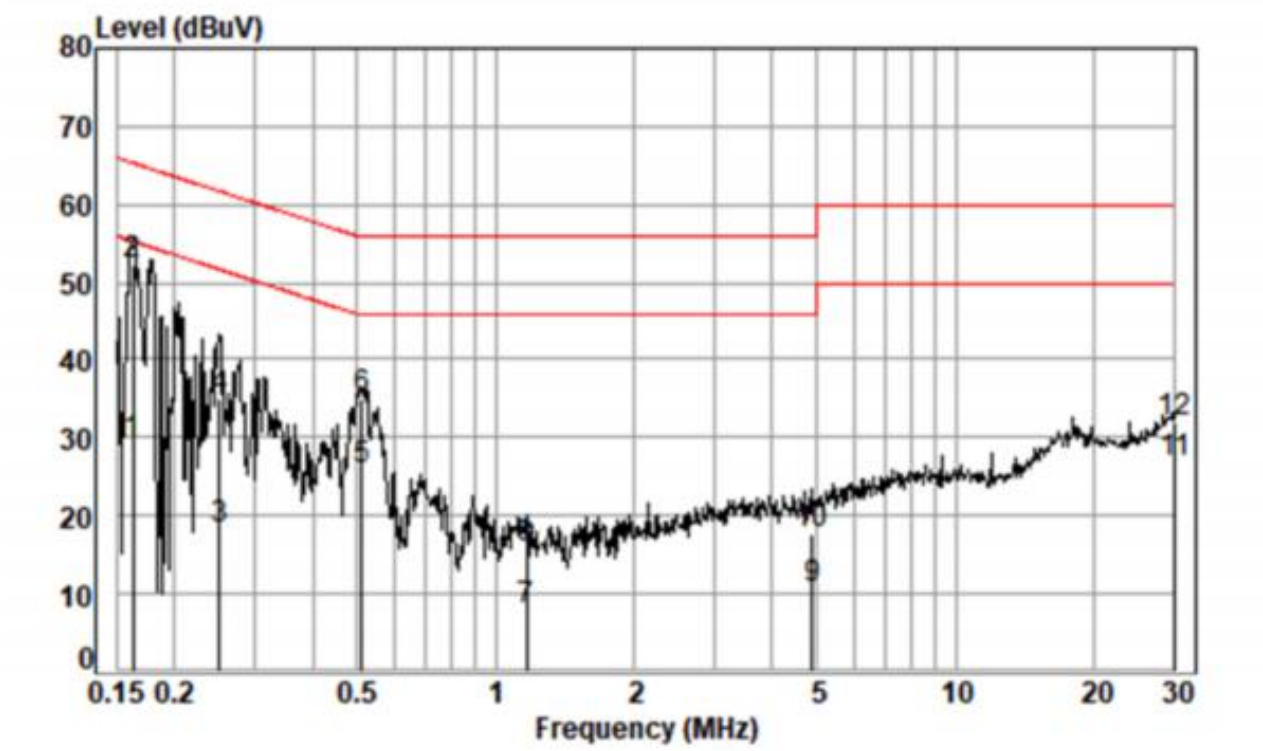
Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The conducted emission at 120V and 240V has been evaluated. All modulation modes have passed the test,and the emission at 120V represents the worst mode (TX 802.11b low channel). The data is recorded on the following page. Other modulation methods are not Limit Exceeded.

The bandwidth of test receiver is set at 9 KHz.

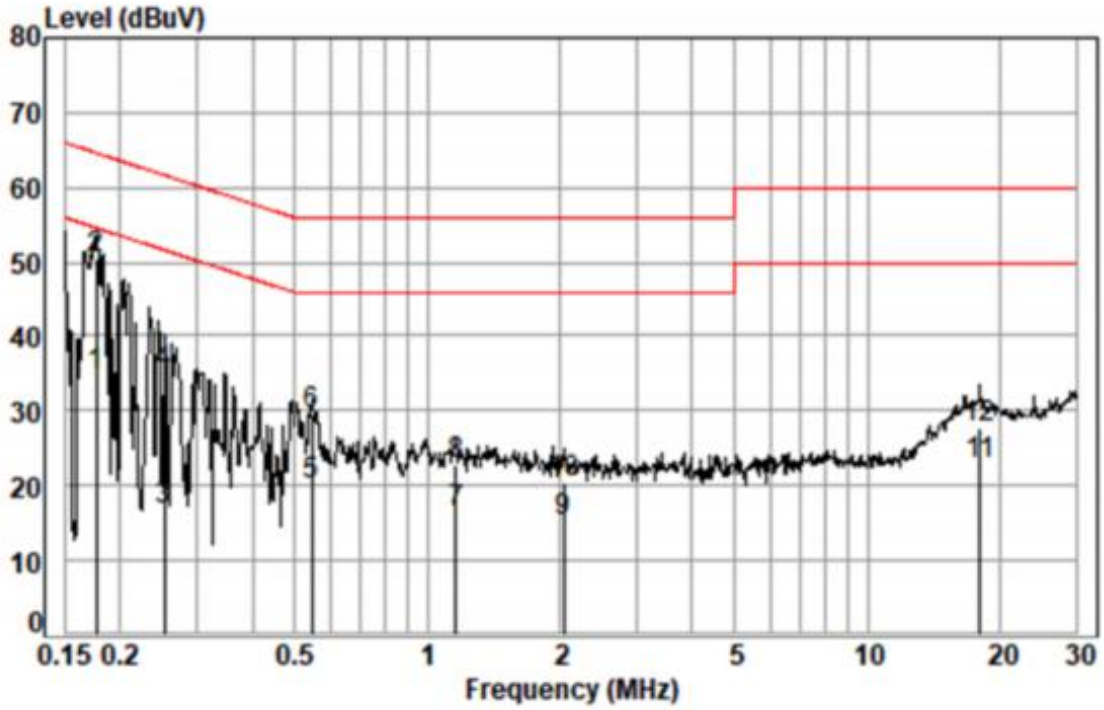
8.4 Test Result

NEUTRAL



	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1624	0.01	9.55	19.49	29.05	55.34	-26.29	Average
2	0.1624	0.01	9.55	42.74	52.30	65.34	-13.04	QP
3	0.2508	0.03	9.54	8.56	18.13	51.73	-33.60	Average
4	0.2508	0.03	9.54	25.52	35.09	61.73	-26.64	QP
5	0.5128	0.06	9.54	16.31	25.91	46.00	-20.09	Average
6	0.5128	0.06	9.54	25.29	34.89	56.00	-21.11	QP
7	1.1657	0.10	9.55	-1.67	7.98	46.00	-38.02	Average
8	1.1657	0.10	9.55	6.31	15.96	56.00	-40.04	QP
9	4.8738	0.17	9.63	0.84	10.64	46.00	-35.36	Average
10	4.8738	0.17	9.63	7.88	17.68	56.00	-38.32	QP
11	30.0000	0.28	10.57	15.81	26.66	50.00	-23.34	Average
12	30.0000	0.28	10.57	21.04	31.89	60.00	-28.11	QP

LINE



	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1768	0.02	9.59	25.06	34.67	54.64	-19.97	Average
2	0.1768	0.02	9.59	40.74	50.35	64.64	-14.29	QP
3	0.2521	0.03	9.59	7.20	16.82	51.69	-34.87	Average
4	0.2521	0.03	9.59	25.41	35.03	61.69	-26.66	QP
5	0.5464	0.06	9.59	10.44	20.09	46.00	-25.91	Average
6	0.5464	0.06	9.59	19.84	29.49	56.00	-26.51	QP
7	1.1595	0.10	9.60	6.62	16.32	46.00	-29.68	Average
8	1.1595	0.10	9.60	13.06	22.76	56.00	-33.24	QP
9	2.0441	0.16	9.62	5.37	15.15	46.00	-30.85	Average
10	2.0441	0.16	9.62	10.67	20.45	56.00	-35.55	QP
11	18.0394	0.23	10.45	12.07	22.75	50.00	-27.25	Average
12	18.0394	0.23	10.45	17.08	27.76	60.00	-32.24	QP

9 Antenna Requirements

For intentional device, according to FCC 47 CFR Section 15.203, 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 shall be considered sufficient to comply with the provisions of this section. 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.

END OF REPORT