



RF EXPOSURE Test Report

Report No.: MTi210628011-04E5

Date of issue: Jan. 18, 2022

Applicant: Xiamen Hanin Electronic Technology Co., Ltd.

Product name: Barcode Printer

iT4R, HT4R, iV3800R, ST34R, P54R, 324R,

Model(s): J-5400R, Y12R, PZ420R, T432R, ST14R,
P43R, T430R

FCC ID: 2AUTE-IT4R

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

Instructions

1. The report shall not be partially reproduced without the written consent of the laboratory;
2. The test results of this report are only responsible for the samples submitted;
3. This report is invalid without the seal and signature of the laboratory;
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5. Any objection to this report shall be submitted to the laboratory within 15 days from the date of receipt of the report.



TEST RESULT CERTIFICATION	
Applicant's name.....:	Xiamen Hanin Electronic Technology Co., Ltd.
Address.....:	Room 305A, Angye Building, Pioneering Park, Torch High-tech, Zone, Xiamen
Manufacturer's Name	Xiamen Hanin Electronic Technology Co., Ltd.
Address.....:	Room 305A, Angye Building, Pioneering Park, Torch High-tech, Zone, Xiamen
Factory's Name	Xiamen Hanin Electronic Technology Co., Ltd.
Address.....:	No.96, Rongyuan Road, Tong'an District, Xiamen
Product description	
Product name	Barcode Printer
Trademark	HPRT, iDPRT
Model Name	iT4R
Serial Model	HT4R, iV3800R, ST34R, P54R, 324R, J-5400R, Y12R, PZ420R, T432R, ST14R, P43R, T430R
Standards.....:	N/A
Test procedure	KDB 447498 D01 v06
Date of Test	
Date (s) of performance of tests	2021-12-14 ~ 2022-01-18
Test Result.....:	Pass
This device described above has been tested by Shenzhen Microtest Co., Ltd. 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.	

Testing Engineer :

Cindy Qin

(Cindy Qin)

Technical Manager :

Leon Chen

(Leon Chen)

Authorized Signatory :

Tom Xue

(Tom Xue)



RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*300/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

MPE Calculation Method

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π = 3.1415926

R = distance between observation point and center of the radiator in cm(20cm)

P_d the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Measurement Result

BT/BLE:

Operation Frequency: 2402-2480MHz,

Power density limited: 1mW/ cm²

RFID:

Operation Frequency: 917.4-927.2MHz for NA2 mode, 917.5-922.5MHz for NA3 mode

Power density limited: 1mW/ cm²

2.4GWiFi:

Operation Frequency: WIFI 802.11b/g/n HT20: 2412-2462MHz,

Power density limited: 1mW/ cm²

Antenna Type: PCB Antenna;

WIFI antenna gain: 1dBi

R=20cm

$mW=10^{(dBm/10)}$

antenna gain Numeric= $10^{(dBi/10)}=10^{(1/10)}=1.26$



BR+EDR:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
		(dBm)		tune-up power		Gain			
				(dBm)	(dBm)	(mW)	(dBi)	Numeric	
2402	GFSK	5.458	5±1	6	3.981	1	1.26	0.0010	1
2441		3.236	3±1	4	2.512	1	1.26	0.0006	1
2480		0.443	0±1	1	1.259	1	1.26	0.0003	1
2402	π/4-DQPSK	7.793	7±1	8	6.310	1	1.26	0.0016	1
2441		6.109	7±1	8	6.310	1	1.26	0.0016	1
2480		3.176	3±1	4	2.512	1	1.26	0.0006	1
2402	8DPSK	7.935	7±1	8	6.310	1	1.26	0.0016	1
2441		6.190	7±1	8	6.310	1	1.26	0.0016	1
2480		3.267	3±1	4	2.512	1	1.26	0.0006	1

BLE:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
		(dBm)		tune-up power		Gain			
				(dBm)	(dBm)	(mW)	(dBi)	Numeric	
2402	GFSK	5.155	5±1	6	3.981	1	1.26	0.0010	1
2440		3.169	3±1	4	2.512	1	1.26	0.0006	1
2480		0.215	0±1	1	1.259	1	1.26	0.0003	1

RFID:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
		(dBm)		tune-up power		Gain			
				(dBm)	(dBm)	(mW)	(dBi)	Numeric	
917.4	PR-ASK (NA2)	15.655	16±1	17	50.119	1	1.26	0.0126	1
922.4		16.287	16±1	17	50.119	1	1.26	0.0126	1
927.2		17.078	17±1	18	63.096	1	1.26	0.0158	1
917.5	PR-ASK (NA3)	16.021	16±1	17	50.119	1	1.26	0.0126	1
920		15.947	16±1	17	50.119	1	1.26	0.0126	1
922.5		16.224	16±1	17	50.119	1	1.26	0.0126	1

2.4GWiFi :

Channel Freq. (MHz)	modulation	conducted power	Tune-up power	Max		Antenna	Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain	Power density(mW/cm2)	(mW/cm2)
		Ant A	Ant A	(dBm)	(mW)	Numeric		
2412	802.11b	14.17	14±1	15	31.622777	1.26	0.00793	1
2437		13.22	14±1	15	31.622777	1.26	0.00793	1
2462		13.16	14±1	15	31.622777	1.26	0.00793	1
2412	802.11g	10.76	10±1	11	12.589254	1.26	0.00316	1
2437		12.41	13±1	14	25.118864	1.26	0.00630	1
2462		13.20	13±1	14	25.118864	1.26	0.00630	1
2412	802.11n H20	10.77	10±1	11	12.589254	1.26	0.00316	1
2437		12.51	13±1	14	25.118864	1.26	0.00630	1
2462		13.21	13±1	14	25.118864	1.26	0.00630	1

Conclusion:

BT and WIFI can't work together

Simultaneous transmit

BLE+RFID=0.0010+0.0158=0.0168

BR/EDR+RFID=0.0016+0.0158=0.0174

2.4GWiFi +RFID=0.00793+0.0158=0.02373

For the max result: $0.02373 \leq 3.0$ for 1g SAR, No SAR is required.

----END OF REPORT----