



MPE Test Report

Report No.: MTi210602017-01E3

Date of issue: July 12, 2021

Applicant: Xiamen Hanin Electronic
Technology Co., Ltd.

Product name: Direct Thermal Label Printer

Model(s): SP320, SP3X6, PP320, PP3X6,
PP32, SP32

FCC ID: 2AUTE-HDDL21001

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;
4. This report is invalid if transferred, altered or tampered with in any form without authorization;
5. Any objection to this report shall be submitted to the laboratory within 15 days from the date of receipt of the report.



Table of Contents

1	RF EXPOSURE EVALUATION.....	5
1.1	LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE).....	5
1.2	MEASUREMENT RESULT	6



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

Product description

Product name.....:	Direct Thermal Label Printer
Trademark	HPRT, iDPRT
Model Name	SP320
Serial Model	SP3X6, PP320, PP3X6, PP32, SP32
Standards.....:	N/A
Test procedure	KDB 447498 D01 v06

Date of Test

Date (s) of performance of tests... :	June 09, 2021 ~June 26, 2021
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

:

Danny Xu

(Danny Xu)

Technical Manager

:

Leo Su

(Leo Su)

Authorized Signatory

:

Tom Xue

(Tom Xue)



1 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)

1.1 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	*900/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: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

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.



1.2 Measurement Result

BT & BLE:

Operation Frequency: BT GFSK, $\pi/4$ -DQPSK, 8DPSK: 2402-2480MHz

BLE GFSK: 2402-2480MHz

Power density limited: 1mW/ cm²

Antenna Type: BT & BLE Antenna: PCB Antenna;

BT antenna gain: 0.5dBi

R=20cm

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

antenna gain Numeric= $10^{(dBi/10)}=10^{(0.5/10)}=1.12$

BT:

Channel Freq. (MHz)	modulation	conduct ed power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeri c	(mW/c m2)	(mW/c m2)
2402	GFSK	4.392	5±1	6	3.981	0.5	1.12	0.0009	1
2441		5.183	5±1	6	3.981	0.5	1.12	0.0009	1
2480		5.331	5±1	6	3.981	0.5	1.12	0.0009	1
2402	π/4-DQPSK	3.853	4±1	5	3.162	0.5	1.12	0.0007	1
2441		4.574	4±1	5	3.162	0.5	1.12	0.0007	1
2480		4.562	4±1	5	3.162	0.5	1.12	0.0007	1
2402	8DPSK	4.029	4±1	5	3.162	0.5	1.12	0.0007	1
2441		4.722	4±1	5	3.162	0.5	1.12	0.0007	1
2480		4.720	4±1	5	3.162	0.5	1.12	0.0007	1



BLE:

Chann el Freq. (MHz)	modulatio n	conducte d power	Tune- up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power		Gain		(mW/cm2)	(mW/cm 2)
				(dBm)	(mW)	(dBi)	Num eric		
2402	GFSK	3.410	3±1	4	2.512	0.5	1.12	0.0006	1
2440		3.545	3±1	4	2.512	0.5	1.12	0.0006	1
2480		3.277	3±1	4	2.512	0.5	1.12	0.0006	1

Conclusion:

For the max result: $0.0015 \leq 1.0$ for 1g SAR, No SAR is required.

----END OF REPORT----