MPE REPORT

FCC ID: 2AUTE-TP808

Date of issue: Nov. 19, 2020

Report number:	MTi20091804-5E2
Sample description:	Thermal Receipt Printer
Model(s):	TP808, TP808S, TP808-i, TP808-Si, TP808-Wi, TP808-H, P38, FFSP8000+, FFSP8U01+, FFSP8U02+, FFSP8U03+, FFSP8U04+, FFSP8U05+, FFSP8X01+, FFSP8X02+, FFSP8X03+, FFSP8X04+, FFSP8X05+, POS80D
Applicant:	Xiamen Hanin Electronic Technology Co., Ltd
Address:	Room 305A, Angye Building, Pioneering Park, Torch High-tech, Zone, Xiamen
Date of test:	Oct. 26, 2020 –Nov. 12, 2020

Shenzhen Microtest Co., Ltd.

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TEST RESULT CERTIFICATION	
Applicant's name:	Xiamen Hanin Electronic Technology Co., Ltd
Address:	Room 305A, Angye Building, Pioneering Park, Torch High-tech, Zone, Xiamen
Manufacture's name:	Xiamen Hanin Electronic Technology Co., Ltd
Address:	Room 305A, Angye Building, Pioneering Park, Torch High-tech, Zone, Xiamen
Product name:	Thermal Receipt Printer
Trademark:	HPRT(For all models except POS80D)
Model and/or type reference:	TP808
Serial model:	TP808S, TP808-i, TP808-Si, TP808-Wi, TP808-H, P38, FFSP8000+, FFSP8U01+, FFSP8U02+, FFSP8U03+, FFSP8U04+, FFSP8U05+, FFSP8X01+, FFSP8X
RF exposure procedures:	KDB 447498 D01 v06

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.

Tested by: Demi Mu Nov. 12, 2020

Reviewed by: Leo Su Nov. 19, 2020

Approved by: Tom Xue Nov. 19, 2020

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	$*900/f^2$	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: $Pd= (Pout*G)\ (4*pi*R^2)$

Where

Pd= Power density in mW/cm2

Pout=output power to antenna in mW

G= Numeric gain of the antenna relative to isotropic antenna

Pi=3.1415926

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

Pd 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

WIFI:

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

Power density limited: 1mW/ cm^2

Antenna Type: Wifi Antenna: PCB Antenna;
WIFI antenna gain: 0dBi

R=20cm

mW=10^(dBm/10)

antenna gain Numeric=10^(dBi/10)= 10^(0/10)=1

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)
				(dBm)	(mW)	Numeric		
		Ant A	Ant A	Ant A	Ant A	Ant A	Ant A	
2412	802.11b	13.36	14±1	15	31.622777	1	0.00629	1
2437		14.54	14±1	15	31.622777	1	0.00629	1
2462		14.17	14±1	15	31.622777	1	0.00629	1
2412	802.11g	12.58	12±1	13	19.952623	1	0.00397	1
2437		12.5	12±1	13	19.952623	1	0.00397	1
2462		12.06	12±1	13	19.952623	1	0.00397	1
2412	802.11n H20	12.38	12±1	13	19.952623	1	0.00397	1
2437		12.48	12±1	13	19.952623	1	0.00397	1
2462		12.11	12±1	13	19.952623	1	0.00397	1

Conclusion:

For the max result: 0.00629≤ 1.0 for 1g SAR, No SAR is required.

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