RF EXPOSURE Test Report

Report No.:	MTi221209012-05E3
Date of issue:	2023-03-13
Applicant:	Zhuhai Quin Technology Co., Ltd.
Product:	Label Printer
Model:	650
Series Model:	Please refer to the Series model remark
FCC ID:	2ASRB-650

Shenzhen Microtest Co., Ltd.

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Series model Remark:

360, 360 Turbo, 360 Plus, 360 Pro, 360 Pro Max, 460, 460 Turbo, 460 Plus, 460 Pro, 460 Pro Max, 560, 560 Turbo, 560 Plus, 560 Pro, 560 Pro Max, 650, 650 Turbo, 650 Plus, 650 Pro, 650 Pro Max, 660, 660 Turbo, 660 Plus, 660 Pro, 660 Pro Max, 360B, 360BT, 360B Turbo, 360BT Turbo, 360B Plus, 360BT Plus, 360B Pro, 360BT Pro, 360B Pro Max, 360BT Pro Max, 460B, 460BT, 460B Turbo, 460BT Turbo, 460B Plus, 460BT Plus, 460B Pro, 460BT Pro, 460B Pro Max, 460BT Pro Max, 560B, 560BT, 560B Turbo, 560BT Turbo, 560B Plus, 560BT Plus, 560B Pro, 560BT Pro, 560B Pro Max, 560BT Pro Max, 650B, 650BT, 650B Turbo, 650BT Turbo, 650B Plus, 650BT Plus, 650B Pro, 650BT Pro, 650B Pro Max, 650BT Pro Max, 660B, 660BT, 660B Turbo, 660BT Turbo, 660B Plus, 660BT Plus, 660B Pro, 660BT Pro, 660B Pro Max, 660BT Pro Max

Instructions

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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.

Test Result Certification	
Applicant:	**Zhuhai Quin Technology Co., Ltd.**
Address:	ROOM 103-029(CENTRALIZED OFFICE AREA), 1F, BUILDING 1, NO. 18 FUTIAN ROAD, XIANGZHOU DISTRICT, ZHUHAI CITY, CHINA
Manufacturer:	**Zhuhai Quin Technology Co., Ltd.**
Address:	ROOM 103-029(CENTRALIZED OFFICE AREA), 1F, BUILDING 1, NO. 18 FUTIAN ROAD, XIANGZHOU DISTRICT, ZHUHAI CITY, CHINA
Product description	
Product name:	Label Printer
Trademark:	N/A
Model name:	650
Serial Model:	Please refer to the Series model remark
Standards:	N/A
Test procedure:	KDB 447498 D01 v06
Date of Test	
Date of test:	2023-03-09 ~ 2023-03-13
Test result:	Pass

Test Engineer : Letter. Lan.

(Letter Lan)

Reviewed By: : Leon chen

(Leon Chen)

Approved By: : 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	$*900/f^2$	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/cm^2

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, $1mW/cm^2$. 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/ cm^2

Antenna Type: PCB Antenna;

Antenna gain: 2dBi

R=20cm

mW=10^(dBm/10)

antenna gain Numeric=10^(dBi/10)= 10^(2/10)=1.58

BR+EDR:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power		Gain		(mW/cm^2)	(mW/cm^2)
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	5.74	5±1	6	3.981	2	1.58	0.0013	1
2441		5.09	5±1	6	3.981	2	1.58	0.0013	1
2480		5.74	5±1	6	3.981	2	1.58	0.0013	1
2402	π/4-DQPSK	5.73	5±1	6	3.981	2	1.58	0.0013	1
2441		5.06	5±1	6	3.981	2	1.58	0.0013	1
2480		5.77	5±1	6	3.981	2	1.58	0.0013	1
2402	8DPSK	5.77	5±1	6	3.981	2	1.58	0.0013	1
2441		5.11	5±1	6	3.981	2	1.58	0.0013	1
2480		5.77	5±1	6	3.981	2	1.58	0.0013	1

BLE:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power		Gain		(mW/cm^2)	(mW/cm^2)
				(dBm)	(mW)	(dBi)	Numeric		
2402	BLE-1M	5.6	5±1	6	3.981	2	1.58	0.0013	1
2440		5.45	5±1	6	3.981	2	1.58	0.0013	1
2480		5.69	5±1	6	3.981	2	1.58	0.0013	1

Conclusion:

For the max result: 0.0013≤ 1.0 SAR, No SAR is required.

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