



# RF EXPOSURE Test Report

**Report No.:** MTi230722002-01E3  
**Date of issue:** 2023-10-08  
**Applicant:** Shenzhen QM Smart Panlee Technology Co., Ltd  
**Product:** PANLEE BC02  
**Model(s):** ZX3D95CE01S-TR-4848  
**FCC ID:** 2BCBK-TR4848

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

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<b>Test Result Certification</b>	
<b>Applicant:</b>	Shenzhen QM Smart Panlee Technology Co., Ltd
<b>Address:</b>	Room 805, Block A, Building 6, Shenzhen International Innovation Valley, Xili Community, Nanshan District, Shenzhen
<b>Manufacturer:</b>	Shenzhen QM Smart Panlee Technology Co., Ltd
<b>Address:</b>	Room 805, Block A, Building 6, Shenzhen International Innovation Valley, Xili Community, Nanshan District, Shenzhen
<b>Product description</b>	
<b>Product name:</b>	PANLEE BC02
<b>Trademark:</b>	N/A
<b>Model name:</b>	ZX3D95CE01S-TR-4848
<b>Serial Model:</b>	N/A
<b>Standards:</b>	N/A
<b>Test procedure:</b>	KDB 447498 D01 v06
<b>Date of Test</b>	
<b>Date of test:</b>	2023-08-10 to 2023-10-08
<b>Test result:</b>	Pass

**Test Engineer :**

*Maleah Deng*

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(Maleah Deng)

**Reviewed By: :**

*Leon Chen*

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(Leon Chen)

**Approved By: :**

*Tom Xue*

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(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 <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposure</b>				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f <sup>2</sup>	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f <sup>2</sup>	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/cm<sup>2</sup>

$P_{out}$  = 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)

$P_d$  the limit of MPE, 1mW/cm<sup>2</sup>. 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<sup>2</sup>

### 2.4GWiFi:

Operation Frequency: WIFI 802.11b/g/n HT20: 2412-2462MHz, 802.11n HT40: 2422-2452 MHz

Power density limited: 1mW/ cm<sup>2</sup>

Antenna Type: PCB antenna;

Antenna gain: -0.47 dBi

R=20cm

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

antenna gain Numeric= $10^{(dBi/10)}=10^{(-0.47/10)}=0.90$

### 2.4GWiFi:

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna Gain Numeric	Evaluation result at 20cm Power density(mW/cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
				tune-up power (dBm)	(mW)			
				2412	802.11b	18.56	18±1	19
2437	18.03	18±1	19	79.433		0.90	0.01418	1
2462	17.88	17±1	18	63.096		0.90	0.01126	1
2412	802.11g	21.34	21±1	22	158.489	0.90	0.02830	1
2437		20.93	20±1	21	125.893	0.90	0.02248	1
2462		20.81	20±1	21	125.893	0.90	0.02248	1
2412	802.11n H20	20.24	20±1	21	125.893	0.90	0.02248	1
2437		19.76	19±1	20	100.000	0.90	0.01785	1
2462		19.76	19±1	20	100.000	0.90	0.01785	1
2422	802.11n H40	19.15	19±1	20	100.000	0.90	0.01785	1
2437		19.03	19±1	20	100.000	0.90	0.01785	1
2452		18.19	18±1	19	79.433	0.90	0.01418	1



**BLE**

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
				tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK-1M	3.27	3±1	4	2.512	-0.47	0.90	0.0004	1
2440		4.03	4±1	5	3.162	-0.47	0.90	0.0006	1
2480		4.20	4±1	5	3.162	-0.47	0.90	0.0006	1
2402	GFSK-2M	3.19	3±1	4	2.512	-0.47	0.90	0.0004	1
2440		4.05	4±1	5	3.162	-0.47	0.90	0.0006	1
2480		4.17	4±1	5	3.162	-0.47	0.90	0.0006	1

**Conclusion:**

Note: BLE and WIFI cannot work at the same time

For the max result:  $0.02830 \leq 1.0$ , No SAR is required.

----END OF REPORT----