RF EXPOSURE
Test Report

Report No.:	MTi230209018-11E4
Date of issue:	2023-05-15
Applicant:	ANHUI RAYLOVE TECHNOLOGY CO., LTD
Product:	Portable outdoor energy storage power supply
Model(s):	RS540
FCC ID:	2BAOU-RS540MR

Shenzhen Microtest Co., Ltd.

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Test Result Certification	
Applicant:	**ANHUI RAYLOVE TECHNOLOGY CO., LTD**
Address:	No. 10 Kejia Road, Yijiang District, Wuhu City, Anhui Province
Manufacturer:	**ANHUI RAYLOVE TECHNOLOGY CO., LTD**
Address:	No. 10 Kejia Road, Yijiang District, Wuhu City, Anhui Province
Product description	
Product name:	Portable outdoor energy storage power supply
Trademark:	N/A
Model name:	RS540
Serial Model:	N/A
Standards:	N/A
Test procedure:	KDB 447498 D01 v06
Date of Test	
Date of test:	2023-03-15 ~ 2023-05-15
Test result:	Pass

Test Engineer : David. Lee

(David Lee)

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 for BT, Ceramic Antenna for BLE

BT antenna gain: -0.58dBi

BLE antenna gain: 2.67dBi

R=20cm

mW=10^(dBm/10)

BT antenna gain Numeric=10^(dBi/10)= 10^(-0.58/10)=0.87

BLE antenna gain Numeric=10^(dBi/10)= 10^(2.67/10)=1.85

BR+EDR:

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm^2)	Power density Limits (mW/cm^2)
				tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	0.05	0±1	1	1.259	-0.58	0.87	0.0002	1
2441		-0.53	0±1	1	1.259	-0.58	0.87	0.0002	1
2480		-0.58	0±1	1	1.259	-0.58	0.87	0.0002	1
2402	π/4-DQPSK	2.7	2±1	3	1.995	-0.58	0.87	0.0003	1
2441		1.98	2±1	3	1.995	-0.58	0.87	0.0003	1
2480		2	2±1	3	1.995	-0.58	0.87	0.0003	1
2402	8DPSK	2.98	2±1	3	1.995	-0.58	0.87	0.0003	1
2441		2.33	2±1	3	1.995	-0.58	0.87	0.0003	1
2480		2.33	2±1	3	1.995	-0.58	0.87	0.0003	1

BLE:

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm^2)	Power density Limits (mW/cm^2)
				tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeric		
2402	BLE-1M	-5.24	(-5)±1	-4	0.398	2.67	1.85	0.0001	1
2440		-4.76	(-5)±1	-4	0.398	2.67	1.85	0.0001	1
2480		-5.06	(-5)±1	-4	0.398	2.67	1.85	0.0001	1

Conclusion:

Simultaneous transmit:

Operating Band	The MPE ratio
BR&EDR	0.0003
BLE	0.0001
WPT	0.1114

Note: The MPE ratio=Max Test Result/Limit Value

WPT test result and limit plaese reference MTi230209018-11E5 MPE test report.

So the simultaneous transmitting antenna pairs as below:

BR&EDR+BLE +WPT=0.0003+0.0001+0.1114=0.1118

For the simultaneous transmit max result: 0.1118≤ 1.0, No SAR is required

----END OF REPORT----