

MPE REPORT

FCC ID: 2AP9S-GW-W-SIRC

Date of issue: Jan. 04, 2019

Report Number:	MTi190104E028
Sample Description:	WiFi String Light
Model(s):	GW-W-SIRC, MG-WF-RGB-02, BH19-093-599-84
Applicant:	Gateway Plastic Hardware & Lighting Co., Ltd.
Address:	Jingfu Road, Xincheng Industrial Area, Hengli Town, Dongguan, Guangdong, China
Date of Test:	Dec. 28, 2018 to Jan. 04, 2019

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

TEST RESULT CERTIFICATION	
Applicant's name:	Gateway Plastic Hardware & Lighting Co., Ltd.
Address:	Jingfu Road, Xincheng Industrial Area, Hengli Town, Dongguan, Guangdong, China
Manufacture's name:	Gateway Plastic Hardware & Lighting Co., Ltd.
Address:	Jingfu Road, Xincheng Industrial Area, Hengli Town, Dongguan, Guangdong, China
Product name:	WiFi String Light
Trademark:	Gateway
Model name:	GW-W-SIRC
Series model:	MG-WF-RGB-02, BH19-093-599-84
Difference in series models:	All the model are the same circuit and RF module, except the model No.
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:

Jack Le

Jack Le

Jan. 04, 2019

Reviewed by:

Blue Zheng

Blue Zheng

Jan. 04, 2019

Approved by:

Smith Chen

Smith Chen

Jan. 04, 2019

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)

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

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 = 3.14115926

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.

Measurement Result

Operation Frequency: WIFI 802.11b/g/n20:2412~2462MHz

Power density limited: 1mW/ cm²

Antenna Type: PCB Antenna;

Antenna gain: 1.2dBi

R=20cm

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

Antenna gain Numeric= $10^{(dBi/10)}= 10^{(5/10)}=1.32$

2. SAR Test Exclusion Thresholds

Bluetooth DTS:

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna Gain	Evaluation result at 20cm	Power density Limits (mW/cm ²)
				tune-up power				
				(dBm)	(dBm)	(dBm)	(mW)	
Ant A	Ant A	Ant A	Ant A	Ant A	Ant A	Ant A		
2412	802.11b	11.72	12±1	13	25.118864	2.24	0.00524	1
2437		11.48	12±1	13	25.118864	2.24	0.00524	1
2462		11.69	12±1	13	25.118864	2.24	0.00524	1
2412	802.11g	11.16	11±1	12	19.952623	2.24	0.00416	1
2437		10.89	11±1	12	19.952623	2.24	0.00416	1
2462		11.30	11±1	12	19.952623	2.24	0.00416	1
2412	802.11n H20	10.46	11±1	12	19.952623	2.24	0.00416	1
2437		11.37	11±1	12	19.952623	2.24	0.00416	1
2462		10.96	11±1	12	19.952623	2.24	0.00416	1

Conclusion:

For the max result: $0.00524 \leq 1.0$ for 1g SAR, No SAR is required.

----END OF REPORT----