MPE REPORT

FCC ID: 2AP9S-GW-SL46-57-3A

Date of issue: July 10, 2018

Report Number:	MTi180706E029
Sample Description:	LED SHOPLIGHT-BLUETOOTH SPEAKER
Model(s):	GW-SL46-57-3A, GW-SL46-57-3B
Applicant:	Gateway Plastic Hardware & Lighting Co., Ltd.
Address:	Jingfu Road, Xincheng Industrial Area, Hengli Town, Dongguan, Guangdong, China
Date of Test:	June 22, 2018 to July 10, 2018

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:	LED SHOPLIGHT-BLUETOOTH SPEAKER
Trademark:	iSimple
Model name:	GW-SL46-57-3A
Series model:	GW-SL46-57-3B
Difference in series models:	The wireless module used in the product is the same, but the model is named differently.
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 July 10 , 2018

Reviewed by: Blue Zheng July 10 , 2018

Approved by: Smith Chen July 10 , 2018

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=3.14115926

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

BT:

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

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/cm 2)
				(dBm)	(mW)	Numeric		
		Ant A	Ant A	Ant A	Ant A	Ant A	Ant A	
2402	GFSK	-5.372	-5±1	-4	0.3981	3	0.00024	1
2441		-6.069	-5±1	-4	0.3981	3	0.00024	1
2480		-6.117	-5±1	-4	0.3981	3	0.00024	1
2402	π/4-DQPSK	-4.566	-5±1	-4	0.3981	3	0.00024	1
2441		-5.248	-5±1	-4	0.3981	3	0.00024	1
2480		-5.355	-5±1	-4	0.3981	3	0.00024	1

Conclusion:

For the max result: 0.00024 for 1g SAR, No SAR is required.

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