

MPE REPORT

FCC ID: 2AB22-ESW10-USA2

Date of issue: Sept. 29, 2019

Report number: MTi19082802-1E2

Sample description: Etekcity Voltson Mini Smart WiFi Outlet

Model(s): ESW10-USA2

Applicant: Etekcity Corporation

Address: 1202 N Miller St. Suite A, Anaheim, CA 92806, USA

Date of test: Sept. 11, 2019 to Sept. 29, 2019

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>



TEST RESULT CERTIFICATION	
Applicant's name:	Etekc City Corporation
Address:	1202 N Miller St. Suite A, Anaheim, CA 92806, USA
Manufacture's name:	Dongguan Raiwee Electronic Technology Co., Ltd
Address:	Building 11, Antouling, Industry Avenue, Qinghu Village, Qishi Town, Dongguan, Guangdong 523000, China
Product name:	Etekc City Voltson Mini Smart WiFi Outlet
Trademark:	ETEK CITY
Model and/or type reference .:	ESW10-USA2
Serial model	N/A
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:

Danny Xu

Sept. 29, 2019

Reviewed by:

Blue Zheng

Sept. 29, 2019

Approved by:

Smith Chen

Sept. 29, 2019



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

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 = 3.1415926

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

WIFI:

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

Power density limited: 1mW/ cm²

Antenna Type: WiFi Antenna: Metal Antenna;

WIFI antenna gain: 1.8dBi

R=20cm

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

antenna gain Numeric= $10^{(dBi/10)}=10^{(1.8/10)}=1.51$

Channel Freq. (MHz)	modulation	conduct ed power	Tune-up power	Max		Antenna	Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain	Power density(mW/cm2)	(mW/cm2)
				(dBm)	(mW)	Numeric		
		Ant A	Ant A	Ant A	Ant A	Ant A	Ant A	
2412	802.11b	13.26	13±1	14	25.118864	1.51	0.00755	1
2437		13.24	13±1	14	25.118864	1.51	0.00755	1
2462		13	13±1	14	25.118864	1.51	0.00755	1
2412	802.11g	10.08	10±1	11	12.589254	1.51	0.00378	1
2437		10.06	10±1	11	12.589254	1.51	0.00378	1
2462		10.36	10±1	11	12.589254	1.51	0.00378	1
2412	802.11n H20	9.49	9±1	10	10	1.51	0.00300	1
2437		9.36	9±1	10	10	1.51	0.00300	1
2462		9.29	9±1	10	10	1.51	0.00300	1

Conclusion:

For the max result: $0.00755 \leq 1.0$ for 1g SAR, No SAR is required.

----END OF REPORT----