

MPE REPORT

FCC ID: 2AURI-ZX-G12

Date of issue: Oct. 09, 2019

Report number:	MTi19081614-1E2
Sample description:	ZX-G12 Alarm Hub
Model(s):	ZX-G12, ZX-G10, ZX-G11, ZX-G14, ZX-G20, ZX-G21, ZX-G30, ZX-G31
Applicant:	Shenzhen Smartrol Technology Limited
Address:	6F, Leishi Industrial Park, NO.1119, Guanlan Guanguang Road, Longhua District, Shenzhen, China
Date of test:	Aug. 26, 2019 to Oct. 09, 2019

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

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TEST RESULT CERTIFICATION	
Applicant's name:	Shenzhen Smartrol Technology Limited
Address:	6F, Leishi Industrial Park, NO.1119, Guanlan Guanguang Road, Longhua District, Shenzhen, China
Manufacture's name:	Shenzhen Smartrol Technology Limited
Address:	6F, Leishi Industrial Park, NO.1119, Guanlan Guanguang Road, Longhua District, Shenzhen, China
Product name:	ZX-G12 Alarm Hub
Trademark:	Smartrol
Model and/or type reference .:	ZX-G12
Serial model.....:	ZX-G10, ZX-G11, ZX-G14, ZX-G20, ZX-G21, ZX-G30, ZX-G31
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

Oct. 09, 2019

Reviewed by:

Blue Zheng

Oct. 09, 2019

Approved by:

Smith Chen

Oct. 09, 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: PCB Antenna;

WIFI antenna gain: 1.5dBi

R=20cm

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

antenna gain Numeric= $10^{(dBi/10)}=10^{(1.5/10)}=1.41$

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/cm2)
		Ant A	Ant A	(dBm)	(mW)	Numeric		
2412	802.11b	15.89	16±1	17	50.118723	1.41	0.01406	1
2437		15.62	16±1	17	50.118723	1.41	0.01406	1
2462		16.27	16±1	17	50.118723	1.41	0.01406	1
2412	802.11g	14.23	15±1	16	39.810717	1.41	0.01117	1
2437		14.19	15±1	16	39.810717	1.41	0.01117	1
2462		15.3	15±1	16	39.810717	1.41	0.01117	1
2412	802.11n H20	14.1	15±1	16	39.810717	1.41	0.01117	1
2437		14.13	15±1	16	39.810717	1.41	0.01117	1
2462		15.25	15±1	16	39.810717	1.41	0.01117	1

Conclusion:

For the max result: $0.01406 \leq 1.0$ for 1g SAR, No SAR is required.

----END OF REPORT----