

## RF Exposure Report

**Report No.:** SA170411E14B

**FCC ID:** ZMYHGW500SN2A4Q

**Test Model:** HGW-500SN2A4-Q

**Received Date:** Oct. 30, 2017

**Test Date:** Nov. 20 to 21, 2017

**Issued Date:** Dec. 21, 2017

**Applicant:** MitraStar Technology Corporation

**Address:** No. 6, Innovation Rd II, Science-Based Industrial, Hsin-Chu, Taiwan

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Hsin Chu Laboratory

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### Release Control Record

Issue No.	Description	Date Issued
SA170411E14B	Original release.	Dec. 21, 2017

## 1 Certificate of Conformity

**Product:** Base Port2 , Adaptador Wifi+ Dual

**Brand:** MitraStar

**Test Model:** HGW-500SN2A4-Q

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** MitraStar Technology Corporation

**Test Date:** Nov. 20 to 21, 2017

**Standards:** FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**Prepared by :** Mary Ko, **Date:** Dec. 21, 2017

Mary Ko / Specialist

**Approved by :** May Chen, **Date:** Dec. 21, 2017

May Chen / Manager

## 2 RF Exposure

### 2.1 Limits For Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (minutes)
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 <sup>2</sup> )*	30
30-300	27.5	0.073	0.2	30
300-1500	...	...	f/1500	30
1500-100,000	...	...	1.0	30

f = Frequency in MHz ; \*Plane-wave equivalent power density

### 2.2 MPE Calculation Formula

$$Pd = (Pout \cdot G) / (4 \cdot \pi \cdot r^2)$$

where

Pd = power density in mW/cm<sup>2</sup>

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

### 2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user.

So, this device is classified as **Mobile Device**.

## 2.4 Antenna Gain

Frequency range (MHz)	Directional Antenna Gain (dBi)
2412 ~ 2462	5.502 (3.8 for 1TX)
5180 ~ 5240	7.59
5260 ~ 5320	7.62
5500 ~ 5580	6.86
5660 ~ 5700	
5745 ~ 5825	6.66

## 2.5 Calculation Result

Frequency Band (MHz)	Max. Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	339.572	5.502	20	0.23981	1
5180-5240	275.729	7.59	20	0.31493	1
5745-5825	611.422	6.66	20	0.56373	1

### Conclusion:

The formula of calculated the MPE is:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots etc. < 1$$

CPD = Calculation power density

LPD = Limit of power density

$$WLAN\ 2.4GHz + WLAN\ 5GHz = 0.23981 / 1 + 0.56373 / 1 = 0.80354$$

**Therefore the maximum calculations of above situations are less than the “1” limit.**

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