

RF Exposure Report

Report No.: SA180103E09

FCC ID: 2ACFN-QWAAC2600

Test Model: QWA-AC2600

Received Date: Jan. 03, 2018

Test Date: Feb. 27, 2018

Issued Date: Mar. 15, 2018

Applicant: QNAP SYSTEMS, INC.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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**FCC Registration /
Designation Number:** 723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
SA180103E09	Original release.	Mar. 15, 2018

1 Certificate of Conformity

Product: QNAP Wireless Adapter

Brand: QNAP

Test Model: QWA-AC2600

Sample Status: ENGINEERING SAMPLE

Applicant: QNAP SYSTEMS, INC.

Test Date: Feb. 27, 2018

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

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 : Wendy Wu , **Date:** Mar. 15, 2018
Wendy Wu / Specialist

Approved by : May Chen , **Date:** Mar. 15, 2018
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 ²)	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 ²)*	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

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

where

Pd = power density in mW/cm²

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 34 cm away from the body of the user.

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

2.4 Antenna Gain

Antenna Set	Chain No.	Model No.	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connecter Type	*Cable Loss(dB)	excluding cable loss Antenna Gain(dBi)
1	0	98612PRXS000	1.93	2.4~2.4835	Dipole	R-SMA	1.1	3.03
			2.35	5.15~5.85			2.15	4.5
	1	98612PRXS000	1.79	2.4~2.4835	Dipole	R-SMA	1.24	3.03
			2.16	5.15~5.85			2.34	4.5
	2	98612PRXS000	1.94	2.4~2.4835	Dipole	R-SMA	1.09	3.03
			2.31	5.15~5.85			2.19	4.5
	3	98612PRXS000	1.92	2.4~2.4835	Dipole	R-SMA	1.11	3.03
			2.27	5.15~5.85			2.23	4.5

2.5 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412-2462	969.187	7.92	34	0.41327	1
5180-5240	947.22	8.29	34	0.43983	1
5745-5825	994.253	8.29	34	0.46167	1

NOTE:

2.4GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 4] = 7.92\text{dBi}$

5GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 4] = 8.29\text{dBi}$

Conclusion:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

$WLAN\ 2.4GHz + WLAN\ 5GHz = 0.41327 / 1 + 0.46167 / 1 = 0.87494$

Therefore the maximum calculations of above situations are less than the "1" limit.

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