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.
Address:	2F., No.22, Zhongxing Road, Xizhi District, New Taipei City, 221, Taiwan
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
FCC Registration / Designation Number:	723255 / TW2022

Table of Contents

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 : , **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/cm^2

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	98612PRSX000	1.93	2.4~2.4835	Dipole	R-SMA	1.1	3.03
			2.35	5.15~5.85			2.15	4.5
	1	98612PRSX000	1.79	2.4~2.4835	Dipole	R-SMA	1.24	3.03
			2.16	5.15~5.85			2.34	4.5
	2	98612PRSX000	1.94	2.4~2.4835	Dipole	R-SMA	1.09	3.03
			2.31	5.15~5.85			2.19	4.5
	3	98612PRSX000	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 = $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 4]$ = 7.92dBi

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

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……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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