

# FCC RF EXPOSURE REPORT

# FCC ID: 2ACFN-HORA301W

Project No. Equipment	:	2002H016A New Generation WiFi 6 and Dual 10GbE SD-WAN Router
Brand Name	:	QNAP
Test Model	:	QHora-301W
Series Model	:	N/A
Applicant	:	QNAP Systems, Inc.
Address	:	2F,No.22,Zhongxing Road,Xizhi District., New Taipei City,Taiwan, 221
Manufacturer	:	QNAP Systems, Inc.
Address	:	2F,No.22,Zhongxing Rd,Xizhi Dist., New Taipei City,221,Taiwan
Date of Receipt	:	Oct. 28, 2020
Date of Test	:	Oct. 28,2020~Nov. 13, 2020
Issued Date	:	Nov. 23, 2020
Report Version	:	R00
Test Sample	:	Engineering Sample No.: SH2020022569, SH2020022569-2 SH2020022569-1
Standard(s)	:	FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091 FCC Title 47 Part 2.1091, OET Bulletin 65 Supplement C

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

Maker QI

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#### Certificate # 5123.03

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# **REPORT ISSUED HISTORY**

Report Version	Description	Issued Date
R00	This report is based on the regular report(BTL-FCCP-5-2002H016_MPE R02) to added the 80+80 MHz mode,and the power is lower than the IEEE 802.11a,so it was no effection for this report.	Nov. 23, 2020

## **1. MPE CALCULATION METHOD**

Calculation Method of RF Safety Distance:

$$S = \frac{PG}{4\pi r^2} = \frac{EIRP}{4\pi r^2}$$

where:

S = power density

P = power input to the antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Table for Filed Antenna

For 5G:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	GALTRONICS	N/A	PCB	N/A	2.40	N/A
2	GALTRONICS	N/A	PCB	N/A	4.96	N/A
3	GALTRONICS	N/A	PCB	N/A	4.48	N/A
4	GALTRONICS	N/A	PCB	N/A	4.21	N/A

Note:

This EUT supports Beamforming and CDD, all antennas have unequal gains, any transmit signals are correlated with each other, so

1) Beamforming:

Directional gain =  $10\log[(10^{G1/20}+10^{G2/20}+...+10^{GN/20})^2/N_{ANT}]dBi$ ,

that is Directional gain=10log[ $(10^{G1/20}+10^{G2/20}+...+10^{GN/20})^2/N_{ANT}$ ]dBi =10.09; THEn, the UNII-1, UNII-3 output power limit is 30-10.09+6=25.91, the UNII-2A,UNII-2C output power limit is 24-10.09+6=19.91. THE UNII-1 power spectral density limit is 17-10.09+6=12.91,UNII-2A,UNII-2C power spectral density limit is 11-10.09+6=6.91, the UNII-3 power spectral density limit is 30-10.09+6=25.91.

2) CDD:

For power spectral density measurements, the Directional gain=10log[ $(10^{G1/20}+10^{G2/20}+....+10^{GN/20})^2/N_{ANT}$ ]dBi, that is Directional gain=10log[ $(10^{G1/20}+10^{G2/20}+....+10^{GN/20})^2/N_{ANT}$ ]dBi =10.09; THEn, the UNII-1 power spectral density limited is 17-10.09+6=12.91, UNII-2A,UNII-2C power spectral density limit is 11-10.09+6=6.91, the UNII-3 power spectral density limit is 30-10.09+6=25.91. For power meansurements, Directional gain= G<sub>ANT MAX</sub>.+Array Gain.Array Gain=0dB(N<sub>ANT</sub>≤4), so the Directional gain=4.96.

### End of Test Report