

Radio Exposure Evaluation Report

FCC ID : G95OWA813V
Equipment : Tri-band Wi-Fi 7 Ethernet Router-Extender
Brand Name : Vantiva
Model Name : OWA813V
Applicant : Vantiva USA LLC
4855 Peachtree Industrial Blvd. Suite 200,
Norcross, Georgia, United States 30092
Manufacturer : Vantiva USA LLC
4855 Peachtree Industrial Blvd. Suite 200,
Norcross, Georgia, United States 30092
Standard : 47 CFR FCC Part 2 Subpart J, section 2.1091

The product was received on Nov. 12, 2024, and testing was started from Nov. 12, 2024 and completed on Mar. 29, 2025. We, SPORTON INTERNATIONAL INC. Hsinhua Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR FCC Part 2 Subpart J, section 2.1091 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Hsinhua Laboratory, the test report shall not be reproduced except in full.



Approved by: Jackson Tsai

SPORTON INTERNATIONAL INC. Hsinhua Laboratory
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History of this test report

[illegible]



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
2	-	Exposure evaluation	PASS	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

None

Reviewed by: Ben Tseng

Report Producer: Michelle Tsai



1 General Description

1.1 Information

1.1.1 EUT General Information

RF General Information			
Evaluation Mode	Frequency Range (MHz)	Operating Frequency (MHz)	Modulation Type
2.4GHz WLAN	2400-2483.5	2412-2462	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) VHT: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) 802.11be: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM)
5GHz WLAN	5150-5250 5250-5350 5470-5725 5725-5850	5180-5240 5260-5320 5500-5720 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) 802.11be: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM)
6GHz WLAN	5925-7125	5955-7115	802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) 802.11be: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM)

**1.1.2 Antenna Information**

Ant.	Brand	Model Name	Antenna Type	Connector	Support	Radio
1	Pegatron	2G-1	Dipole	I-Pex	2.4G	Radio 1
2	Pegatron	DBDF	Dipole	I-Pex	2.4G	Radio 1
3	Pegatron	5G-0	PCB	N/A	5G	Radio 2
4	Pegatron	5G-1	PCB	N/A	5G	Radio 2
5	Pegatron	5G-2	Dipole	I-Pex	5G	Radio 2
6	Pegatron	5G-3	Dipole	I-Pex	5G	Radio 2
7	Pegatron	6G-1	PCB	N/A	6G	Radio 3
8	Pegatron	6G-2	PCB	N/A	6G	Radio 3
9	Pegatron	6G-0	Dipole	I-Pex	6G	Radio 3
10	Pegatron	DBDF	Dipole	I-Pex	6G	Radio 3

Ant.	Port	Gain (dBi)								
		2.4G	UNII-1	UNII-2A	UNII-2C	UNII-3	UNII-5	UNII-6	UNII-7	UNII-8
1	2	3.37	-	-	-	-	-	-	-	-
2	1	4.27	-	-	-	-	-	-	-	-
3	1	-	4.04	4.04	3.49	3.47	-	-	-	-
4	2	-	4.38	4.42	5	3.3	-	-	-	-
5	3	-	5.16	5.16	5.16	4.79	-	-	-	-
6	4	-	5.07	5.26	5.53	5.61	-	-	-	-
7	2	-	-	-	-	-	4.08	2.7	1.65	3.04
8	3	-	-	-	-	-	2.87	4.26	4.08	4.55
9	1	-	-	-	-	-	5.12	4.87	3.9	3.15
10	4	-	-	-	-	-	3.75	3.24	3.76	3.96

Composite Gain (dBi)									
	2.4G	UNII-1	UNII-2A	UNII-2C	UNII-3	UNII-5	UNII-6	UNII-7	UNII-8
DG [1SS]	4.27	5.22	5.32	5.53	5.61	6.21	5.01	4.59	5.83

Note 1: The EUT has ten antennas.

For 2.4GHz function:

For IEEE 802.11 b/g/n/VHT/ac/ax/be mode (2TX/2RX)

Ant. 1 (port 2), Ant. 2 (port 1) could transmit/receive simultaneously.

For 5GHz function:

For IEEE 802.11 a/n/ac/ax/be mode(4TX/4RX)

Ant. 3 (port 1), Ant. 4 (port 2), Ant. 5 (port 3) and Ant. 6 (port 4) could transmit/receive simultaneously.

For 6GHz function:

For IEEE 802.11 a/ax/be mode(4TX/4RX)

Ant. 7 (port 2), Ant. 8 (port 3), Ant. 9 (port 1) and Ant. 10 (port 4) could transmit/receive simultaneously.

1.1.3 Accessories

Accessories				
AC Adapter (US Plug)	Brand Name	HONOR	Model Name	ADS-36LE-12 12030EPCU-L
	Manufacturer	SHENZHEN HONOR ELECTRONIC CO LTD	SN	6339292A
	Power Rating	I/P: 100 -120Vac, 0.8A, O/P: 12Vdc, 2.5A		
Data Cable	Brand Name	TLE TUNG-LI	Model Name	6U423-077
	Signal Line	1.2 meter, non-shielded cable, w/o ferrite core		

Reminder: Regarding to more detail and other information, please refer to user manual.

1.2 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR FCC Part 2 Subpart J, section 2.1091
- ♦ KDB 447498 D04 Interim General RF Exposure Guidance v01

The following reference test guidance is not within the scope of accreditation of TAF.

- ♦ 47 CFR Part 1.1307
- ♦ 47 CFR Part 1.1310

1.3 Testing Location

Test Lab. : Sporton International Inc. Hsinhua Laboratory		
☒	Hsinhua (TAF: 3785)	ADD: No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.) TEL: 886-3-327-3456 FAX: 886-3-327-0973
Test site Designation No. TW3785 with FCC.		
☐	Wen 33rd.St. (TAF: 3785)	ADD: No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: 886-3-318-0787 FAX: 886-3-318-0287
Test site Designation No. TW0008 with FCC.		

2 Maximum Permissible Exposure

2.1 Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
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
300-1500	-	-	F/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
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

Note: f = frequency in MHz ; *Plane-wave equivalent power density

Multiple Transmitters Condition

Co-location as simultaneously transmitting (co-transmitting) and the evaluation shall be consider that simultaneous transmissions from co-located devices the individual transmitters are evaluated separately. After sum of the individual value (basic restriction / reference level) are measured/calculated also have to under basic restriction / reference level.

Co-transmitting mode: WLAN 2.4G + WLAN 5G + WLAN 6G

2.2 RF Exposure Exempt Measurement

Option	Refer Std.	Exemption Exposure Thresholds (TL)
A	§1.1307(b)(3)(i)(A)	Available maximum time-averaged power is no more than 1 mW
B	§1.1307(b)(3)(i)(B)	$P_{th}(mW) = \begin{cases} ERP_{20cm} (d / 20cm)^x \rightarrow d \leq 20cm \\ ERP_{20cm} \rightarrow 20cm < d \leq 40cm \end{cases}$ $x = -\log_{10} \left(\frac{60}{ERP_{20cm} \sqrt{f}} \right) \text{ and } f \text{ is in GHz}$ $\begin{cases} ERP_{20cm} : 0.3GHz \leq f < 1.5GHz \rightarrow 2040f(mW) \\ ERP_{20cm} : 1.5GHz \leq f \leq 6GHz \rightarrow 3060(mW) \end{cases}$
C	§1.1307(b)(3)(i)(C)	$\begin{cases} 0.3 \sim 1.34MHz \rightarrow ERP(W) = 1920R^2 \\ 1.34 \sim 30MHz \rightarrow ERP(W) = 3450R^2 / f^2 \\ 30 \sim 300MHz \rightarrow ERP(W) = 3.83R^2 \\ 300 \sim 1500MHz \rightarrow ERP(W) = 0.0128R^2 f \\ 1500 \sim 100000MHz \rightarrow ERP(W) = 19.2R^2 \end{cases}$ f is in MHz; R is in m; $R > \lambda / 2\pi$

2.3 Multiple RF Sources Exposure

Refer Std.	Exemption Exposure Thresholds (TL)
§1.1307(b)(3)(ii)(A)	The available maximum time-averaged power of each source is no more than 1 mW and there is a separation distance of two centimeters between any portion of a radiating structure operating and the nearest portion of any other radiating structure in the same device, except if the sum of multiple sources is less than 1 mW during the time-averaging period, in which case they may be treated as a single source (separation is not required)
§1.1307(b)(3)(ii)(B)	$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{ExposureLimit_k} \leq 1$ a = number of fixed, mobile, or portable RF sources claiming exemption using paragraph §1.1307(b)(3)(i)(B) of this section for P , including existing exempt transmitters and those being added. b = number of fixed, mobile, or portable RF sources claiming exemption using paragraph §1.1307(b)(3)(i)(C) of this section for Threshold ERP, including existing exempt transmitters and those being added. c = number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance including existing evaluated transmitters. P_i = the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source i at a distance between 0.5 cm and 40 cm (inclusive). P_{th,i} = the exemption threshold power (P_{th}) according to paragraph §1.1307(b)(3)(i)(B) of this section for fixed, mobile, or portable RF source i. ERP_j = the ERP of fixed, mobile, or portable RF source j. ERP_{th,j} = exemption threshold ERP for fixed, mobile, or portable RF source j, at a distance of at least λ/2π according to the applicable formula of paragraph §1.1307(b)(3)(i)(C) of this section. Evaluated_k = the maximum reported SAR or MPE of fixed, mobile, or portable RF source k either in the device or at the transmitter site from an existing evaluation at the location of exposure. Evaluated Limit_k = either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable RF source k, as applicable from § 1.1310 of this chapter.



2.4 MPE Calculation Method

The MPE was calculated at 31 cm to show compliance with the power density limit.
The following formula was used to calculate the Power Density:

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$



2.5 Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

Non-Beamforming

WLAN 2.4GHz_Full RU

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
2.4G;G1D	4.27	26.94	31.21	0.00	805.5825	31.00	B	3060.000	0.2633
2.4G;D1D	4.27	27.28	31.55	0.00	871.1842	31.00	B	3060.000	0.2847

WLAN 5GHz_Full RU

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
5.2G;D1D	5.16	27.73	32.89	0.00	1186.0691	31.00	B	3060.000	0.3876
5.3G;D1D	5.26	23.89	29.15	0.00	501.3142	31.00	B	3060.000	0.1638
5.6G;D1D	5.53	23.95	29.48	0.00	540.89	31.00	B	3060.000	0.1768
5.8G;D1D	5.61	27.39	33.00	0.00	1216.49	31.00	B	3060.000	0.3975

WLAN 6GHz_Full RU

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
6.2G;D1D	4.08	25.74	29.82	0.00	584.9382	31.00	C	1845.120	0.3170
6.4G;D1D	4.08	25.62	29.70	0.00	568.9970	31.00	C	1845.120	0.3084
6.7G;D1D	4.55	24.71	29.26	0.00	514.1739	31.00	C	1845.120	0.2787
7.0G;D1D	4.55	22.00	26.55	0.00	275.4926	31.00	C	1845.120	0.1493



Beamforming

WLAN 2.4GHz_Full RU

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	4.27	24.62	28.89	0.00	472.18	31.00	B	3060.000	0.1543

WLAN 5GHz_Full RU

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
5.2G;D1D	5.22	21.87	27.09	0.00	311.97	31.00	B	3060.000	0.1020
5.3G;D1D	5.32	20.60	25.92	0.00	238.29	31.00	B	3060.000	0.0779
5.6G;D1D	5.53	19.40	24.93	0.00	189.72	31.00	B	3060.000	0.0620
5.8G;D1D	5.61	21.34	26.95	0.00	302.07	31.00	B	3060.000	0.0987

WLAN 6GHz_Full RU

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
6.2G;D1D	6.21	22.16	28.37	0.00	418.8997	31.00	C	1845.120	0.2270
6.4G;D1D	5.01	22.44	27.45	0.00	338.9300	31.00	C	1845.120	0.1837
6.7G;D1D	5.83	22.27	28.10	0.00	393.6498	31.00	C	1845.120	0.2133
7.0G;D1D	5.83	21.69	27.52	0.00	344.4372	31.00	C	1845.120	0.1867

Note 1: Option A, B and C refer as clause 2.2

Note 2: For option B, Pth(mW) convert to TL ERP(mW); For option C, ERP(W) convert to TL ERP(mW)

Note 3: TL Ratio=Tune-up ERP(mW)/TL ERP(mW)

Simultaneous Transmission Analysis Mode:

WLAN 2.4G + WLAN 5G + WLAN 6G

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	4.27	27.28	31.55	0.00	871.1842	31.00	B	3060.000	0.2847
5.8G;D1D	5.61	27.39	33.00	0.00	1216.4941	31.00	B	3060.000	0.3975
6.2G;D1D	4.08	25.74	29.82	0.00	584.9382	31.00	C	1845.120	0.3170
								Sum Ratio	0.9993
								Ratio Limit	1.00000

Note 1: Option A, B and C refer as clause 2.2

Note 2: For option B, Pth(mW) convert to TL ERP(mW); For option C, ERP(W) convert to TL ERP(mW)

Note 3: TL Ratio=Tune-up ERP(mW)/TL ERP(mW)

Note 4: Refer as clause 2.3 Multiple RF Sources Exposure. Please follow below option and sum TL ration table.

Option	Sum TL Ratio_B	Option	Sum TL Ratio_C	Option	Sum TL Ratio_E
B	$\sum_{i=1}^a \frac{P_i}{P_{th,i}}$	C	$\sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}}$	E	$\sum_{k=1}^c \frac{Evaluated_k}{ExposureLimit_k}$

Note: The above antenna gain was declared by manufacturer.

—————THE END—————