

Radio Exposure Evaluation Report

FCC ID : S7Q-P04
Contains FCC ID : S7Q-S04
Equipment : Gateway
Brand Name : TECHMAN or 
Model Name : IW-3240H
Applicant : Quanta Storage Inc.
6F., No. 58-2, Huaya 2nd Rd., Guishan Dist.,
Taoyuan City, Taiwan
Manufacturer : TECHMAN ELECTRONICS (THAILAND) CO.,LTD
236 – 237 Moo.2, Tambon Nongchark, Banbung,
Chonburi 20170 Thailand
Standard : 47 CFR FCC Part 2 Subpart J, section 2.1091

The product was received on Oct. 07, 2025, and testing was started from Oct. 09, 2025 and completed on Oct. 23, 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
No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)



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Photographs of EUT V01



History of this test report

Report No.	Version	Description	Issued Date
FA5O0134	01	Initial issue of report	Nov. 28, 2025



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: Sam Tsai

Report Producer: Amber Chiu



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) 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, 1024QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) 802.11be: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM)
SRD	902-928	903.5~926.5	OFDM

Note: The HaLow transmitter is certified under separate FCC ID:S7Q-S04

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector	Support	Radio
1	Aristotle	RFA-27-C57-U-B70-1	Dipole	Reverse SMA	2.4G+5G	Radio 1
2	Aristotle	RFA-27-C57-U-B70-1	Dipole	Reverse SMA	2.4G+5G	Radio 1
3	Aristotle	RFA-27-C57-U-B70-1	Dipole	Reverse SMA	2.4G+5G	Radio 1
4	Aristotle	RFA-27-C57-U-B70-1	Dipole	Reverse SMA	2.4G+5G	Radio 1
5	Aristotle	RFA-S1-C57-U-B70-1	Dipole	SMA	HaLow	Radio 2
6	Aristotle	RFA-J15-T379-5-3M	PIFA	Reverse SMA	2.4G+5G	Radio 1
7			PIFA	Reverse SMA	2.4G+5G	Radio 1
8			PIFA	Reverse SMA	2.4G+5G	Radio 1
9			PIFA	Reverse SMA	2.4G+5G	Radio 1
10			PIFA	SMA	HaLow	Radio 2

Ant.	Gain (dBi)					
	2.4G	5G				HaLow
		UNII-1	UNII-2A	UNII-2C	UNII-3	
1	1.45	3.89	3.89	3.89	3.89	-
2	1.45	3.89	3.89	3.89	3.89	-
3	1.45	3.89	3.89	3.89	3.89	-
4	1.45	3.89	3.89	3.89	3.89	-
5	-	-	-	-	-	0.8
6	1.11	0.26	0.26	0.26	0.26	-
7	1.87	1.53	1.53	1.53	1.53	-
8	1.63	0.88	0.88	0.88	0.88	-
9	1.63	0.88	0.88	0.88	0.88	-
10	-	-	-	-	-	2.9

Note 1: The EUT has ten antennas.

For 2.4GHz function:

For IEEE 802.11 b/g/n/ax/be mode (2TX/2RX) (Chain0~Chain1)

< Dipole > Ant. 1 or Ant 2 or Ant.3 or Ant. 4 transmit/receive simultaneously.

< PIFA > Ant. 6 or Ant 7 or Ant.8 or Ant. 9 transmit/receive simultaneously.

For 5GHz function:

For IEEE 802.11 a/n/ac/ax/be mode(4TX/4RX) (Chain0~Chain3)

< Dipole > Ant. 1 and Ant. 2 and Ant. 3 and Ant. 4 transmit/receive simultaneously.

< PIFA > Ant. 6 and Ant. 7 and Ant. 8 and Ant. 9 transmit/receive simultaneously.

For SRD function:

For SRD function (1TX/1RX)

Ant. 5 or Ant. 10 transmit/receive.

Note 2: Directional gain information

	Maximum Output Power	Power Spectral Density
Non-BF	Directional gain = Max.gain + array gain. For power measurements on IEEE 802.11 devices Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$	$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{in}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$
BF	$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{in}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$	$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{in}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$

1.1.3 Accessories

Accessories				
DIN-RAIL mounting bracket kit	Brand Name	You Chang Hardware Co., Ltd		
	Model Name	35mm Din Rail Clip		
DC power male terminal block	Brand Name	PHOENIX CONTACT		
	Model Name	1778014 (CONNECTOR,TERM BLOCK PLUG 5POS STR 5.08MM)		
Digital I/O male terminal block	Brand Name	PHOENIX CONTACT		
	Model Name	1847107 (CONNECTOR, TERM BLOCK PLUG 7POS STR 3.5MM)		
DB9 female connector to RJ45 console cable	Brand Name	JOIN TEK CORPORATION CO.,LTD.		
	Model Name	DB9F-1204-D001		
	Signal Line	1.5 meter, non-shielded cable, w/o ferrite core		
SFP Ethernet port Dust cover	Brand Name	Hua Thai		
	Model Name	SFP Dust Cover		
Antennas	Brand Name	Aristotle	Model Name	RFA-27-C57-U-B70-1
Antennas	Brand Name	Aristotle	Model Name	RFA-S1-C57-U-B70-1
Antennas	Brand Name	Aristotle	Model Name	RFA-J15-T379-5-3M

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+ HaLow

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)	$P_{th}(mW) = \begin{cases} ERP_{20cm} (d / 20cm)^x \rightarrow d \leq 20cm \\ ERP_{20cm} \rightarrow 20cm < d \leq 40cm \end{cases}$ $x = -\log_{10} \left(\frac{60}{ERP_{20cm} \sqrt{f}} \right) \text{ and } f \text{ is in GHz}$ $\begin{cases} ERP_{20cm} : 0.3GHz \leq f < 1.5GHz \rightarrow 2040 f(mW) \\ ERP_{20cm} : 1.5GHz \leq f \leq 6GHz \rightarrow 3060(mW) \end{cases}$
C	§1.1307(b)(3)(i)(C)	$\begin{cases} 0.3 \sim 1.34MHz \rightarrow ERP(W) = 1920 R^2 \\ 1.34 \sim 30MHz \rightarrow ERP(W) = 3450 R^2 / f^2 \\ 30 \sim 300MHz \rightarrow ERP(W) = 3.83R^2 \\ 300 \sim 1500MHz \rightarrow ERP(W) = 0.0128 R^2 f \\ 1500 \sim 100000MHz \rightarrow ERP(W) = 19.2R^2 \end{cases}$ 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 $\lambda/2\pi$ 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 43 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

< Dipole >

WLAN 2.4G_Non-Beamforming

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
2.4G;G1D	1.45	27.51	26.81	0.50	538.270	43	C	3550.1	0.1517
2.4G;D1D	1.45	27.07	26.37	0.50	486.407	43	C	3550.1	0.1371

WLAN 5G_Non-Beamforming

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
5.2G;D1D	3.89	23.68	25.42	0.50	390.841	43	C	3550.1	0.1101
5.3G;D1D	3.89	23.80	25.54	0.50	401.791	43	C	3550.1	0.1132
5.6G;D1D	3.89	23.97	25.71	0.50	417.830	43	C	3550.1	0.1177
5.8G;D1D	3.89	29.09	30.83	0.50	1358.313	43	C	3550.1	0.3828

Halow

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
0.9G;SRD	0.80	21.41	20.06	0.50	113.763	43	C	2138.3	0.0532

WLAN 2.4G_Beamforming

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	4.46	27.05	29.36	0.50	968.278	43	C	3550.1	0.2728

WLAN 5G_Beamforming

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
5.2G;D1D	9.91	19.56	27.32	0.50	605.341	43	C	3550.1	0.1706
5.3G;D1D	9.91	19.68	27.44	0.38	605.341	43	C	3550.1	0.1706
5.6G;D1D	9.91	19.52	27.28	0.50	599.791	43	C	3550.1	0.1690
5.8G;D1D	9.91	25.48	33.24	0.50	2365.920	43	C	3550.1	0.6667



< PIFA >

WLAN 2.4G_Non-Beamforming

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
2.4G;G1D	1.87	27.51	27.23	0.50	592.925	20	B	3060.0	0.1938
2.4G;D1D	1.87	27.07	26.79	0.50	535.797	20	B	3060.0	0.1752

WLAN 5G_Non-Beamforming

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
5.2G;D1D	1.53	23.68	23.06	0.50	226.986	20	B	3060.0	0.0742
5.3G;D1D	1.53	23.80	23.18	0.50	233.346	20	B	3060.0	0.0763
5.6G;D1D	1.53	23.97	23.35	0.50	242.661	20	B	3060.0	0.0793
5.8G;D1D	1.53	29.09	28.47	0.50	788.860	20	B	3060.0	0.2579

Halow

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
0.9G;SRD	2.9	21.41	22.16	0.50	184.502	20	B	1843.1	0.1001

WLAN 2.4G_Beamforming

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	4.88	27.05	29.78	0.50	1066.596	20	B	3060.0	0.3487

WLAN 5G_Beamforming

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
5.2G;D1D	7.55	19.56	24.96	0.50	351.560	20	B	3060.0	0.1149
5.3G;D1D	7.55	19.68	25.08	0.50	361.410	20	B	3060.0	0.1182
5.6G;D1D	7.55	19.52	24.92	0.50	348.337	20	B	3060.0	0.1139
5.8G;D1D	7.55	25.48	30.88	0.50	1374.042	20	B	3060.0	0.4492

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:

< Dipole >

WLAN 2.4G+ WLAN 5G+ HaLow

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	4.46	27.05	29.36	0.50	968.278	43	C	3550.1	0.2728
5.8G;D1D	9.91	25.48	33.24	0.50	2365.920	43	C	3550.1	0.6667
0.9G;SRD	0.80	21.41	20.06	0.50	113.763	43	C	2138.3	0.0532
Sum TL Ratio_C	0.9924								
Ratio Limit	1								

< PIFA >

WLAN 2.4G+ WLAN 5G+ HaLow

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	4.88	27.05	29.78	0.50	1066.596	20	B	3060.0	0.3487
5.8G;D1D	7.55	25.48	30.88	0.50	1374.042	20	B	3060.0	0.4492
0.9G;SRD;	2.9	21.41	22.16	0.50	184.502	20	B	1843.1	0.1001
Sum TL Ratio_B	0.8977								
Ratio Limit	1								

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————