



NCC RADIO EXPOSURE TEST REPORT

Equipment : 無線接入點
Brand Name : Extreme Networks
Model Name : AP560i
Applicant : 香港商極進網路有限公司台灣分公司
臺北市松山區復勢里南京東路 4 段 126 號 5 樓
Manufacturer : 啟碁科技股份有限公司
新竹科學工業園區新竹縣園區二路 20 號
Standard : NCC LP0002 (Jan. 10, 2018) Section 5.20 (5.20.2)

The product was received on Apr. 14, 2018, and testing was started from Apr. 14, 2018 and completed on Apr. 15, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in NCC LP0002 (Jan. 10, 2018) Section 5.20 (5.20.2) and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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

Approved by: Cliff Chang

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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TEL : 886-3-656-9065
FAX : 886-3-656-9085
Report Template No.: CB Ver1.0



Summary of Test Result

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

Note: Reference to Sporton Project No.: 8O1739-01, 8O1739-02, 8O1739-07 and 8O1739-08.

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:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Cliff Chang

Report Producer: Wendy Pan

1 General Description

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)
5GHz WLAN	5150-5250 5250-5350 5470-5725 5725-5850	5180-5250 5250-5320 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)
Bluetooth	2400-2483.5	2402-2480	LE: DSSS (GFSK)
Thread	2400-2483.5	2405-2480	Thread: O-QPSK (250kbps)

1.1.1 Table for Multiple Listing

The EUT has three radios, the information as following table:

Radio	Function		
	WLAN 2.4GHz	WLAN 5GHz	Bluetooth/Thread
1	V	V	-
2	-	V	-
3	-	-	V



1.2 Testing Location

Testing Location		
☐	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-327-0973
☒	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada. Maximum Permissible Exposure

1.3 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
3-30	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			5.0	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)
0.3-3.0	614	1.63	*100	30
3-30	1842/f	4.89/f	*180/f ²	30
30-300	27.5	0.073	1.0	30
300-1500			f/1500	30
1500-100,000			1.0	30

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



2 MPE Calculation Method

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

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

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

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

2.1 Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

For Indoor 5GHz Band 1

For WLAN Function:

Test Mode: 1T1S

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D (Radio 1)	5.89	20.19	26.08	0.5	26.58	0.45498806	20	0.09051	1
5.2G;D1D (Radio 2)	4.57	20.20	24.77	0.50	25.27	0.33651	20	0.06695	1

Test Mode: 2T2S

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D (Radio 1)	5.63	23.37	29.00	0.50	29.50	0.89125	20	0.17730	1
5.2G;D1D (Radio 2)	4.49	23.25	27.74	0.50	28.24	0.66681	20	0.13265	1

**Test Mode: 4T1S**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D (Radio 1)	11.59	23.94	35.53	0.46	35.99	3.97192	20	0.79017	1
5.2G;D1D (Radio 2)	10.81	25.17	35.98	0.01	35.99	3.97192	20	0.79017	1

Test Mode: 4T4S

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D (Radio 1)	5.58	25.88	31.46	0.50	31.96	1.57036	20	0.31241	1
5.2G;D1D (Radio 2)	4.79	25.79	30.58	0.50	31.08	1.28233	20	0.25511	1

**For Outdoor****For WLAN Function:****Test Mode: 1T1S**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D (Radio 1)	5.89	15.04	20.93	0.06	20.99	0.125603	20	0.02499	1
5.2G;D1D (Radio 2)	4.57	16.38	20.95	0.04	20.99	0.12560	20	0.02499	1

Test Mode: 2T2S

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D (Radio 1)	5.63	15.35	20.98	0.01	20.99	0.12560	20	0.02499	1
5.2G;D1D (Radio 2)	4.49	16.50	20.99	0.00	20.99	0.12560	20	0.02499	1

Test Mode: 4T1S

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D (Radio 1)	11.59	9.40	20.99	0.00	20.99	0.12560	20	0.02499	1
5.2G;D1D (Radio 2)	5.18	15.76	20.94	0.05	20.99	0.12560	20	0.02499	1

Test Mode: 4T4S

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D (Radio 1)	5.58	15.36	20.94	0.05	20.99	0.12560	20	0.02499	1
5.2G;D1D (Radio 2)	4.79	16.18	20.97	0.02	20.99	0.12560	20	0.02499	1

**For 5GHz Band 2 ~ Band 4, 2.4GHz, Bluetooth and Thread****For WLAN Function:****Test Mode: 1T1S**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;G1D (Radio 1)	3.90	22.93	26.83	0.50	27.33	0.54075	20	0.10758	1
5.3G;D1D (Radio 1)	5.89	20.39	26.28	0.50	26.78	0.47643	20	0.09478	1
5.6G;D1D (Radio 1)	5.89	18.02	23.91	0.50	24.41	0.27606	20	0.05492	1
5.8G;D1D (Radio 1)	5.89	21.47	27.36	0.50	27.86	0.61094	20	0.12154	1
5.3G;D1D (Radio 2)	4.57	20.67	25.24	0.50	25.74	0.37497	20	0.07460	1
5.6G;D1D (Radio 2)	4.57	21.08	25.65	0.50	26.15	0.41210	20	0.08198	1
5.8G;D1D (Radio 2)	4.57	22.84	27.41	0.50	27.91	0.61802	20	0.12295	1

Test Mode: 2T2S

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;D1D (Radio 1)	3.87	23.17	27.04	0.50	27.54	0.56754	20	0.11291	1
5.3G;D1D (Radio 1)	5.63	23.55	29.18	0.50	29.68	0.92897	20	0.18481	1
5.6G;D1D (Radio 1)	5.63	20.89	26.52	0.50	27.02	0.50350	20	0.10017	1
5.8G;D1D (Radio 1)	5.63	24.48	30.11	0.50	30.61	1.15080	20	0.22894	1
5.3G;D1D (Radio 2)	4.49	22.66	27.15	0.50	27.65	0.58210	20	0.11580	1
5.6G;D1D (Radio 2)	4.49	23.76	28.25	0.50	28.75	0.74989	20	0.14918	1
5.8G;D1D (Radio 2)	4.49	25.94	30.43	0.50	30.93	1.23880	20	0.24644	1

**Test Mode: 4T1S**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;G1D (Radio 1)	3.90	28.09	31.99	0.50	32.49	1.77419	20	0.35296	1
5.3G;D1D (Radio 1)	11.59	18.37	29.96	0.03	29.99	0.99770	20	0.19848	1
5.6G;D1D (Radio 1)	11.59	18.38	29.97	0.02	29.99	0.99770	20	0.19848	1
5.8G;D1D (Radio 1)	11.59	24.40	35.99	0.00	35.99	3.97192	20	0.79017	1
5.3G;D1D (Radio 2)	10.81	19.15	29.96	0.03	29.99	0.99770	20	0.19848	1
5.6G;D1D (Radio 2)	10.81	19.12	29.93	0.06	29.99	0.99770	20	0.19848	1
5.8G;D1D (Radio 2)	10.81	25.16	35.97	0.02	35.99	3.97192	20	0.79017	1

Test Mode: 4T4S

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;D1D (Radio 1)	3.76	25.11	28.87	0.50	29.37	0.86497	20	0.17208	1
5.3G;D1D (Radio 1)	5.58	23.90	29.48	0.50	29.98	0.99541	20	0.19802	1
5.6G;D1D (Radio 1)	5.58	23.34	28.92	0.50	29.42	0.87498	20	0.17407	1
5.8G;D1D (Radio 1)	5.58	27.49	33.07	0.50	33.57	2.27510	20	0.45261	1
5.3G;D1D (Radio 2)	4.79	23.96	28.75	0.50	29.25	0.84140	20	0.16739	1
5.6G;D1D (Radio 2)	4.79	23.96	28.75	0.50	29.25	0.84140	20	0.16739	1
5.8G;D1D (Radio 2)	4.79	28.38	33.17	0.50	33.67	2.32809	20	0.46315	1

**For Bluetooth Function:**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;BT-LE (Radio 3)	4.40	1.67	6.07	0.50	6.57	0.00454	20	0.00090	1

For Thread Function:

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;G1D (Radio 3)	4.40	1.92	6.32	0.50	6.82	0.00481	20	0.00096	1

————THE END————