

Radio Exposure Evaluation Report

Equipment : 無線接入點

Brand Name : UBIQUITI

Model Name : UWB-XG

Applicant : 香港商優比快科技有限公司台灣分公司
臺北市信義區松仁路 107 號 12 樓

Manufacturer : Ubiquiti Networks, Inc.
685 Third Avenue, 27th Floor New York,
New York 10017 USA

Standard : LP0002 Section 5.20.2 (2018-01-10)

The product was received on Dec. 05, 2017, and testing was started from Dec. 26, 2017 and completed on Jan. 18, 2018. 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 LP0002 Section 5.20.2 (2018-01-10) 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 United States 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: Allen Lin

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 : 886-3-327-3456
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Report Template No.: HE1-A1 Ver2.1

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: Jackson Tsai

Report Producer: Michelle Tsai

1 General Description

1.1 EUT General Information

RF General Information			
Evaluation Mode	Frequency Range (MHz)	Operating Frequency (MHz)	Modulation Type
5GHz WLAN	5150-5250 5250-5350 5470-5725 5725-5850	5180-5240 5260-5320 5500-5650 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Bluetooth	2400-2483.5	2402-2480	LE: DSSS (GFSK)

1.2 Testing Location

Testing Location			
☒	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)	
		TEL : 886-3-327-3456	FAX : 886-3-327-0973

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
3-30	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

2.2 MPE Calculation Method

The MPE was calculated at 27 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

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

2.3 Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

< Antenna Gain 10dBi>

Non-Beamforming Indoor

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	10.00	22.82	32.82	0.00	32.82	1.91426	27	0.20896	1.00000
5.3G;D1D	10.00	19.80	29.80	0.00	29.80	0.95499	27	0.10425	1.00000
5.6G;D1D	10.00	19.76	29.76	0.00	29.76	0.94624	27	0.10329	1.00000
5.8G;D1D	10.00	25.95	35.95	0.00	35.95	3.93550	27	0.42960	1.00000

Non-Beamforming Outdoor

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	10.00	10.98	20.98	0.00	20.98	0.12531	27	0.01368	1.00000
5.3G;D1D	10.00	19.80	29.80	0.00	29.80	0.95499	27	0.10425	1.00000
5.6G;D1D	10.00	19.76	29.76	0.00	29.76	0.94624	27	0.10329	1.00000
5.8G;D1D	10.00	25.95	35.95	0.00	35.95	3.93550	27	0.42960	1.00000

Beamforming Indoor

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	16.02	19.52	35.54	0.00	35.54	3.58096	27	0.39090	1.00000
5.3G;D1D	13.01	16.85	29.86	0.00	29.86	0.96828	27	0.10570	1.00000
5.6G;D1D	16.02	13.94	29.96	0.00	29.96	0.99083	27	0.10816	1.00000
5.8G;D1D	16.02	19.97	35.99	0.00	35.99	3.97192	27	0.43357	1.00000

Beamforming Outdoor

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	16.02	4.97	20.99	0.00	20.99	0.12560	27	0.01371	1.00000
5.3G;D1D	16.02	13.67	29.69	0.00	29.69	0.93111	27	0.10164	1.00000
5.6G;D1D	16.02	13.94	29.96	0.00	29.96	0.99083	27	0.10816	1.00000
5.8G;D1D	16.02	19.97	35.99	0.00	35.99	3.97192	27	0.43357	1.00000

< Antenna Gain 15dBi>
Non-Beamforming Indoor

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	15.00	17.53	32.53	0.00	32.53	1.79061	27	0.19546	1.00000
5.3G;D1D	15.00	14.89	29.89	0.00	29.89	0.97499	27	0.10643	1.00000
5.6G;D1D	15.00	14.91	29.91	0.00	29.91	0.97949	27	0.10692	1.00000
5.8G;D1D	15.00	20.98	35.98	0.00	35.98	3.96278	27	0.43258	1.00000

Non-Beamforming Outdoor

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	15.00	5.98	20.98	0.50	21.48	0.14060	20	0.02797	1.00000
5.3G;D1D	15.00	14.89	29.89	0.11	30.00	1.00000	20	0.19894	1.00000
5.6G;D1D	15.00	14.91	29.91	0.50	30.41	1.09901	20	0.21864	1.00000
5.8G;D1D	15.00	20.98	35.98	0.50	36.48	4.44631	20	0.88457	1.00000

Beamforming Indoor

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	21.02	14.57	35.59	0.00	35.59	3.62243	27	0.39542	1.00000
5.3G;D1D	21.02	8.87	29.89	0.00	29.89	0.97499	27	0.10643	1.00000
5.6G;D1D	18.01	11.59	29.60	0.00	29.60	0.91201	27	0.09955	1.00000
5.8G;D1D	21.02	14.91	35.93	0.00	35.93	3.91742	27	0.42762	1.00000

Beamforming Outdoor

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	21.02	-0.05	20.97	0.00	20.97	0.12503	27	0.01365	1.00000
5.3G;D1D	21.02	8.87	29.89	0.00	29.89	0.97499	27	0.10643	1.00000
5.6G;D1D	21.02	8.86	29.88	0.00	29.88	0.97275	27	0.10618	1.00000
5.8G;D1D	21.02	14.91	35.93	0.00	35.93	3.91742	27	0.42762	1.00000

**Co-location**

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)	Ratio (S/Limit)
5.2G;D1D	21.02	14.57	35.59	0.00	35.59	3.62243	27	0.39542	1.00000	0.39542
5.6G;D1D	16.02	13.94	29.96	0.00	29.96	0.99083	27	0.10816	1.00000	0.10816
5.8G;D1D	16.02	19.97	35.99	0.00	35.99	3.97192	27	0.43357	1.00000	0.43357
2.4G;BT-LE	2.00	7.23	9.23	0.00	9.23	0.00838	27	0.00091	1.00000	0.00091
									Sum Ratio	0.93806
									Ratio Limit	1

————THE END————