



RF Exposure Evaluation Report

Equipment : Wireless Access Point Radio module
Brand Name : riverbed
Model No. : XDR241
Standard : NCC LP0002 (Aug. 23, 2016) Section 5.20 (5.20.2)
Applicant : RIVERBED TECHNOLOGY, INC.
680 Folsom Street San Francisco, California United States 94107
Manufacturer : RIVERBED TECHNOLOGY INC
680 Folsom Street San Francisco, California 94107-1397, USA

The product sample received on Jul. 22, 2016 and completely tested on Jan. 12, 2018. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with NCC LP0002 (Aug. 23, 2016) Section 5.20 (5.20.2), and pass the limit.

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Sam Chen
SPORTON INTERNATIONAL INC.





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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 5500-5720 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)

Note 1: The EUT is a limited module which only limited to the Wireless Access Point (brand: riverbed model: XA4240).

The EUT was installed to the Wireless Access Point (brand: riverbed / model: XA4240) to perform all the tests.

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

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 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

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

2.3 Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

For Dipole Antenna:

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	9.02	26.72	35.74	0.26	36.00	3.98107	20	0.79241	1
5.3G;D1D	9.02	20.95	29.97	0.03	30.00	1.00000	20	0.19904	1
5.6G;D1D	9.02	20.88	29.90	0.10	30.00	1.00000	20	0.19904	1
5.8G;D1D	9.02	26.94	35.96	0.04	36.00	3.98107	20	0.79241	1

For Directional Antenna:

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	15.42	20.40	35.82	0.18	36.00	3.98107	20	0.79241	1
5.3G;D1D	15.42	14.51	29.93	0.07	30.00	1.00000	20	0.19904	1
5.6G;D1D	15.42	14.55	29.97	0.03	30.00	1.00000	20	0.19904	1
5.8G;D1D	9.40	26.57	35.97	0.03	36.00	3.98107	20	0.79241	1

Note: The radio 2~4 single radio is same with each other.