



RF Exposure Evaluation Report

Equipment : PMP450b
Brand Name : Cambium Networks
Model No. : PMP450b
FCC ID : Z8H89FT0032
Standard : 47 CFR Part 2.1091
Applicant : Cambium Networks Inc.
3800 Golf Road, Suite 360 Rolling Meadows, IL
60008, USA
Manufacturer : Cambium Networks Inc.
3800 Golf Road, Suite 360 Rolling Meadows, IL
60008, USA

The product sample received on May 05, 2017 and completely tested on Aug. 14, 2017. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with 47 CFR Part 2.1091, KDB447498 D01 General RF Exposure Guidance v06 and pass the limit.

Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.


Cliff Chang
SPORTON INTERNATIONAL INC.





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| PHOTOGRAPHS OF EUT V01 | | |

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 5725-5850 | 5M Band 1 | 5155 / 5160 / 5165 5170 / 5175 / 5180 5185 / 5190 / 5195 5200 / 5205 / 5210 5215 / 5220 / 5225 5230 / 5235 / 5240 5245 | 5M / 40M: QPSK |
| | | 5M Band 4 | 5730 / 5735 / 5740 5745 / 5750 / 5755 5760 / 5765 / 5770 5775 / 5780 / 5785 5790 / 5795 / 5800 5805 / 5810 / 5815 5820 / 5825 / 5830 5835 / 5840 / 5845 | |
| | | 40M Band 1 | 5170 / 5175 / 5180 5185 / 5190 / 5195 5200 / 5205 / 5210 5215 / 5220 / 5225 5230 / 5235 / 5240 5245 | |
| | | 40M Band 4 | 5725 / 5730 / 5735 5740 / 5745 / 5750 5755 / 5760 / 5765 5770 / 5775 / 5780 5785 / 5790 / 5795 5800 / 5805 / 5810 5815 / 5820 / 5825 5830 | |

1.2 Testing Location

| Testing Location | | |
|-------------------------------------|--------|---|
| <input type="checkbox"/> | 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 |
| <input checked="" type="checkbox"/> | 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 |
| 3.0-30 | 1842 / f | 4.89 / f | (900 / f)* | 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)* | 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

2.2 MPE Calculation Method

The MPE was calculated at 22 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

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



2.3 Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

For Ant. 1

| Mode | DG (dBi) | Power (dBm) | EIRP (dBm) | EIRP (W) | Distance (cm) | S (mW/cm ²) | S Limit (mW/cm ²) |
|----------|----------|-------------|------------|----------|---------------|-------------------------|-------------------------------|
| 5.2G;D1D | 17.00 | 8.58 | 25.58 | 0.36141 | 22 | 0.05942 | 1.00000 |
| 5.8G;D1D | 17.00 | 18.61 | 35.61 | 3.63915 | 22 | 0.59834 | 1.00000 |
| 5.3G;D1D | 17.00 | -1.48 | 15.52 | 0.03565 | 22 | 0.00586 | 1.00000 |
| 5.6G;D1D | 17.00 | 5.99 | 22.99 | 0.19907 | 22 | 0.03273 | 1.00000 |

For Ant. 2

| Mode | DG (dBi) | Power (dBm) | EIRP (dBm) | EIRP (W) | Distance (cm) | S (mW/cm ²) | S Limit (mW/cm ²) |
|----------|----------|-------------|------------|----------|---------------|-------------------------|-------------------------------|
| 5.2G;D1D | 2.00 | 25.3 | 27.30 | 0.53703 | 22 | 0.08834 | 1.00000 |
| 5.8G;D1D | 2.00 | 29.83 | 31.83 | 1.52405 | 22 | 0.25070 | 1.00000 |