PO Box 9213 Traralgon Vic. 3844 Australia Phone +61 3 51765595

# ASSESMENT BY COMPUTATION REPORT FOR COMPLIANCE AGAINST AS/NZS 2772-2:2011

CLIENT: Cambium Networks Limited

OF: Unit B2, Linhay Business Park

Eastern Road Asburton, Devon United Kingdom

PO Box 9213 Traralgon Vic. 3844 Australia Phone +61 3 51765595

#### **Product Details**

Model: Cambium Networks PMP 450i 3GHz Access Point

Frequency Band: 3.4025-3.8975GHz

Antenna: Integral

Maximum EIRP 29.65dBm

Required Separation Distance: >20cm

### **Referenced Documents**

Test Report 22311

## **Compliance Summary**

This Product meets the requirements for public exposure to EMF's at a required separation distance of 20cm in accordance with AS/NZS 2772-2:2011

I hereby attest that the assessments performed and reported upon herein have been carried out in accordance with Blulen Pty Ltd quality system. This assessment is based on the referenced documents and other applicable information supplied by the client.

Gordon Slimmon 16 January 2017

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## Limits

## REFERENCE LEVELS FOR TIME AVERAGED EXPOSURE TO RMS ELECTRIC AND MAGNETIC FIELDS (UNPERTURBED FIELDS)

| Exposure category | Frequency<br>range | E-field<br>strength<br>(V/m rms) | H-field<br>strength<br>(A/m rms) | Equivalent plane<br>wave power flux<br>density S <sub>eq</sub><br>(W/m²) |  |
|-------------------|--------------------|----------------------------------|----------------------------------|--|--|
| Occupational      |                    |                                  |                                  |  |  |
|                   | 1 MHz - 10 MHz     | 614/f                            | 1.63/f                           | $1000/f^{2}$ (see note 5)  |  |
|                   | 10 MHz – 400 MHz   | 61.4                             | 0.163                            | 10 (see note 5)  |  |
|                   | 400 MHz – 2 GHz    | $3.07 \times f^{0.5}$            | $0.00814 \times f^{0.5}$         | f/40   |  |
|                   | 2 GHz – 300 GHz    | 137                              | 0.364                            | 50   |  |
| General public    | 100 kHz – 150 kHz  | 86.8                             | 4.86                             | -  |  |
|                   | 150 kHz – 1 MHz    | 86.8                             | 0.729/f                          | =  |  |
|                   | 1 MHz - 10 MHz     | 86.8/f <sup>0.5</sup>            | 0.729/f                          | _  |  |
|                   | 10 MHz – 400 MHz   | 27.4                             | 0.0729                           | 2 (see note 6)   |  |
|                   | 400 MHz – 2 GHz    | $1.37 \times f^{0.5}$            | $0.00364 \times f^{0.5}$         | f/200  |  |
|                   | 2 GHz – 300 GHz    | 61.4                             | 0.163                            | 10   |  |

**Table 7 from ANSPRA RPS 3** 

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#### **ASSESSMENTS**

EIRP (W) 0.923 Minimum Separation (cm) 8.570302

The above is the calculation of the minimum separation distance for the general public based on a power flux density of 10W/m<sup>2</sup> using the formula below

$$d = \sqrt{\frac{P.G}{4\pi.S}}$$

Where P.G is the EIRP of the device S is power flux density

Maximum EIRP (W)
0.923
Required Distance (m)
0.2
Power Flux density (W/m2)
1.836258

The above is the calculation of the power flux density for general public exposure at the required separation distance using the formula below

$$S = \frac{P.G}{4\pi d^2}$$

Where P.G is the EIRP of the device d is the required separation distance

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## Look-up Table of Reference Levels for General Public Exposure to Electric and Magnetic Fields as Specified in Table 7 and Table 8

|           |     | E-field strength<br>(V/m rms)   |                               | H-field strength<br>(A/m rms)   |                               | Equivalent plane wave<br>power flux density S <sub>eq</sub><br>(W/m²) |                               |
|-----------|-----|---------------------------------|-------------------------------|---------------------------------|-------------------------------|---|-------------------------------|
| Frequency |     | Time<br>Average<br>from Table 7 | Instantaneous<br>from Table 8 | Time<br>Average<br>from Table 7 | Instantaneous<br>from Table 8 | Time<br>Average<br>from Table 7                                       | Instantaneous<br>from Table 8 |
| 3         | kHz | -                               | 86.8                          | -                               | 4.86                          | -   | -                             |
| 10        | kHz |                                 | 86.8                          | -                               | 4.86                          | -   | -                             |
| 65        | kHz | -                               | 86.8                          | -                               | 4.86                          | -   | -                             |
| 70        | kHz | _                               | 86.8                          | <u>=</u> ,                      | 4.86                          | - 2   |                               |
| 80        | kHz | =                               | 86.8                          | =                               | 4.86                          | -   | -                             |
| 90        | kHz | -                               | 86.8                          | -                               | 4.86                          | ( )   | -                             |
| 100       | kHz | 86.8                            | 86.8                          | 4.86                            | 4.86                          | -   | -                             |
| 150       | kHz | 86.8                            | 118                           | 4.86                            | 4.86                          | -   | -                             |
| 200       | kHz | 86.8                            | 146                           | 3.65                            | 4.62                          | -   |                               |
| 250       | kHz | 86.8                            | 173                           | 2.92                            | 4.44                          | 72  | -                             |
| 300       | kHz | 86.8                            | 198                           | 2.43                            | 4.30                          | -   | -                             |
| 400       | kHz | 86.8                            | 245                           | 1.82                            | 4.08                          | -   | -                             |
| 500       | kHz | 86.8                            | 290                           | 1.46                            | 3.93                          | -   | -                             |
| 600       | kHz | 86.8                            | 333                           | 1.22                            | 3.80                          | -   | -                             |
| 700       | kHz | 86.8                            | 373                           | 1.04                            | 3.70                          | -   |                               |
| 800       | kHz | 86.8                            | 413                           | 0.911                           | 3.61                          | _   | -                             |
| 900       | kHz | 86.8                            | 451                           | 0.810                           | 3.54                          | -   | -                             |
| 1         | MHz | 86,8                            | 488                           | 0.729                           | 3.47                          | -   | -                             |
| 1.5       | MHz | 70.9                            | 540                           | 0.486                           | 3.23                          | -   | -                             |
| 2         | MHz | 61.4                            | 580                           | 0.365                           | 3.07                          | -   | -                             |
| 3         | MHz | 50.1                            | 642                           | 0.243                           | 2.85                          | -   | -                             |
| 4         | MHz | 43.4                            | 690                           | 0.182                           | 2.71                          | 72  | -                             |
| 5         | MHz | 38.8                            | 730                           | 0.146                           | 2.61                          | -   |                               |
| 6         | MHz | 35.4                            | 764                           | 0.122                           | 2.52                          | -   |                               |
| 7         | MHz | 32.8                            | 794                           | 0.104                           | 2.45                          | -   | -                             |
| 8         | MHz | 30.7                            | 821                           | 0.0911                          | 2.40                          | _   | -                             |
| 9         | MHz | 28.9                            | 845                           | 0.0810                          | 2.35                          | _   | -                             |
| 10        | MHz | 27.4                            | 868                           | 0.0729                          | 2.30                          | 2.00  | 2000                          |
| 100       | MHz | 27.4                            | 868                           | 0.0729                          | 2.30                          | 2.00  | 2000                          |
| 400       | MHz | 27.4                            | 868                           | 0.0729                          | 2.30                          | 2.00  | 2000                          |
| 500       | MHz | 30.6                            | 970                           | 0.0814                          | 2.57                          | 2.50  | 2500                          |
| 600       | MHz | 33.6                            | 1063                          | 0.0892                          | 2.82                          | 3.00  | 3000                          |
| 700       | MHz | 36.2                            | 1148                          | 0.0963                          | 3.04                          | 3.50  | 3500                          |
| 800       | MHz | 38.7                            | 1228                          | 0.103                           | 3.25                          | 4.00  | 4000                          |
| 900       | MHz | 41.1                            | 1302                          | 0.109                           | 3.45                          | 4.50  | 4500                          |
| 1         | GHz | 43.3                            | 1372                          | 0.115                           | 3.64                          | 5.00  | 5000                          |
| 1.5       | GHz | 53.1                            | 1681                          | 0.141                           | 4.45                          | 7.50  | 7500                          |
| 1,8       | GHz | 58.1                            | 1841                          | 0.154                           | 4.88                          | 9.00  | 9000                          |
| 2         | GHz | 61.4                            | 1941                          | 0.163                           | 5.15                          | 10.0  | 10000                         |
| 10        | GHz | 61.4                            | 1941                          | 0.163                           | 5.15                          | 10.0  | 10000                         |
| 100       | GHz | 61.4                            | 1941                          | 0.163                           | 5.15                          | 10.0  | 10000                         |
| 300       | GHz | 61.4                            | 1941                          | 0.163                           | 5.15                          | 10.0  | 10000                         |