CalAmp

2-25-04

TCB
TÜV America Inc
10040 Mesa Rim Road
San Diego CA 92121

Dear Sir or Madam:

We, CalAmp Corp. at 1401 N. Rice Ave. Oxnard, CA 93030, present the following Maximum Permissible Exposure Calculation for the DirectedAP using the system's maximum RF emission.

The Maximum Permissible Exposure (MPE) calculation is based on the FCC Part 1.1310 Table 1 limits, which state that the power density for uncontrolled exposure is $1mW/cm^2$ for systems operating in the UNII band. The distance from the antenna where the power density is $1mW/cm^2$ must be below 20 cm for acceptance.

The MPE calculation formula is;

$$P_d = P_t/(4\pi d^2)$$

Where,

P_d = the power density at a distance d given in mW/cm^2 (the limit is $1.0\ mW/cm^2$)

d = distance away from the antenna (cm)

P_t = maximum EIRP of the device (mW)

The maximum EIRP of the DirectedAP, assuming a combined output from both transmitter bands at 100% duty cycle, is 21dBm (11a, 5GHz) with 8dBi antenna gain + 24dBm (11bg, 2.4GHz) with 5dBi antenna gain = 29dBm + 29dBm EIRP, or a maximum combined output power of +32dBm (1585mW). Note that these are maximum capable TX levels for the hardware. Actual transmit power limits on production units will be set lower as dictated by FCC emissions and band-edge requirements.

Solving for minimum distance gives:

$$d_{min} = sqrt[P_t/(4\pi P_d)] = sqrt[1585mW/(4\pi*1.0mW/cm^2)] = \underline{\textbf{11.2 cm}}$$

Therefore, even under maximum combined transmit conditions, the distance at which the total output reaches $1mW/cm^2$ falls under the 20cm requirement and is therefore in compliance with the maximum exposure limit.

Submitted by,

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