# MPE Calculations

## Control4 Model: C4-HC200B-E-B
## Cisco Model: SCH-CONTROL-200

# FCC ID: R33C4HC2001
# IC ID: 7848A-C4HC200B



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## 1.0 SCOPE:

**This Report Demonstrates Evaluation and Compliance to the following standards:**

1. **Code of Federal Regulations Title 47, Volume 1, Section 1.1310.**
2. **Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) - RSS-102 Issue 3**

## 2.0 REVISION LEVEL:

| DATE | COMMENTS | REVISION |
|---|---|---|
| 10/10/08 | Created. | 1.0 |
| 08/16/10 | Added RSS-102 references | 2.0 |

## 3.0 REFERANCE DOCUMENTS:

**(A) Limits for Maximum Permissible Exposure (MPE). Code of Federal Regulations Title 47, Volume 1, Section 1.1310.**
**(B) Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields. OET Bulletin 67 Edition 97-01.**
**(C) Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) - RSS-102 Issue 3**



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## 4.0 CALCULATIONS:

**The following worst case emissions was calculated by using Method 1 below**

**Method 1: Based on a PPt (Peak Power Total) measurement of the total power into the antenna and the worst case antenna gain, based on the FCC & IC test reports.**

**Effective/Equivalent Isotropic Radiated Power [EIRP] dBm = Total power into the antenna [dBm] + antenna gain [dBi].**
**EIRP (dBm) = -0.7**

**To convert the values from dBm to mW**
**$mW = 10^{dBm/10}$**
**EIRP (mW) = 0.85**

**Method 2: Based on the radiated field strength measurement at 3 meters [at a calibrated OATS site, maximizing the antenna polarity and height.**

**After obtaining the EIRP, the Power density is calculated and compared against the FCC and IC limits.**

**$S_{FCC}$ = Power density in *$mW/cm^2$* for FCC**
**$S_{FCC} = EIRP/4\pi \cdot R^2$**
**EIRP = 0.85 *(mW)***
**R = Distance to the center of radiation of the antenna *(20 cm)***
**$S_{FCC}$ = 0.000169 $mW/cm^2$**

**$S_{FCC}$ Limit = 1.0 $mW/cm^2$**

**$S_{IC}$ = Power density in *$W/m^2$* for IC**
**$S_{IC} = EIRP/4\pi \cdot R^2$**
**EIRP = 0.00085 *(W)***
**R = Distance to the center of radiation of the antenna *(0.2 m)***
**$S_{IC}$ = 0.002 $W/m^2$**

**$S_{IC}$ Limit = 10.0 $W/cm^2$**

## 5.0 CONCLUSION:

1. **Based upon the limits for Maximum Permissible Exposure (MPE) given in Table 1 of reference documents (A) & (B) as shown above, this device falls under the required limits.**
2. **Based upon the limits given in section 4.2 of the reference document (C) as shown above, this device falls under the required limits.**



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