

## MPE Calculation / RF Exposure Info

FCC ID: XS5-NCM843

The EUT is designed to amplify signals between multiple UEs and a Base Transceiver Station in a CDMA system. (Uplink 824 – 849 MHz; Downlink 869 – 894 MHz)

**This specific device will be professionally installed.**

**The antenna used with this device must be fixed-mounted on outdoor permanent structures with a sufficient distance to any human body to comply with the RF Exposure limit.**

Hereby the antenna gain and cable attenuation will be defined site specific at the time of licensing with the appropriate FCC Bureau(s).

As specified in Table 1B of 47 CFR 1.1310 – Limits for Maximum Permissible Exposure (MPE), Limits for General Population/Uncontrolled Exposure

Frequency range (MHz)	Power density ( $mW/cm^2$ )
300 – 1,500	f/1500
1,500 – 100,000	1.0

the maximum permissible exposure limit is (frequency 894 MHz):

**0.596  $mW/cm^2$  (general / uncontrolled exposures)**

The min separation distance between the antenna and any human body is to be calculated (solving for R in cm) with the final actual antenna gain/cable attenuation where the limit of 0.596  $mW/cm^2$  is kept using the general equation:

$$S = P \cdot G / 4\pi R^2$$

S = power density

P = power input to the antenna

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the centre of radiation of the antenna

### Sample Calculation:

Maximum ERP of base transmitters and cellular repeaters (§22.913): **57 dBm**

Maximum peak output power at antenna input terminal: **43 dBm**

Maximum antenna gain (including cable loss) according to maximum ERP: **14 dBd**

The minimum separation distance: **2.6 Meter** (258.38 cm)