Environmental Evaluation for RF Exposure for the Q26Elite CDMA Module

CDMA 850 Band, Band Class 0, MS Class III (0.2W to 1.0W ERP)

Power Density limit is f/1500, or S_{limit} = 824/1500 = 0.549 mW/cm^2.
Nominal output power: +24 dBm. Tolerance over operational extremes: +2/-1 dB.
Maximum transmitter power P = +26 dBm = 398.1 mW.
Duty Factor DF = 1.0.
Distance from antenna, radius r = 20 cm.

Per FCC 2.1091 power limit of 1.5 W ERP = 2.46 W EIRP for frequencies 1.5 GHz or below, the maximum antenna system gain is calculated as follows:
g_num = EIRP [mW] / (P * DF) = 2460 / (398.1 * 1) = 6.18
g_dBi = 10*LOG(g_num) = 7.91 Note: 7.91 dBi = 5.76 dBd
The maximum allowable antenna system gain in the 850 MHz band is 5.76 dBd.

For an antenna system gain of 7.91 dBi, the maximum Power Density is:
S = EIRP / (4 * pi * r^2) = DF * P * g_num/ (4 * pi * 400) = 0.489 < .549 mW/cm^2 ✓

CDMA PCS Band, Band Class 1, MS Class II (0.2W to 1.0W ERP)

Power Density limit S_{limit} = 1 mW/cm^2.
Nominal output power: +24 dBm. Tolerance over operational extremes: +2/-1 dB.
Maximum transmitter power P = +26 dBm = 398.1 mW.
Duty Factor DF = 1.0.
Distance from antenna, radius r = 20 cm.

Per FCC 24.232(b) power limit of 2W EIRP for the PCS band, the maximum antenna system gain is calculated as follows:
g_num = EIRP [mW] / (P * DF) = 2000 / (398.1 * 1) = 5.02
g_dBi = 10*LOG(g_num) = 7.01
The maximum allowable antenna system gain in the PCS band is 7.01 dBi.

For an antenna system gain of 7.01 dBi, the maximum Power Density is:
S = EIRP / (4 * pi * r^2) = DF * P * g_num/ (4 * pi * 400) = 0.398 < 1 mW/cm^2 ✓