NOVATEL WIRELESS

# *Novatel Wireless Expedite EU740 module MPE Calculations*

## *Calculated at 20cm distance*



NOVATEL WIRELESS TECHNOLOGIES LTD.
SUITE 325, 6715 - 8th STREET N.E., CALGARY, ALBERTA, CANADA T2E 7H7
TELEPHONE (403) 295-4800 FACSIMILE (403) 295-4801

NOVATEL WIRELESS

## *GSM 850 (GPRS) – Bottom Channel – 824MHz, Top Channel – 849MHz*

Calculation of Far Field Distance

The far field is calculated as > λ /2 π , where λ is the wavelength at the transmission frequency.

| | | |
|---|---|---|
| at | 824MHz the far field is beyond a distance from the antenna | 5.80cm. |
| | 849MHz the far field is beyond a distance from the antenna | 5.63cm |

Calculation of power density at 20cm:

The RF power density at an operational distance R from the antenna is calculated by the following expression $S = (P.G)/4\pi.R^2$

where S = power density in $mW/cm^2$
P = power output in mW = 2000mW (33dBm)
G = antenna gain (numeric gain value) = 2 (3dB)
R = operating distance from antenna in cm. (20)

$$S = \frac{2000 \times 2}{4\pi \times 400}$$

***S = 0.796 mW/cm²***

The Power Density Limit is $1.0mW/cm^2$



NOVATEL WIRELESS TECHNOLOGIES LTD.
SUITE 325, 6715 - 8th STREET N.E., CALGARY, ALBERTA, CANADA T2E 7H7
TELEPHONE (403) 295-4800 FACSIMILE (403) 295-4801

NOVATEL WIRELESS

## *PCS 1900 (GPRS) – Bottom Channel – 1850MHz, Top Channel – 1910MHz*

Calculation of Far Field Distance

The far field is calculated as > λ /2 π , where λ is the wavelength at the transmission frequency.

| | | |
|---|---|---|
| at | 1850MHz the far field is beyond a distance from the antenna | 2.50cm. |
| | 1910MHz the far field is beyond a distance from the antenna | 2.58cm |

Calculation of power density at 20cm:

The RF power density at an operational distance R from the antenna is calculated by the following expression $S = (P.G)/4\pi.R^2$

where S = power density in $mW/cm^2$
P = power output in mW = 1000mW (30dBm)
G = antenna gain (numeric gain value) = 2 (3dB)
R = operating distance from antenna in cm. (20)

$$S = \frac{1000 \times 2}{4\pi \times 400}$$

***S = 0.398 mW/cm²***

The Power Density Limit is $1.0mW/cm^2$



NOVATEL WIRELESS TECHNOLOGIES LTD.
SUITE 325, 6715 - 8th STREET N.E., CALGARY, ALBERTA, CANADA T2E 7H7
TELEPHONE (403) 295-4800 FACSIMILE (403) 295-4801