RF Exposure / Safety

Calculation of Maximum Permissable Exposure (MPE)
based on Section 1.1307(b) Requirements

a) FCC limit is: 1mW/cm^2

b) The Wimax CPE can be configured in one of three different setups:
Setup 1: CPE with 9dBi internal antenna
Setup 2: CPE with 9dBi external desktop antenna
Setup 3: CPE with 18dBi external outdoor antenna

c) The power density produced by the EUT is:

$$S_{peak} = \frac{P_t \cdot G_t}{4\pi R^2}$$

$$S_{average} = \frac{P_t \cdot G_t \cdot dc}{4\pi R^2 \cdot 100}$$

P_t – Transitted power 251mW (rms peak) (24dBm)
G_t – Antenna gain dependant on setup
R – Distance from transmitter
Dc – duty cycle

d) The power density is:

	Setup 1	**Setup 2**	**Setup 3**
P_t - Power output (rms peak) 24dBm	24dBm 251mW	24dBm 251mW	24dBm 251mW
G_t – Antenna gain	9dBi 8	9dBi – 3dB cable loss 4	18dBi – 3dB cable loss 31,6
Maximum duty cycle	45%	45%	45%
R – Distance from antenna (cm)	20	20	120
S_{peak} – peak power density (mW/cm^2)	0,4	0,2	0,04
$S_{average}$ – average power density (mW/cm^2)	0,18	0,09	0,018

e) $S_{average}$ << 1mW/cm^2