15 September 2008

FCC ID: **S52-2-06-01-00-1**
IC: **4021G20601001**

RF Exposure MPE Exhibit

This device operates at frequencies in the 1900 MHz region. Maximum permissible exposure in this region is specified under per FCC Part 1, Section 1.1310, Table 1, as 1 $mW/cm^{2.}$

FCC Part 1, Section 1.1307 states that Part 24E (Broadband PCS) devices are excluded from routine environmental evaluation when operating at power levels beneath a maximum EIRP of 3280 W.

EIRP (Effective Isotropic Radiated Power) is the amount of power that a theoretical isotropic antenna (that evenly distributes power in all directions) would emit to produce the peak power density observed in the direction of maximum antenna gain.
EIRP can take into account the losses in transmission line and connectors and includes the gain of the antenna.

$$EIRP = P_T - L_c + G_a$$

Where *EIRP* and P_t (power of transmitter) are in dBm, cable losses (L_c) is in dB, and antenna gain (G_a) is expressed in dBi, relative to a (theoretical) isotropic reference antenna.

No antenna is supplied with this unit. Therefore, based on measured RF output power of 26.18 Watts at 1947.5 MHz and assumption of cable loss is zero, the maximum antenna gain that will allow the EIRP to remain under the environmental evaluation exclusion limit of 3280 Watts is 20.97 dB.

MPE is determined by the following relationship:

Power Density P_d (mW/cm^2) = $EIRP/4\pi d^2$

Where d = distance.

3280 Watts = 3.28×10^6 mW

Therefore:

$d = (EIRP/4\pi P_d)^{1/2}$

$= (3.28 \times 10^6 \text{ mW}/ 4\pi(1 \text{ mW/cm}^2))^{1/2}$

$= 510.89 = 511$ cm

The minimum safe distance from a radiating structure exhibiting a maximum gain of 20.97 dB connected to the 3U iBTS when installed and transmitting at full output power is 511 cm.
.