Exhibit 4 – GPS Repeater Power Calculations

GPS Repeater Link Budget

GPS received signal	-130 dBm/24 MHz
Receive antenna gain	3 dBi
Active antenna amp	33 dB
Cable Loss	-6 dB
GPS amplifier gain	30 dB
Attenuator	-20 dB
Tx antenna gain	3 dBi
Repeater EIRP	-87 dBm/24 MHz (2 pW)

Free Space Path Loss

$$L = 20 \log_{10} d + 20 \log_{10} f - 27.55 \; dB$$

Where: d = distance (30 meters)
                     f = frequency (1575.42 MHz)

Propagation loss at 1575.42 MHz at a distance of 30 meters is 66 dB.

Power density at 30 meters is then: EIRP – L = -87 dBm/24 MHz – 66 dB = -153 dBm/24 MHz