

### **100 foot free-space calculations (from radiation point)**

North Platte Diesel Shop (Site 3): -128 dBm

### **link budget calculations (North Platte Diesel Shop Site 3)**

roof antenna gain: 38 dB

roof antenna cable (lmr-400, 10 ft.) loss (5.1 dB / 100 ft): 0.5 dB

s-12 repeater amplifier gain: 24 dB

total subsystem gain: 61.5 dB

#### **Antenna a branch:**

repeater antenna cable (lmr-400, 92 ft.) loss (5.1 dB / 100ft.): 4.7 dB

a-11 repeater amplifier gain: 8.2 dB

repeater antenna gain: 3 dB

total system gain: 68 dB

average receive power of 11 GPS signals in North America: -130 dBm

effective radiated power (average receive power + total system gain): -62 dBm

#### **Antenna b branch:**

repeater antenna cable (lmr-400, 92 ft.) loss (5.1 dB / 100ft.): 4.7 dB

a-11 repeater amplifier gain: 8.2 dB

repeater antenna gain: 3 dB

total system gain: 68 dB

average receive power of 11 GPS signals in North America: -130 dBm

effective radiated power (average receive power + total system gain): -62 dBm