

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

Dolores Diesel Shop: -128 dBm

## **link budget calculations (Dolores Diesel Shop)**

roof antenna gain: 38 dB

roof antenna cable (lmr-400, 40 ft.) loss (5.1 dB / 100 ft.): 2.04 dB

s-14 repeater amplifier gain: 21 dB

total subsystem gain: 57.0 dB

### **Antenna a branch:**

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

a-11 repeater amplifier gain: 13.1 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, 40 ft.) loss (5.1 dB / 100 ft.): 2.04 dB

a-11 repeater amplifier gain: 10.1 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 c branch:**

repeater antenna cable (lmr-400, 40 ft.) loss (5.1 dB / 100 ft.): 2.04 dB

a-11 repeater amplifier gain: 10.1 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 d branch:**

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

a-11 repeater amplifier gain: 13.1 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