

100 foot free-space calculations (from radiation point)

North Platte Diesel Shop (Site 1): -128 dBm

link budget calculations (North Platte Diesel Shop Site 1)

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, 100 ft.) loss (5.1 dB / 100ft.): 5.1 dB

a-11 repeater amplifier gain: 8.6 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, 80 ft.) loss (5.1 dB / 100 ft.): 4.1 dB

a-11 repeater amplifier gain: 7.6 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