

100 foot free-space calculations (from radiation point)

Hinkle Diesel Shop: -128 dBm

link budget calculations (Hinkle Diesel Shop)

roof antenna gain: 38 dB

roof antenna cable (lmr-400, 18 ft.) loss (5.1 dB / 100 ft): 0.92 dB

s-14 repeater amplifier gain: 21 dB

total subsystem gain: 58.08 dB

Antenna a branch:

repeater antenna cable (lmr-400, 30 ft.) loss (5.1 dB / 100ft.): 1.53 dB

a-11 repeater amplifier gain: 8.45 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, 79 ft.) loss (5.1 dB / 100 ft.): 4.03 dB

a-11 repeater amplifier gain: 10.95 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, 157 ft.) loss (5.1 dB / 100 ft.): 8.01 dB

a-11 repeater amplifier gain: 14.93 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, 191 ft) loss (5.1 dB / 100 ft.): 9.74 dB

a-11 repeater amplifier gain: 16.66 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