

100 foot free-space calculations (from radiation point)

Commerce Diesel Shop: -128 dBm

link budget calculations (Commerce 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

Antenna a branch:

repeater antenna cable (lmr-400, 170 ft.) loss (5.1 dB / 100ft.): 8.67 dB

a-11 repeater amplifier gain: 16.7 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, 55 ft.) loss (5.1 dB / 100 ft.): 2.81 dB

a-11 repeater amplifier gain: 10.8 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, 55 ft.) loss (5.1 dB / 100 ft.): 2.81 dB

a-11 repeater amplifier gain: 10.8 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, 170 ft) loss (5.1 dB / 100 ft.): 8.67 dB

a-11 repeater amplifier gain: 16.7 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