

100 foot free-space calculations (from radiation point)

Commerce Wheel True: -128 dBm

link budget calculations (Commerce Wheel True)

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, 105 ft.) loss (5.1 dB / 100ft.): 5.36 dB

a-11 repeater amplifier gain: 13.4 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, 5 ft.) loss (5.1 dB / 100 ft.): 0.26 dB

a-11 repeater amplifier gain: 8.30 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, 105 ft.) loss (5.1 dB / 100 ft.): 5.36 dB

a-11 repeater amplifier gain: 13.4 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