



Complex Corporation

3302 W. 6th Ave., Suite C
Emporia, Kansas 66801 USA
Phone: 620-342-7743
Fax: 620-342-7405

CAMPLEX SIGNALS: APPROXIMATE CABLE DISTANCE CAPABILITY

Complex system FM signals (camera video, return video, genlock, audio, data, tally/call) operate at several different carrier frequencies between 0 and 50Mhz. An overall average operating frequency of 28Mhz can be assumed with a system "operating budget" of 25dB

The nominal distance that a 75 Ohm coaxial or triaxial cable can deliver Complex signals can be determined by dividing the Complex operating budget of 25 dB by the Nominal Attenuation specification of the cable at 30 Mhz expressed in dB's per 100 ft. (While most cable manufacturer's do not indicate a Nominal Attenuation measurement in dB's at 28 Mhz, many provide a dB measurement at 30Mhz which is close enough. If dB measurements are provided for 10Mhz and 50Mhz, the dB measurements for each of those can be added together and then divided in half to arrive at an approximate dB measurement for 30Mhz.)

The distance over which Complex signals can travel along a 75 Ohm cable is affected by several factors: 1) the Nominal Attenuation specification of the cable; 2) the quality of the cable and its connectors; 3) the cable length; 4) the amount of operational heat build-up in the cable and; 5) the proper set-up of the Complex system. With those factors in mind, here are distances +/-10% that these cables can deliver Complex signals:

75 OHM CABLE	dB's per 100ft at 30Mhz.	Maximum approx. Signal Distance
Belden RG-59 #8241	1.75dB per 100ft	25dB / 1.75dB x 100 = 1,428ft (435m)
Belden RG-59 #9259	1.50dB	25dB / 1.50dB x 100 = 1,667ft (508m)
Clark Complex #1	1.36dB	25dB / 1.36dB x 100 = 1,838ft (560m)
Belden #8281	1.24dB	25dB / 1.24dB x 100 = 2,016ft (614m)
Belden #8281F	1.44dB	25dB / 1.44dB x 100 = 1,736ft (529m)
Clark #CV752	1.13dB	25dB / 1.13dB x 100 = 2,212ft (674m)
Belden RG-11 #8213	0.68dB	25dB / 0.68dB x 100 = 3,676ft (1,121m)
Belden RG-11 #9292	0.75dB	25dB / 0.75dB x 100 = 3,333ft (1,016m)
Belden RG-11 #8238	0.98dB	25dB / 0.98dB x 100 = 2,551ft (778m)
Clark Complex #2	0.82dB	25dB / 0.82dB x 100 = 3,049ft (929m)
Antec Trunk #500CA	0.40dB	25dB / 0.40dB x 100 = 6,250ft (1,906m)
Antec Trunk #625CA	0.34dB	25dB / 0.34dB x 100 = 7,353ft (2,242m)

Notes:

- Calculations based upon cable manufacturer's specifications established at ambient temperature of 68 degrees F/ 20 degrees C and are subject to change without notice.
- Complex systems that do not have a PDC-340 power unit can send DC operating power to the remote Complex Camera Adapter unit approximately the same distance as Complex signals except over Belden RG-59 #8241 where power is limited to 800 ft.
- If 75 Ohm triaxial (instead of coaxial) cable is used, then it must meet the same attenuation specifications as coax, and adapters must be utilized to convert the triax connectors to BNC coax connectors.