AN212
Crushed or Pinched Coaxial Cable

Written by Paul DeWinter for
AEA Technology Inc.
www.aeatechnology.com

Abstract

Discusses the effect on coax cable's impedance whenever the cable has been crushed or pinched.

General

The reasons for a coax cable becoming crushed or pinched go on too long to list here, but the effect is the same for both. The shield closes in on the center conductor where crushed or pinched. This increases the capacitance in this part of the cable and therefore lowers the impedance. Figure 1 shows the formula for a cable's impedance (Z_0).

$$Z_o = \sqrt{\frac{L}{C}}$$

Equation 1

The lower impedance creates a downward deviation in the impedance trace as depicted in Figure 1.

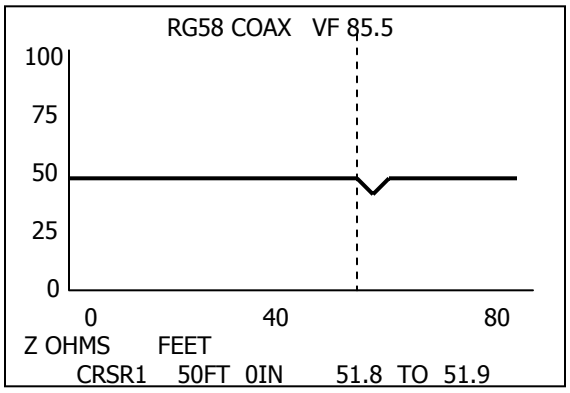

Figure 1

The pinch or crush results in more reflected energy returning to the transmission source and a weaker signal at the far end of the cable.

5933 Sea Lion Pl Suite 101, Carlsbad, CA 92010 ◦ Phone (760) 931-8979 ◦ Fax (760) 931-8969 www.aeatechnology.com

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