

NEC 1999, Article 830

SURGE PROTECTION

and

PERFORMANCE

Issues

Nisar Chaudhry

TII Industries, Inc.

March, 2001

Article 830-30

(a) Application. Primary electrical protection shall be provided on all network-powered broadband communications conductors

.....

Key Issues:

Listing

Surge Protection

Electrical Performance

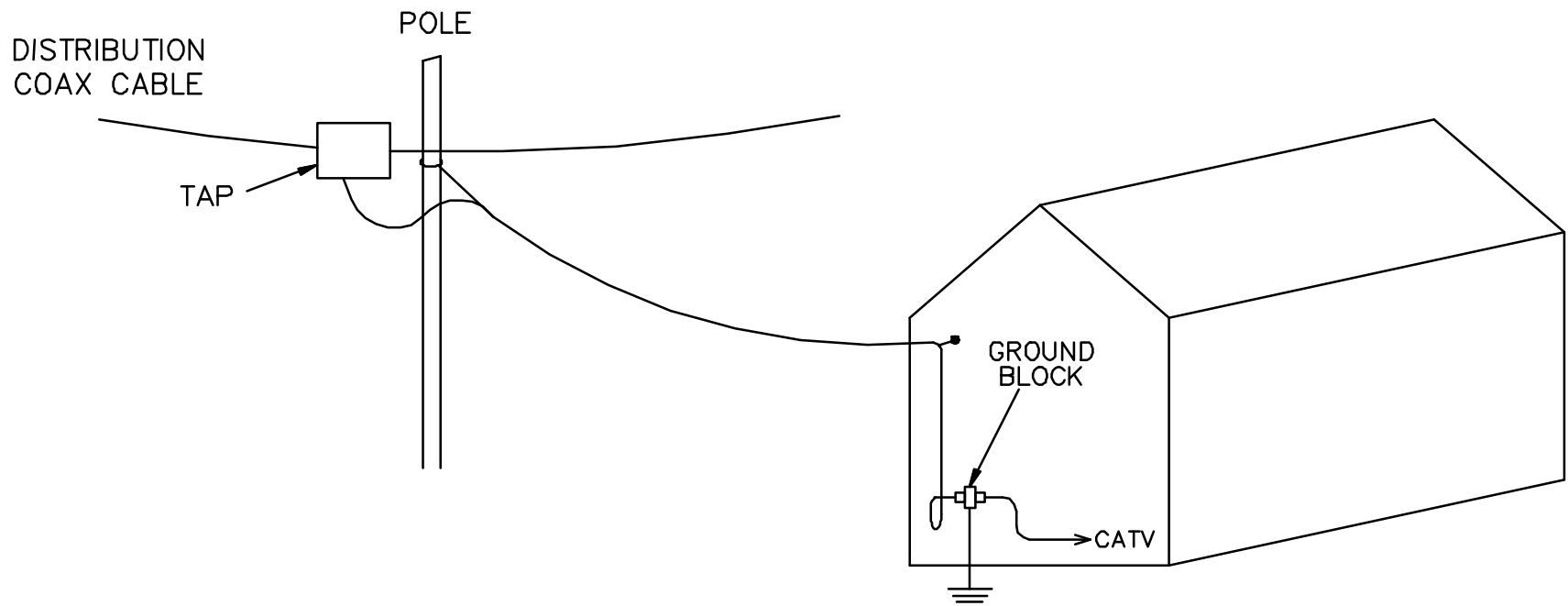
Surge Protection

Listing per UL 497C

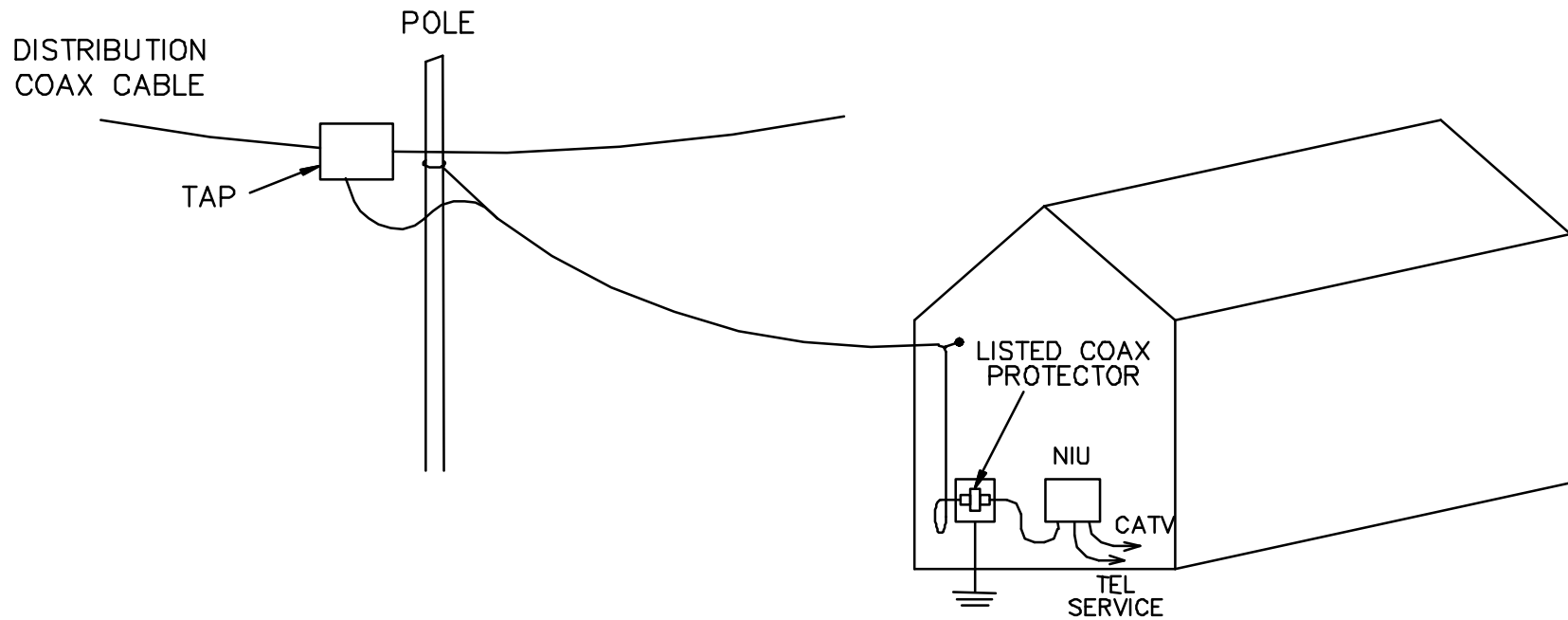
Performance per Telcordia 2908

Provide acceptable surge protection and
cause no system performance degradation.

NON POWERED COAX CABLE AERIAL DROP USING A GROUND BLOCK



POWERED COAX CABLE AERIAL DROP USING A LISTED COAX PROTECTOR



830-11: Underground Circuits Entering Buildings

(c) **Mechanical Protection.** Direct-buried cable, conduit, or other raceways shall be installed to meet the minimum requirements of Table 830-11.

Exception: ?

**Table 830-11. Network-Powered Communications Systems Minimum
Cover Requirements, Burial in Inches**

Location of Wiring Method or Circuit	Direct Burial Cables (in.)	Rigid Metal Conduit or Intermediate Metal Conduit (in)	Nonmetallic Raceways Listed for Direct Burial; Without Concrete Encasement or Other Approved Raceways (in.)
All locations not specified below	18	6	12
In trench below 20in. Thick concrete or equivalent	12	6	6
Under a building (in raceway only)	0	0	0
Under minimum of 4-in. thick concrete exterior slab or no vehicular traffic and the slab extending not less than 6 in. beyond the underground installation	12	4	4
One- and two-family dwelling driveways and outdoor parking areas and used only for dwelling related purposes	12	12	12

Exception

A low power network-powered broadband communications circuit that is equipped with a listed fault protection device, appropriate to the network-powered broadband communications cable used, and located on the network side of the network-powered broadband communications cable being protected.

Surge Protection

Should be listed and disconnects power under following conditions:

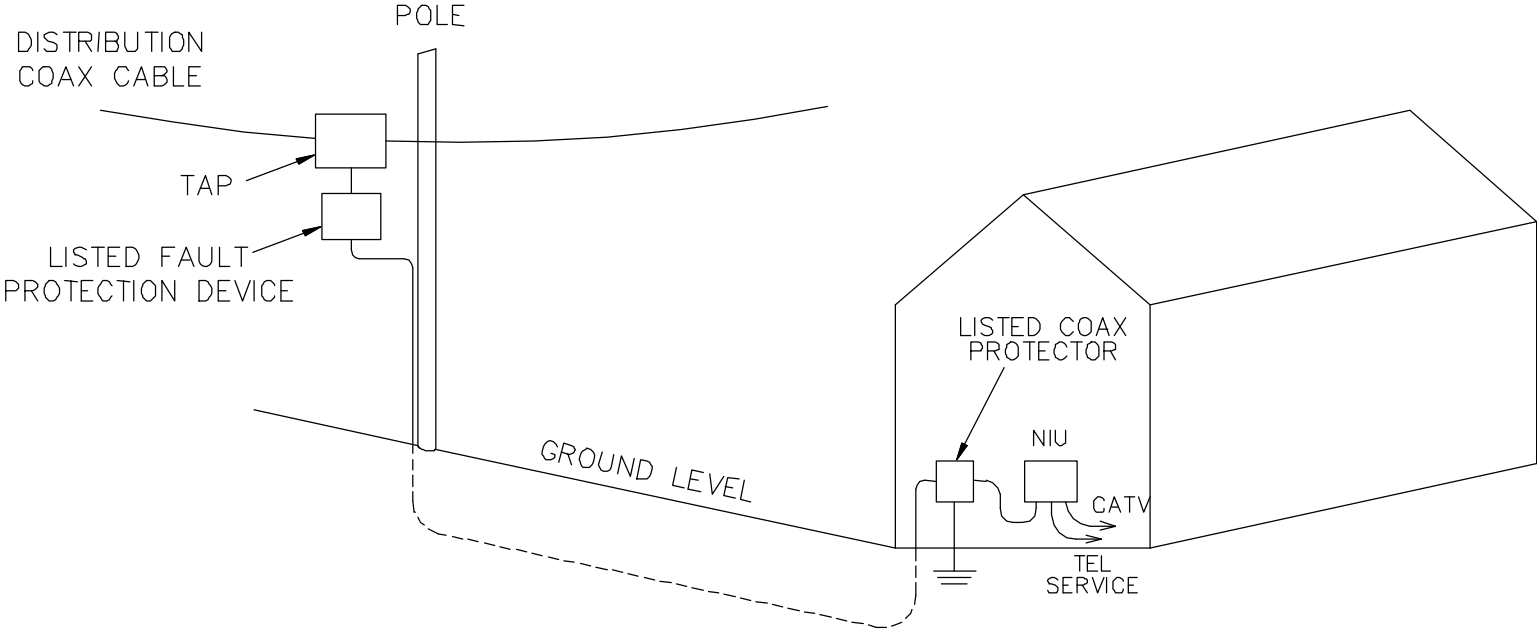
Leakage current

Open Circuit

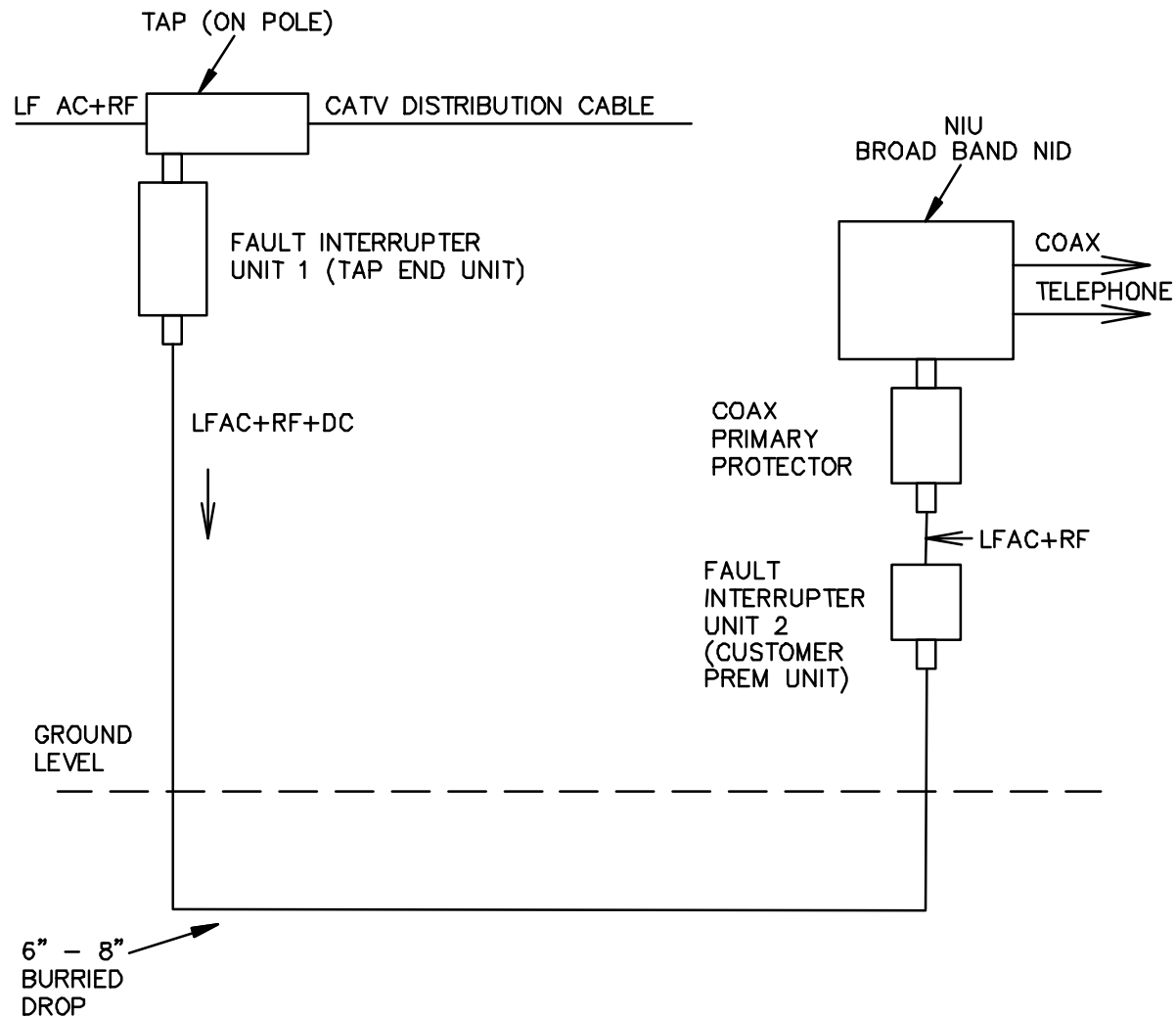
Short Circuit

must not introduce system performance degradation

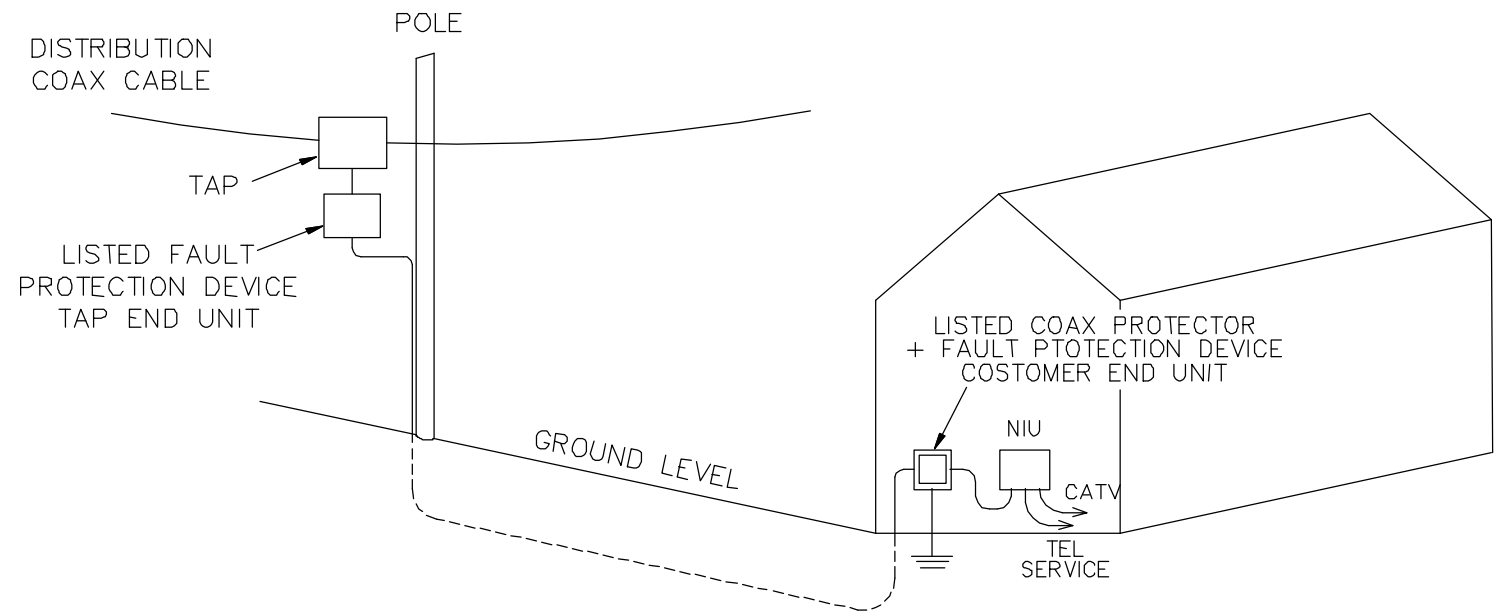
POWERED COAX CABLE UNDERGROUND CIRCUITS ENTERING BUILDINGS



FAULT PROTECTION SYSTEM AND SURGE PROTECTOR FOR BURIED CABLE DROPS



LISTED FAULT PROTECTION DEVICE, TAP END AND CUSTOMER END WITH COAX PROTECTION



LISTING and PERFORMANCE REQUIREMENTS

Should meet UL 497 C

Operate in non controlled environment

introduce only minimal system degradation