

TELCO DC POWERING LOOPS

WHITE PAPER

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The DC powering loops, required for customer provided fiber optic systems, are the same DC used within the telephone network for the specific services provided to any NIU customer location today. As can be seen above, the most reliable power source for a customer fiber optic system is the same DC power source used by the circuit originating from the serving Central Office. All fiber optic systems require a power source at the Fiber to Copper Junction (CFJ). This junction is always placed on the Telco's side of the Zone of Influence (ZOI); a location off the substation or PCS cell site where the Ground Potential Rise (GPR), created by either an AC power fault on their facilities and or lightning, drops below 300 volts (300 volt point).

At the drop side of the customer substation, and or cell site, DC power is introduced to power the fiber optic derived circuits. The drop side power has always been provided by the customer. All logic and or data are transferred via the fiber optic system without a transfer of any DC, AC, induced lightning or power induction of any

kind. This is what makes fiber optic electrical protection systems so valuable in today's communication systems entering these hostile environments.

The voltage and current values we are talking about here are the same values outlined in the following National and International standards:

- UL 60950-1-2003 – Information Technology Equipment Including Electrical Business Equipment (ANS)
- GR-1089-CORE – Electromagnetic Compatibility and Electrical Safety - Generic criteria for Network Telecommunications Equipment
- ITU-T Recommendation K.50-2000 – Safe limits of operating voltages and currents for telecommunication systems powered over the network

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