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ATIS Standard on -

Electrical Protection for Ethernet Radio Systems

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Electrical Protection for Ethernet Radio Systems

Alliance for Telecommunications Industry Solutions

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Abstract

The purpose of this ATIS Standard is to assist the service provider in choosing appropriate grounding and protection methods for Ethernet over radio communications circuits. This ATIS Standard describes protector characteristics that may impact Ethernet radio systems for outside plant, point to point and point to multi-point applications, and the services provided over these links. This document describes recommended best practices for grounding and bonding and primary protection for ethernet radio antennas and cables mounted on towers and residential and small business structures. This is a subtending document and is intended to be used with the Broadband umbrella document ATIS-0600012, *Electrical Protection Considerations for Broadband Systems*.

Foreword

The Alliance for Telecommunication Industry Solutions (ATIS) serves the public through improved understanding between providers, customers, and manufacturers. The Sustainability in Telecom: Energy and Protection (STEP) Committee – formerly the Network Interface, Power, and Protection (NIPP) Committee – engages industry expertise to develop standards and technical reports for telecommunications equipment and environments in the areas of energy efficiency, environmental impacts, power, and protection. The work products of STEP enable vendors, operators, and their customers to deploy and operate reliable, environmentally sustainable, energy efficient communications technologies. STEP is committed to proactive engagement with national, regional, and international standards development organizations and forums that share its scope of work.

The mandatory requirements are designated by the word shall and recommendations by the word should. Where both a mandatory requirement and a recommendation are specified for the same criterion, the recommendation represents a goal currently identifiable as having distinct compatibility or performance advantages. The word may denote an optional capability that could augment the standard. The standard is fully functional without the incorporation of this optional capability.

Suggestions for improvement of this document are welcome. They should be sent to the Alliance for Telecommunications Industry Solutions, STEP, 1200 G Street NW, Suite 500, Washington, DC 20005.

At the time it approved this document, STEP, which is responsible for the development of this Standard, had the following leadership:

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J. Fuller, STEP Vice Chair and STEP NEP Vice Chair (AT&T)

Dan Ashton, STEP NEP Chair and Technical Editor (CenturyLink)

The Network Electrical Protection (NEP) Subcommittee was responsible for the development of this document.

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1 Scope, Purpose, & Application

1.1 Scope

1.1.1 Electrical Protection

The purpose of this ATIS Standard is to assist the service provider in choosing appropriate protection and grounding methods for Ethernet Radio Systems. This ATIS Standard describes electrical protection standards that may impact Ethernet radio systems for outside plant which utilize power over ethernet (PoE) to power externally mounted radios and antennas along with the services provided over these links. This document describes recommended best practices for grounding and bonding ethernet radio antennas and cables mounted on towers and residential and small business structures. This is a subtending document and is intended to be used with the Broadband umbrella document ATIS-0600012 [Ref 2], *Electrical Protection Considerations for Broadband Systems*.

NOTE: Requirements for installations of PoE radio systems are not specifically addressed in the current NEC. Article 810 is currently the most appropriate article within the NEC for installing these systems.

1.1.2 Equipment Covered

This ATIS Standard applies to the electrical protection for all Ethernet radio equipment installations. Examples include: Ethernet radio equipment at Central Office (CO) Type facilities, point to multi-point remote transmitters, and at the customer location [including the external radio/antenna and PoE power injector]. This equipment may interface with various types of cable media, such as coaxial cable or twisted pair that provides the Ethernet signal and power.

Although a variety of Ethernet radio equipment types are considered, the merits of the different technologies, and/or architecture types, are not covered.

The following are examples of equipment/items included in this ATIS standard:

- Primary protectors.
- CO radio equipment.
- Remote terminal radio equipment.
- Cell Site equipment.
- Externally mounted radio/antenna equipment.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of this Document. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this Document are encouraged to investigate the possibility of applying the most recent editions of the documents indicated below.