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IEEE Guide for Surge Protection of DC Power Feeds to Remote Radio Heads

IEEE Power and Energy Society

Sponsored by the
Surge Protective Devices Committee

IEEE
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USA

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Sponsor

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Abstract: The waveform of currents likely to exist on dc feeds to equipment located at the tops of towers due to a lightning strike, and the consequences of that waveform for protector design, are described in this guide.

Keywords: IEEE C62.55™, lightning, powering feed, protection, remote radio head, RRH, SPD, surge protective device, surge waveform, towers

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Introduction

This introduction is not part of IEEE Std C62.55™-2017, IEEE Guide for Surge Protection of DC Power Feeds to Remote Radio Heads.

This guide begins by discussing the characteristics of single-stroke lightning that might strike a tower. The nature of the resulting current on the dc feed is then discussed. Next, consideration is given to lightning flashes having multiple strokes. Finally, guidance on selecting a surge protective device for the dc feed and practical considerations are discussed.

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IEEE Guide for Surge Protection of DC Power Feeds to Remote Radio Heads

1. Overview

This guide begins by discussing the characteristics of single-stroke lightning that might strike a tower. The nature of the resulting current on the dc feed are then discussed. Next, consideration is given to lightning flashes having multiple strokes. Finally, guidance on selecting a surge protective device (SPD) for the dc feed and practical considerations are discussed.

1.1 Scope

This guide covers the application of SPDs used to protect the dc power feeds of remote radio heads (RRH) and power supplies of fiber-optic cable systems feeding the antenna systems.

2. Normative references

The following referenced documents are indispensable for the application of this document (i.e., they must be understood and used, so each referenced document is cited in text and its relationship to this document is explained). For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies.

CIGRE TB 549, Lightning Parameters for Engineering Applications, WG C4.407, 2013.[1]

IEEE Std C62.33™, Standard for Test Methods and Performance Values of Metal-Oxide Varistor Surge Protective Components.[2,3]

ITU-T Recommendation K.97 (2014), Lightning protection of distributed base stations.[4]

3. Definitions, acronyms, and abbreviations

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