

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

IEEE Power and Energy Society

Developed by the
Surge Protective Devices Committee

IEEE Std C62.51™-2020
(Revision of
IEEE Std C62.55-2017)



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Approved 4 June 2020

IEEE SA Standards Board

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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 C62.55-2020, IEEE Guide for Surge Protection of DC Power Feeds to Remote Radio Heads.

This revision of IEEE Std C62.55-2017 includes the corrections indicated in IEEE Std C62.55-2017/Cor 1-2018, and updating the clause on multiple strokes and continuing current. It also includes updates to the original 2017 version.

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1. Overview

This guide begins by discussing the characteristics of lightning flashes having a single stroke 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 (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 (RRHs) and power supplies of optical fiber cable systems feeding the antenna systems.

1.2 Word usage

The word *shall* indicates mandatory requirements that are to be followed in order to conform to the standard and from which no deviation is permitted (*shall* equals *is required to*).^{1,2}

The word *should* indicates that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required (*should* equals *is recommended that*).

The word *may* is used to indicate a course of action permissible within the limits of the standard (*may* equals *is permitted to*).

The word *can* is used for statements of possibility and capability, whether material, physical, or causal (*can* equals *is able to*).

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.

¹The use of the word *must* is deprecated and cannot be used when stating mandatory requirements, *must* is used only to describe unavoidable situations.

²The use of *will* is deprecated and cannot be used when stating mandatory requirements, *will* is only used in statements of fact.