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IEEE Guide for Measuring Method of Overhead Power Transmission Line Galloping Based on Monocular Video

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IEEE

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Abstract: Overhead transmission line galloping is common in many countries, and the measurement and research for galloping have become increasingly necessary. Meanwhile, the development of machine vision technology provides a good technical basis for the field measurement of galloping. Galloping measurement is to obtain its characteristic parameters, such as galloping amplitude, frequency, loops number, and traces, which are the basis for galloping mechanism research and anti-galloping scheme development. In order to guide the field measurement of galloping, this guide has been developed to specify the monocular video-based measurement process, data processing and analysis method. The measuring method recommended in this guide has such advantages as non-contact, multi-point synchronous, and wide range measurement.

Keywords: feature point, field measurement, galloping, IEEE 2828™, monocular video, overhead transmission line

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Introduction

This introduction is not part of IEEE Std 2828-2021, IEEE Guide for Measuring Method of Overhead Power Transmission Line Galloping Based on Monocular Video.

This guide mainly applies to the overhead power transmission lines of bundled conductors installed with spacers. As for the single conductor transmission line, this method can also be used after adding markers. In addition, this method may also be referable for online galloping monitoring and other engineering fields, such as vibration measurement of bridges and buildings.

This guide is developed to optimize data collection methodologies, which can support research on galloping, and provide guidance to operation and maintenance personnel for improving galloping management efficiency of transmission lines.

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IEEE Guide for Measuring Method of Overhead Power Transmission Line Galloping Based on Monocular Video

1. Overview

1.1 Scope

This guide specifies the measurement method, the selection of measuring location, data analysis, and processing methods for the observation of transmission line galloping based on monocular video.

This guide applies to the overhead power transmission lines of bundle conductors installed with spacers.

1.2 Purpose

This guide is developed to optimize data collection methodologies, which can support research on galloping, and provide guidance to operation and maintenance personnel for improving galloping management efficiency of transmission lines.

1.3 Word usage

The word *shall* indicates mandatory requirements strictly 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*).

[1]The use of the word *must* is deprecated and cannot be used when stating mandatory requirements; *must* is used only to describe unavoidable situations.
[2]The use of *will* is deprecated and cannot be used when stating mandatory requirements; *will* is only used in statements of fact.