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TECHNICAL REPORT

UHV AC transmission systems – Part 303: Guideline for the measurement of UHV AC transmission line power frequency parameters

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UHV AC TRANSMISSION SYSTEMS –

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FOREWORD

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IEC TR 63042-303 has been prepared by IEC technical committee 122: UHV AC transmission systems. It is a Technical Report.

The text of this Technical Report is based on the following documents:

DTR	Report on voting
122/105/DTR	122/112/RVDTR

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Technical Report is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

A list of all parts in the IEC 63042 series, published under the general title *UHV AC transmission systems*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

AC transmission line power frequency parameters are important basic data used for various power system's calculations and applications, including engineering design verification, commissioning, and operation.

Due to the complication of the geological conditions along the corridor of long distance UHV AC transmission lines, it is difficult to obtain accurate transmission line power frequency parameters through theoretical analysis and calculation. To obtain the accurate power frequency parameters, a field measurement is necessary.

This document provides the guidance for measurement of UHV AC transmission lines power frequency parameters which include sequence parameters and phase parameters, etc. The measurement conditions, measurement methods, data process methods, safety requirements, etc. are described.

UHV AC TRANSMISSION SYSTEMS –

Part 303: Guideline for the measurement of UHV AC transmission line power frequency parameters

1 Scope

This part of IEC 63042 specifies measurement methods of UHV AC transmission line power frequency parameters. These measured parameters mainly include sequence parameters, mutual parameters between double-circuit lines, phase parameters and some other related parameters.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC Guide 115:2007, *Application of uncertainty of measurement to conformity assessment activities in the electrotechnical sector*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
offset frequency method
method that can measure the parameter of transmission line by applying a test power source with a frequency offset from the power frequency

3.2
source terminal
terminal of a transmission line, at which a power source is applied for the parameter measurement

3.3
ending terminal
terminal opposite to the source terminal of a transmission line

3.4
one-terminal measurement method
measurement method, at which only source terminal is measured