

TECHNICAL REPORT

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



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CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references	8
3 Terms and definitions	8
4 General.....	9
4.1 Background.....	9
4.2 Measurement items.....	9
4.3 Main circuit configuration	10
4.4 Measurement condition	10
5 Requirement of measuring instrument	10
5.1 Current transformer.....	10
5.2 Voltage transformer	10
5.3 Measuring instrument of DC resistance.....	10
5.4 Offset frequency power source.....	11
5.5 Special measuring instrument of transmission line power frequency parameter	11
6 Conversion of offset frequency measurement results.....	11
7 Measurement of induced voltage and induced current	12
7.1 General.....	12
7.2 Induced voltage	12
7.3 Induced current.....	13
8 Phase verification and measurement of insulation resistance	13
8.1 General.....	13
8.2 Phase verification	13
8.3 Measurement of insulation resistance	14
9 Measurement of DC resistance.....	14
10 Measurement of positive-sequence parameter.....	15
11 Measurement of zero-sequence parameter.....	17
12 Measurement of mutual impedance and coupling capacitance between double- circuit transmission lines on the same tower.....	19
12.1 General.....	19
12.2 Measurement of line-mode impedance	20
12.3 Measurement of line-mode capacitance	20
12.4 Measurement of ground-mode impedance.....	20
12.5 Measurement of ground-mode capacitance	21
12.6 Data process	21
13 Measurement of phase parameters.....	22
13.1 Measurement of self-impedance	22
13.2 Measurement of self-capacitance.....	23
13.3 Measurement of coupling capacitance between two phases.....	24
13.4 Measurement of mutual impedance between two phases	25
Annex A (informative) Example of transmission line power frequency parameter measurement.....	28
A.1 Introduction of transmission line.....	28
A.2 Measurement of positive-sequence parameter	28

A.2.1	Measured data.....	28
A.2.2	Calculation results	28
A.3	Measurement of zero-sequence parameter	29
A.3.1	Measured data.....	29
A.3.2	Calculation results	29
A.4	Measurement of phase parameter.....	29
A.4.1	General	29
A.4.2	Capacitance matrix	30
A.4.3	Impedance matrix	30
Annex B (informative)	Derivation process of measurement and calculation for coupling capacitance between two phases	31
Annex C (informative)	Safety precautions	34
Bibliography.....		35
Figure 1	– Measurement of induced voltage.....	12
Figure 2	– Measurement of induced voltage.....	13
Figure 3	– Measurement of induced current	13
Figure 4	– Phase verification	14
Figure 5	– Measurement of insulation resistance	14
Figure 6	– Measurement of DC resistance	15
Figure 7	– Measurement of positive-sequence parameter	16
Figure 8	– Measurement of zero-sequence parameter	18
Figure 9	– Measurement of line-mode impedance	20
Figure 10	– Measurement of line-mode capacitance	20
Figure 11	– Measurement of ground-mode impedance	21
Figure 12	– Measurement of ground-mode capacitance	21
Figure 13	– Measurement of self-impedance by two-terminal synchronous measurement method	22
Figure 14	– Measurement of self-capacitance by two-terminal synchronous measurement method	23
Figure 15	– Measurement of coupling capacitance between two phases	24
Figure 16	– Measurement of mutual impedance between two phases	26
Figure B.1	– The π -equivalent circuit of 3-phase system during measurement	31
Table 1	– Calculation method of positive-sequence parameters	17
Table 2	– The calculation method of zero-sequence parameters	18
Table 3	– Calculation process and equations of parameters per unit length of double-circuit lines on the same tower.....	22
Table 4	– The calculation of self-impedance	23
Table 5	– The calculation of self-capacitance.....	24
Table A.1	– Measured data of transmission line I	28
Table A.2	– Positive-sequence parameters of transmission line I	28
Table A.3	– DC resistance of line I.....	29
Table A.4	– Measured data of transmission line I	29
Table A.5	– Zero-sequence parameters of transmission line I	29

Table A.6 – The capacitance matrix of transmission line I and II	30
Table A.7 – The resistance matrix of transmission line I and II	30
Table A.8 – The reactance matrix of transmission line I and II	30

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

UHV AC TRANSMISSION SYSTEMS –

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

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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