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UHV AC transmission systems – Part 302: Commissioning

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UHV AC TRANSMISSION SYSTEMS –

Part 302: Commissioning

FOREWORD

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IEC TS 63042-302 has been prepared by IEC technical committee 122: UHV AC transmission systems. It is a Technical Specification.

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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 Specification 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 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- withdrawn,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.

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INTRODUCTION

Due to the increase in voltage level and transmission capacity, the reliability and security of high voltage electric equipment and power system are facing new challenges. There is a need to have consensus on a series of technical criteria and requirements for commissioning tests for ultra-high voltage (UHV) AC transmission systems to check the proper and expected performance of substation equipment and transmission lines, to verify the function of the transmission system, to obtain the electromagnetic data and confirm the environmental impacts complying with relevant local regulations. By commissioning, the integrated performance and construction quality of the project before its commercial operation could be confirmed.

This document proposes relevant test items, test preconditions, test methods, and test acceptance criteria for pre-commissioning, system commissioning, and measurement during system commissioning.

UHV AC TRANSMISSION SYSTEMS –

Part 302: Commissioning

1 Scope

This part of IEC 63042 applies to the commissioning of UHV AC transmission systems.

It mainly specifies the test purposes, test items, test preconditions, test methods and test acceptance criteria during pre-commissioning and system commissioning. Also, the measurement requirements for system commissioning are specified.

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 60076-6:2007, *Power transformers – Part 6: Reactors*

IEC 60076-10:2016, *Power transformers – Part 10: Determination of sound levels*
IEC 60076-10:2016/AMD1:2020

IEC 61000-4-13:2002, *Electromagnetic compatibility (EMC) – Part 4-13: Testing and measurement techniques – Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests*
IEC 61000-4-13:2002/AMD1:2009
IEC 61000-4-13:2002/AMD2:2015

IEC 61786-2:2014, *Measurement of DC magnetic, AC magnetic and AC electric fields from 1 Hz to 100 kHz with regard to exposure of human beings – Part 2: Basic standards for measurements*

IEC TS 63042-301:2018, *UHV AC transmission systems – Part 301: On-site acceptance tests*

CISPR TR 18-2:2017, *Radio interference characteristics of overhead power lines and high-voltage equipment – Part 2: Methods of measurement and procedure for determining limits*