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High-voltage direct current (HVDC) systems – Application of active filters

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This Consolidated version of IEC TR 62544 bears the edition number 1.1. It consists of the first edition (2011-08) [documents 22F/242/DTR and 22F/250/RVC] and its amendment 1 (2016-04) [documents 22F/377/DTR and 22F/381A/RVC]. The technical content is identical to the base edition and its amendment.

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

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IEC/TR 62544, which is a technical report, has been prepared by subcommittee 22F: Power electronics for electrical transmission and distribution systems, of IEC technical committee 22: Power electronics.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of the base publication and its amendment will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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- withdrawn,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

A bilingual version of this publication may be issued at a later date.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

HIGH-VOLTAGE DIRECT CURRENT (HVDC) SYSTEMS – APPLICATION OF ACTIVE FILTERS

1 Scope

This technical report gives general guidance on the subject of active filters for use in high-voltage direct current (HVDC) power transmission. It describes systems where active devices are used primarily to achieve a reduction in harmonics in the d.c. or a.c. systems. This excludes the use of automatically retuned components.

The various types of circuit that can be used for active filters are described in the report, along with their principal operational characteristics and typical applications. The overall aim is to provide guidance for purchasers to assist with the task of specifying active filters as part of HVDC converters.

Passive filters are specifically excluded from this report.

2 Normative references

The following referenced documents are indispensable for the application 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/TS 60071-5, *Insulation co-ordination – Part 5: Procedures for high-voltage direct current (HVDC) converter stations*

IEC 60633, *Terminology for high-voltage direct-current (HVDC) transmission*

IEC 61000 (all parts), *Electromagnetic compatibility (EMC)*

IEC 61975, *High-voltage direct current (HVDC) installations – System tests*

IEC/TR 62001:2009, *High-voltage direct current (HVDC) systems – Guidebook to the specification and design evaluation of A.C. filters*

IEC/TR 62543, *High-voltage direct current (HVDC) power transmission using voltage sourced converters (VSC)*

IEEE 519, *IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems*