



BSI Standards Publication

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

National foreword

This Published Document is the UK implementation of IEC TR 62544:2011+A2:2020. It supersedes PD IEC/TR 62544:2011+A1:2016, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to IEC text carry the number of the IEC amendment. For example, text altered by IEC amendment 1 is indicated by **A1** **A1**.

The UK participation in its preparation was entrusted to Technical Committee PEL/22, Power electronics.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Published by BSI Standards Limited 2020

ISBN 978 0 580 52427 1

ICS 29.240.99

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This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 September 2011.

Amendments/corrigenda issued since publication

Date	Text affected
31 May 2016	Implementation of IEC amendment 1:2016
29 February 2020	Implementation of IEC amendment 2:2020



IEC TR 62544

Edition 1.0 2020-02

TECHNICAL REPORT

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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 29.240.99

ISBN 978-2-8322-7841-3

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

FOREWORD

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This Technical Report cancels and replaces IEC/PAS 62544 published in 2011. This first edition constitutes a technical revision.

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.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
22F/242/DTR	22F/250/RVC

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

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

The committee has decided that the contents of this publication 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.

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*

^{A2} IEC TR 62001-1:2016, *High-voltage direct current (HVDC) systems – Guidance to the specification and design evaluation of AC filters – Part 1: Overview* ^{A2}

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*

3 Terms and definitions

For the purposes of this technical report, the terms and definitions given in IEC 60633 and ^{A2} IEC TR 62001-1:2016 ^{A2} for passive a.c. filters, as well as the following apply.

NOTE ^{A1} Only terms which are specific to active filters for HVDC are defined in this clause. Those terms that are either identical to or obvious extensions of IEC 60633, ^{A2} IEC 62001-1 ^{A2} and IEC 62747 terminology have not been defined. ^{A1}