

# TECHNICAL REPORT



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## High-voltage direct current (HVDC) systems – Guidance to the specification and design evaluation of AC filters – Part 1: Overview





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IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

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INTERNATIONAL  
ELECTROTECHNICAL  
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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**HIGH-VOLTAGE DIRECT CURRENT (HVDC) SYSTEMS –  
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EVALUATION OF AC FILTERS –****Part 1: Overview****FOREWORD**

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IEC TR 62001-1 has been prepared by subcommittee 22F: Power electronics for electrical transmission and distribution systems, of IEC technical committee 22: Power electronic systems and equipment. It is a Technical Report.

This second edition cancels and replaces the first edition published in 2016. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) general updating of the document to reflect changes in practice;
- b) 10.2.4 on fuseless capacitors has been transferred to IEC TR 62001-4;
- c) Clause 11 on future developments has been expanded;
- d) 10.3.3 and Annex F on voltage sourced converters have been deleted as their content is covered by IEC TR 62543.

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

DTR	Report on voting
22F/614/DTR	22F/623A/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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

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## INTRODUCTION

The IEC TR 62001 series is structured in five parts:

### IEC TR 62001-1 – Overview

This part concerns specifications of AC filters for high-voltage direct current (HVDC) systems with line-commutated converters, permissible distortion limits, harmonic generation, filter arrangements, filter performance calculation, filter switching and reactive power management and customer specified parameters and requirements.

### IEC TR 62001-2 – Performance

This part deals with current-based interference criteria, field measurements and verification.

### IEC TR 62001-3 – Modelling

This part addresses the harmonic interaction across converters, pre-existing harmonics, AC network impedance modelling, simulation of AC filter performance.

### IEC TR 62001-4 – Equipment

This part concerns steady-state and transient ratings of AC filters and their components, power losses, audible noise, design issues and special applications, filter protection, seismic requirements, equipment design and test parameters.

### IEC TR 62001-5<sup>1</sup> – AC side harmonics and appropriate harmonic limits for high-voltage direct current (HVDC) systems with voltage sourced converters (VSC)

This document concerns specific issues of AC filter design related to VSC HVDC systems.

Parts 1 to 4 are written with focus on line commutated converters.

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<sup>1</sup> Under preparation. Stage at the time of publication: IEC/RPUB 62001-5:2021.