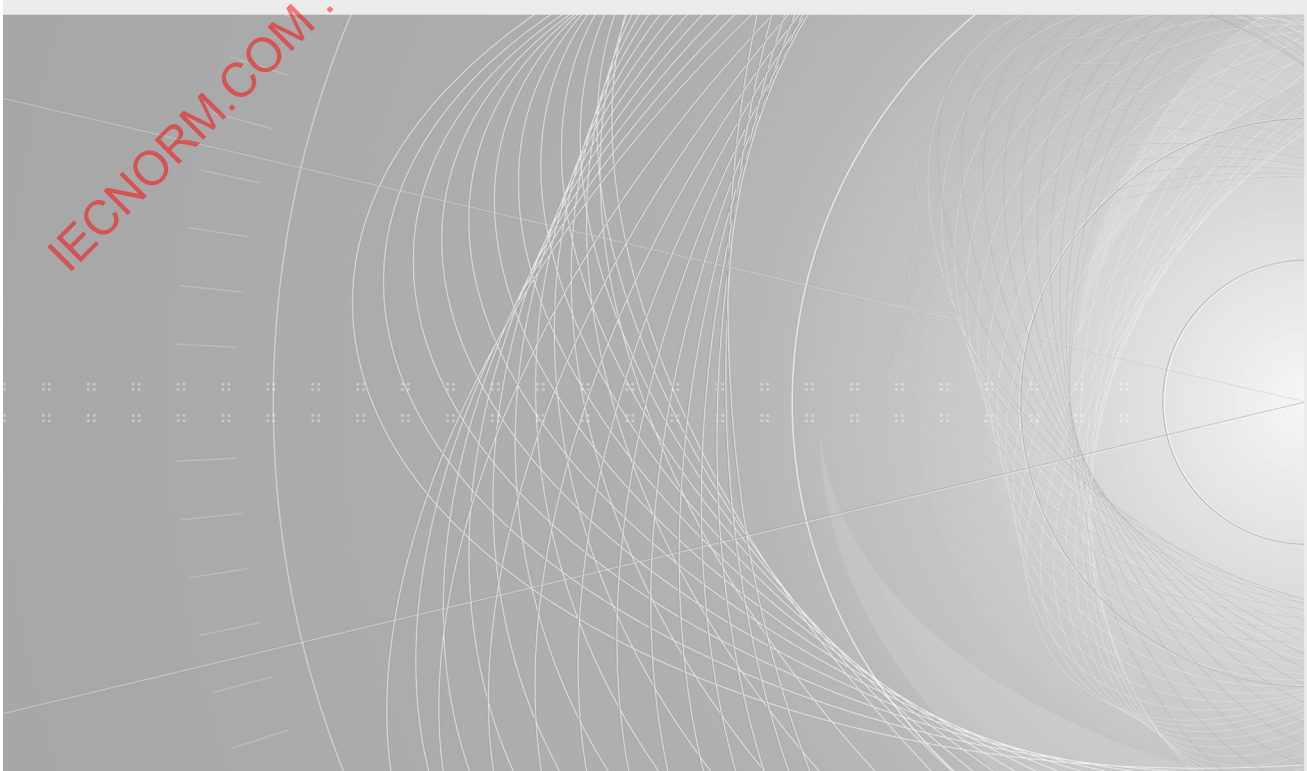
IEC TR 60919-3

Edition 2.0 2021-10

TECHNICAL REPORT

AMENDMENT 2

Performance of high-voltage direct current (HVDC) systems with line-commutated converters – Part 3: Dynamic conditions



IEC TR 60919-3:2009-10/AMD2:2021-10(en)

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

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications
The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, …). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC online collection - oc.iec.ch
Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org
The world's leading online dictionary on electrotechnology, containing more than 22 000 terminological entries in English and French, with equivalent terms in 18 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC TR 60919-3

Edition 2.0 2021-10

TECHNICAL REPORT

AMENDMENT 2

Performance of high-voltage direct current (HVDC) systems with line-commutated converters – Part 3: Dynamic conditions

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ICS 29.200; 29.240.99

ISBN 978-2-8322-1038-0

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

PERFORMANCE OF HIGH-VOLTAGE DIRECT CURRENT (HVDC) SYSTEMS WITH LINE-COMMUTATED CONVERTERS –

Part 3: Dynamic conditions

AMENDMENT 2

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

Amendment 2 to IEC TR 60919-3:2009 has been prepared by subcommittee 22F: Power electronics for electrical transmission and distribution systems, of IEC technical committee 22: Power electronic systems and equipment.

The text of this amendment is based on the following documents:

Draft	Report on voting
22F/634/DTR	22F/654/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 Amendment 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/.

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.

_____

2 Normative references

Replace the existing reference IEC TR 60919-1, modified by IEC TR 60919-3/AMD1:2016, with the following new reference:

IEC TR 60919-1:2020, *Performance of high-voltage direct current (HVDC) systems with line-commutated converters – Part 1: Steady-state conditions*

Replace the existing reference IEC TR 60919-2, modified by IEC TR 60919-3/AMD1:2016, with the following new reference:

IEC TR 60919-2:2008, *Performance of high-voltage direct current (HVDC) systems with line-commutated converters – Part 2: Faults and switching*
IEC TR 60919-2:2008/AMD1:2015
IEC TR 60919-2:2008AMD2:2020

5.4.3 HVDC converters, switchable reactive power sources and synchronous compensators

Replace the existing first paragraph with the following new paragraph:

Similar to SVC, STATCOM may be installed, if an HVDC is connected to a weak a.c. system. Typical SVC is representatively TCR (thyristor controlled reactor) type, which requires harmonic filters, such as 5^{th}, 7^{th}, 11^{th}, 13^{th} and high pass filters. On the other hand, latest STATCOM needs only small filters or even no filters.

9.2.4 Overvoltage effects

Delete the last two sentences of the existing second paragraph, modified by IEC TR 60919-3/AMD1:2016.

_____