IEC TR 62681

Edition 1.0 2014-08

TECHNICAL REPORT

colour inside

Electromagnetic performance of high voltage direct current (HVDC) overhead transmission lines

Withdrawn

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROMAGNETIC PERFORMANCE OF HIGH VOLTAGE DIRECT CURRENT (HVDC) OVERHEAD TRANSMISSION LINES

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IEC TR 62681, which is a technical report, has been prepared by IEC technical committee 115: High Voltage Direct Current (HVDC) transmission for d.c. voltages above 100 kV.

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

Enquiry draft	Report on voting
115/71/DTR	115/84/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.

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INTRODUCTION

Electric fields and magnetic fields are produced in the vicinity of an HVDC transmission line. When the electric field at the conductor surface exceeds a critical value, known as the corona onset gradient, positive or negative free charges leave the conductor and interact with the surrounding air and ionization takes place in the layer of surrounding air, leading to the formation of corona discharges. The corona discharge will not only bring out corona loss but also produce electromagnetic environment problems.

The parameters used to describe the electromagnetic environment of an HVDC transmission line mainly include the:

1) electric field,
2) ion current,
3) magnetic field,
4) radio interference,
5) audible noise.

To control these parameters in a reasonable and acceptable range, for years, a great deal of theoretical and experimental research was conducted in many countries, and relevant national standards or enterprise standards were developed. This Technical Report collects and records the status of study and progress of electric fields, ion current, magnetic fields, radio interference, and audible noise of HVDC transmission lines.

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