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Edition 2.0 2016-05

TECHNICAL REPORT

Tests recommended on cables with a longitudinally applied metal foil for rated voltages above 30 kV (U_m = 36 kV) up to and including 500 kV (U_m = 550 kV)

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TESTS RECOMMENDED ON CABLES WITH A LONGITUDINALLY APPLIED METAL FOIL FOR RATED VOLTAGES ABOVE 30 kV (U_m = 36 kV) UP TO AND INCLUDING 500 kV (U_m = 550 kV)

FOREWORD

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IEC TR 61901, which is a Technical Report, has been prepared by IEC technical committee 20: Electric cables.

This second edition cancels and replaces the first edition, published in 2005. This edition constitutes a technical revision.

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

a) Recommendations on the tests to be performed at the different stages of the cable and cable system qualification (development tests, type tests, sample tests, routine tests, after installation tests) have been provided.

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b) The performance level of the tests related to the longitudinally applied metal foil which depends on the cable design has been detailed.

c) Three cable designs that represent the world production of cables with longitudinally applied metal foil have been detailed.

d) A test on the weld design has been included, following the appearance of a new cable design with smooth and longitudinally welded aluminium foil (referred to in this document as combined design).

e) An examination of the cable at the end of the type test has been included.

f) The cable system approach (cable with installed accessories) has been considered and a short circuit test with accessories has been introduced.

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

Enquiry draft	Report on voting
20/1551/DTR	20/1621/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 website 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- withdrawn,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.

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INTRODUCTION

Numerous technical improvements have appeared on laminated coverings since 1992 and the publication of CIGRE Electra 141[1][1], in parallel with service experience. In 2006, CIGRE requested an upgrade of Electra 141 which was issued in February 2011 as Technical Brochure 446[2].

This new data was analysed and resulted in the revision of the first edition of IEC TR 61901.

[1] Numbers in brackets refer to the Bibliography.

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1 Scope

IEC TR 61901, which is a Technical Report, specifies test methods and requirements for power cable systems, cables with extruded insulation and their accessories for fixed installations, for rated voltages above 30 kV (U_m = 36 kV) up to and including 500 kV (U_m = 550 kV).

The requirements apply to single-core cables and to their accessories for usual conditions of installation and operation, but not to special cables and their accessories, such as submarine cables, for which modifications to the tests may be necessary or special test conditions may need to be devised.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 Definitions concerning the tests

3.1.1
routine test
test made by the manufacturer on each manufactured component (length of cable or accessory) to check that the component meets the specified requirements

3.1.2
sample test
test made by the manufacturer on samples of complete cable or components taken from a complete cable or accessory, at a specified frequency, so as to verify that the finished product meets the specified requirements

3.1.3
development test
test made during the development of the cable system

3.1.4
type test
test made before supplying on a general commercial basis a type of cable system in order to demonstrate satisfactory performance characteristics to meet the intended application

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