

# TECHNICAL REPORT

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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)**





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INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**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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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.

- 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.

## INTRODUCTION

Numerous technical improvements have appeared on laminated coverings since 1992 and the publication of CIGRE Electra 141[1]<sup>1</sup>, 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.

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<sup>1</sup> Numbers in brackets refer to the Bibliography.