



Technical Specification 09-16

Issue 3 2017

Tests on power cables with XLPE insulation and metallic sheath and their accessories, for rated voltages of 66 kV ($U_m = 72.5$ kV), 110 kV ($U_m = 123$ kV) and 132 kV ($U_m = 145$ kV)

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Issue 2 published 2004

Amendments since publication

Issue	Date	Amendment
Issue 3	December, 2017	<p>Major revision of Issue 2, 2004</p> <p>This issue includes the following principal technical changes.</p> <p>A Foreword has been added to update document history and clarify the relationship with BS 7912 and HD 632. The Foreword replaces Clause 3 paragraph 1 of Issue 2.</p> <p>All clauses relating to tests and requirements have been re-titled and rearranged as necessary to align with BS 7912:2012+A1:2017. Additional requirements in Issue 2 that were included in subsequent revisions of BS 7912 have been deleted from the text of Issue 3 since they are included by reference to the relevant clauses of BS 7912:2012+A1:2017.</p> <p>Tests in Issue 2 that were not included in subsequent revisions of BS 7912 have been deleted. There are:</p> <p>Stretch and compression conditioning of elastomer accessory components (Clause 3.14 of Issue 2)</p> <p>Properties of water-blocking tape (Clause 3.9 of Issue 2);</p> <p>DC voltage tests (Clauses 3.17 and 3.18.2 of Issue 2).</p> <p>A self-certification conformance declaration has been added as Annex A.</p> <p>Details of all other technical, general and editorial amendments are included in the associated Document Amendment Summary for this Issue (available on request from the Operations Directorate of ENA).</p>

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Foreword

This Technical Specification (TS) is published by the Energy Networks Association (ENA) and comes into effect from the date of publication. It has been prepared under the authority of the ENA Engineering Policy and Standards Manager and has been approved for publication by the ENA Electricity Networks and Futures Group (ENFG). The approved abbreviated title of this engineering document is "TS 09-16".

This ENA TS supersedes ENA TS 09-16 Issue 2, 2004.

Issue 2 of TS 09-16 was based on BS 7912:2001 (implementing relevant sections of CENELEC HD632) together with additional tests that were not included in the 2001 issue of BS 7912. In the intervening years BS 7912 has been revised twice, the latest issue being BS 7912:2012+A1:2017. The additional tests in Issue 2 of TS 09-16 have been incorporated into BS 7912 and so this revision of TS 09-16 largely signposts the relevant clauses of BS 7912:2012+A1:2017.

Since TS 09-16 refers to specific clauses of BS 7912:2012+A1:2017 it is appropriate that this dated reference of the Standard applies in order to avoid possible confusion should BS 7912 be revised again whilst Issue 3 of TS 09-16 is still current. A revision of BS 7912 would be expected to require a revision of this TS if changes to the BS were substantial. Within the text of this ENA TS, references to BS 7912:2012+A1:2017 have been abbreviated to 'BS 7912'.

Where the term "shall" or "must" is used in this document it means the requirement is mandatory. The term "may" is used to express permission.

1 Scope

This Technical Specification (TS) defines test methods and requirements for routine, sample and type testing of power cables with XLPE insulation and metallic sheath and their accessories for rated voltages of 66 kV ($U_m = 72.5$ kV), 110 kV ($U_m = 123$ kV) and 132 kV ($U_m = 145$ kV). In this context, 'accessories' refers to cable joints and terminations and does not include ancillary equipment such as bonding leads, sheath voltage limiters and link housings.

The scope of this ENA TS mirrors the scope of BS 7912 in relation to test methods and requirements for cables and accessories.

2 Normative references

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

Standards publications

The Standards listed in Clause 2 of BS 7912:2012+A1:2017 are applicable, together with the following.

BS 7912:2012+A1:2017, *Power cables with XLPE insulation and metal sheath, and their accessories, for rated voltages from 66kV ($U_m = 72.5$ kV) to 132kV ($U_m = 145$ kV) (Implementation of HD 632)*

3 Terms and definitions

The terms and definitions listed in Clause 3 of BS 7912 are applicable.

4 Voltage designation and cable design features

Test voltages and cable design features shall be in accordance with Clause 4 of BS 7912.

5 Marking of cables

External marking of cables shall be in accordance with Clause 5 of BS 7912.

6 Cable characteristics

The cable characteristics listed in Clause 6 of BS 7912 shall be declared with the following additional parameters.

- The method of support, pressurisation and cooling during the core extrusion process.
- Manufacturer's designation of the insulation and screening materials.