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Interested committees:

Title: Draft BS EN IEC 62192 Live working - Insulating ropes.

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## Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

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## Template for comments and secretariat observations

|                  |                        |
|------------------|------------------------|
| Date: xx/xx/20xx | Document: ISO/DIS xxxx |
|------------------|------------------------|

| 1  | 2                                          | (3)                          | 4               | 5                                                                                                                                  | (6)                                                                      | 7                                                  |
|----|--------------------------------------------|------------------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------|
| MB | Clause No./ Subclause No./Annex (e.g. 3.1) | Paragraph/Figure/ Table/Note | Type of comment | Commend (justification for change) by the MB                                                                                       | Proposed change by the MB                                                | Secretariat observations on each comment submitted |
|    | 3.1                                        | Definition 1                 | ed              | Definition is ambiguous and needs clarifying.                                                                                      | Amend to read '...so that the mains connector to which no connection...' |                                                    |
|    | 6.4                                        | Paragraph 2                  | te              | The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK. | Delete reference to UV photometer.                                       |                                                    |



# 78/1379/CD

COMMITTEE DRAFT (CD)

|                                            |                                                 |
|--------------------------------------------|-------------------------------------------------|
| PROJECT NUMBER:<br><b>IEC 62192 ED2</b>    |                                                 |
| DATE OF CIRCULATION:<br><b>2021-12-17</b>  | CLOSING DATE FOR COMMENTS:<br><b>2022-04-08</b> |
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|                                                                                                                                                                      |                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| IEC TC 78 : LIVE WORKING                                                                                                                                             |                                                                                                                                                          |
| SECRETARIAT:<br>France                                                                                                                                               | SECRETARY:<br>Mrs Sophie CHABIN                                                                                                                          |
| OF INTEREST TO THE FOLLOWING COMMITTEES:                                                                                                                             | PROPOSED HORIZONTAL STANDARD:<br><input type="checkbox"/><br>Other TC/SCs are requested to indicate their interest, if any, in this CD to the secretary. |
| FUNCTIONS CONCERNED:<br><input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input type="checkbox"/> SAFETY |                                                                                                                                                          |

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

**Live working - Insulating ropes**

NOTE FROM TC/SC OFFICERS:

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**LIVE WORKING –  
INSULATING ROPES****FOREWORD**

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International Standard IEC 62192 has been prepared by technical committee 78: Live working.

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

| FDIS        | Report on voting |
|-------------|------------------|
| 78/773/FDIS | 78/787/RVD       |

Full information on the voting for the approval of this standard 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.

102 The committee has decided that the contents of this publication will remain unchanged until the  
103 maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data  
104 related to the specific publication. At this date, the publication will be

- 105 • reconfirmed,
- 106 • withdrawn,
- 107 • replaced by a revised edition, or
- 108 • amended.

109

110

## INTRODUCTION

111 Insulating ropes designed and manufactured according to this standard contribute to the safety  
112 of the users, provided they are used by trained and qualified persons, in accordance with safe  
113 methods of work and the instructions for use.

114 This International Standard defines the required electrical properties of insulating ropes which  
115 already meet other specifications relating to mechanical strength, physical and construction  
116 properties, for use as an insulating rope, where the dielectric properties of the rope are required  
117 or relied upon, at the power frequency system voltages up to and including 800 kV r.m.s. The  
118 standard testing is performed to reflect a.c. conditions. In cases where the insulating ropes are  
119 to be used for d.c. conditions, additional testing is required by the end user to demonstrate that  
120 the insulating ropes perform equally in d.c. conditions.

121 Insulating ropes are needed when working in an energized environment whether utilizing direct-  
122 contact live working, non-contact methods while working in electromagnetic fields (capacitive  
123 induction) or for de-energized work methods for protection from accidental energization. (i.e.  
124 lightning, switching errors, equipment failures etc.) Applications for insulating ropes include but  
125 are not limited to general live working methods, pulling and stringing of conductor, bare hand  
126 methods, helicopter human external cargo, safety netting, tree trimming, rescue and escape,  
127 rope access, tag lines and hand lines.

128 Natural fibres such as cotton, sisal, hemp and manilla or synthetic fibres untreated or uncoated  
129 such as nylon, polyester, liquid crystal polymer and aramid may be unsuitable for this  
130 application, as are any other ropes that exhibit electrical conductivity. Examples of ropes which  
131 may be likely to meet the requirements of this standard are formed from fibres that have an  
132 extruded thermoplastic jacket or other form of coating or additives, such as wax, which  
133 enhances their dielectric and hydrophobic properties. This document has been prepared  
134 according to the requirements of IEC 61477 where applicable.

135 This standard distinguishes between two different types of insulating ropes. The first type is  
136 used as primary insulation of employees from energized circuits. The second type is used as  
137 secondary insulation from energized circuits or incidental (brush) contact only. The standard  
138 introduces different testing methods for each type with different acceptance criteria. Type 1  
139 insulating ropes are manufactured for energized contact and energized environments while  
140 Type 2 insulating ropes are for use in an energized environment where contact with energized  
141 phases is not intended. Type 2 ropes may be used in combination with Type 1 insulating rope  
142 or other insulating tools to contact energized phases.

143 This standard does not propose to address all the safety factors associated with the use of the  
144 insulating rope. It is the responsibility of the user to establish appropriate safety practices. The  
145 end user is responsible to validate the testing data and reports provided by the supplier and to  
146 ensure the conformity and validation prior to choosing a rope and utilizing it in service.

147 The product covered by this standard may have an impact on the environment during some or  
148 all stages of its life cycle. These impacts can range from slight to significant, be of short-term  
149 or long-term, and occur at the global, regional or local level.

150 This standard does not include requirements and test provisions for the manufacturers of the  
151 product, or recommendations to the users of the product for environmental improvement.  
152 However, all parties intervening in its design, manufacture, packaging, distribution, use,  
153 maintenance, repair, reuse, recovery and disposal are invited to take account of environmental  
154 considerations.

155

156

157

## LIVE WORKING – INSULATING ROPES

### 1 Scope

This International Standard covers insulating ropes that are utilized in energized environments. Insulating ropes up to a diameter of 25 mm only are given consideration for the test acceptance criteria and larger diameters may require increased leakage current criteria and engineering analysis for a particular application.

CAUTION: The minimum approach distance shall be adhered to for the respective voltage level, which will dictate the insulating rope length, and other safety obligations of the users or as instructed by the manufacturer shall be adhered to.

Consideration is given for end users to test to d.c. conditions if the insulating rope is to be used on d.c. lines. Consideration is given for two types of insulating ropes which can be described normally as ropes which can be in direct contact (Type 1) and ropes which are not intended for direct contact (Type 2) with energized phases.

At the present time, rope options include but are not limited to various styles, materials and construction, including extruded thermoplastic jacket ropes, fiber with overlay/wax coating and additives and fiber without any additives. Extruded thermoplastic jacket ropes are more likely to meet the Type 1 and Type 2 performance requirements while fiber with an overlay finish/wax coating and additives are more likely to meet the Type 2 performance requirements. Fiber ropes without coatings may not pass either classification. Testing is essential in order to determine the classification of the rope.

It is not an industry best practice to utilize insulating ropes in high humidities or under precipitation conditions such as rain, snow, sleet, fog etc. The required testing and conditioning in this standard covers a severe wetting condition in case ropes are already deployed when the wet conditions occur.

CAUTION: Live working should not be started and should be ceased immediately if precipitation is anticipated or has begun.

This standard covers in-service care and periodic testing. The arc flash properties of the insulating rope is not evaluated in this standard but should be given consideration.

Ropes covered by this standard shall be deemed compliant by passing all of the requirements of Annex B with results documented in a Report of Type Testing which shall include proof that the applied voltage and leakage current were recorded continuously at a frequency of at least once per second for the entire duration of the test. Subject to certain conditions, a Summary Report of Type Testing results shall be made available to the end user upon request.

Subject to certain conditions, a proof of individual routine testing for each lot or batch, as documented in a Summary Routine Lot Test Report (per Section 6) shall be made available to the end user upon request. All of the requirements of Annex B are required to pass if the lot is to be deemed compliant.

An Acceptance Test may be arranged between a manufacturer and the end user in order to demonstrate that the product meets the specifications and requirements of this standard.

### 2 Normative references

The following referenced documents 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.

IEC 60060-1, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60417, *Graphical symbols for use on equipment*