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Effects of engaging and separating under electrical load on connector interfaces in cabling used to support IEEE 802.3af (power-over-ethernet) applications

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Technical Report IEC 62652 has been prepared by subcommittee 48B: Connectors, of IEC technical committee 48: Electromechanical components and mechanical structures for electronic equipment.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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

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- withdrawn,
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INTRODUCTION

The ISO/IEC/JTC1/SC25 subcommittee requested IEC SC 48B to prepare an engaging and separating under electrical load test method to be referenced in their standards. This test method standard was published as IEC 60512-9-3:2006. The experts of SC 48B/WG5 were concerned about the effect of engaging/separating under electrical load on the IEC 60603-7 series connector interfaces that would be typically used in the IEEE 802.3af (PoE) applications. The experts developed a set of tests to evaluate the effects, the results of which are reported in this Technical Report.

NOTE "Engaging" and "Separating" are terms used in most IEC TC 48 publications to describe the physical mating or un-mating of connectors.

IEC 60050-581:1978, 581-08-08[1] defines the terms as follows:

engaging and separating force
connector mating and unmating force (deprecated)
The force required to engage fully or separate a pair of mating components including the effect of a coupling, locking or similar device.

The IEC 60603-7 series of standards use the terms mating and un-mating throughout. To avoid confusion in reading this Technical Report and also the IEC 60603-7 series of standards, it is important to know that the term "engaging" is equivalent to "mating" and the term "separating" is equivalent to "un-mating".

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1 IEC 60050-581:1978, *International Electrotechnical Vocabulary – Chapter 581: Electromechanical components for electronic equipment*

EFFECTS OF ENGAGING AND SEPARATING UNDER ELECTRICAL LOAD ON CONNECTOR INTERFACES IN CABLING USED TO SUPPORT IEEE 802.3af (POWER-OVER-ETHERNET) APPLICATIONS

1 Scope

This Technical Report is intended to provide information on the effects of engaging and separating under electrical load on the connector interfaces in cabling, used to support IEEE 802.3af (Power-over-Ethernet (PoE)) applications.

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 60512-9-3:2006, *Connectors for electronic equipment – Tests and measurements – Part 9-3: Endurance tests – Test 9c: Mechanical operation (engaging/separating) with electrical load*

IEC 60603-7, *Connectors for electronic equipment – Part 7: Detail specification for 8-way, unshielded, free and fixed connectors*

IEC 60603-7-7, *Connectors for electronic equipment – Part 7-7: Detail specification for 8-way, shielded, free and fixed connectors, for data transmissions with frequencies up to 600 MHz*

IEC 61076-3-110, *Connectors for electronic equipment – Product requirements – Part 3-110: Detail specification for shielded, free and fixed connectors for data transmission with frequencies up to 1 000 MHz*

IEC 61156 (all parts), *Multicore and symmetrical pair/quad cables for digital communications*

ISO/IEC 11801:2002, *Information technology – Generic cabling for customer premises*

Amendment 1 (2008)

IEEE 802.3af, *"Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications – Data Terminal Equipment (DTE) Power Via Media Dependent Interface (MDI),"*