

TECHNICAL SPECIFICATION

AMENDMENT 1

**Information technology – Telecommunications cabling requirements for remote
powering of terminal equipment**



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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 35.200

ISBN 978-2-8322-8310-3

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FOREWORD

This amendment has been prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

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

DTS	Report on voting
JTC1-SC25/2919/DTS	JTC1-SC25/2945/RVDTS

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

INTRODUCTION to the amendment

This amendment incorporates changes necessary to include remote powering using single pair cabling.

Introduction

Add the following at end of the last paragraph:

This document addresses the use of generic balanced single pair cabling for customer premises, to be specified in future amendments of the ISO/IEC 11801 series, for remote powering of terminal equipment. This document uses measurements and empirical models to estimate the thermal performance of single pair cable bundles of various conductor diameters.

1 Scope

Replace list item a) with the following:

- a) addresses the support of safety extra low voltage (SELV) and limited power source (LPS) applications that provide remote power over:
- 4-pair balanced cabling in accordance with the reference implementations of ISO/IEC 11801 series standards using currents per conductor of up to 500 mA;
 - 1-pair balanced cabling using currents per conductor of up to 1 000 mA;
- and targets the support of applications that provide remote power over balanced cabling to terminal equipment,

5 Cabling selection and performance

Replace the first paragraph with the following:

Cabling for remote powering can be implemented using 4-pair and 1-pair balanced cabling.

6.3 Temperature rise and current capacity

Add the following new paragraph after the third paragraph:

The maximum current per conductor for different temperature rise in a bundle of 37 cables of 1-pair cables with 0,57 mm diameter conductors, and 37 cords of 1-pair 0,40 mm cords with all pairs energized is shown in Table 5.

Replace the fourth paragraph with the following new paragraph:

Annex B provides an engineering model that may be used for specific cable types, cable constructions, and installation conditions to derive the bundle size for a particular current per conductor. Clause B.7 describes a simplified version of the engineering model in Annex B and was used to derive the worst case values in Tables 1 to 9 based on constants calculated from measurements of typical cables for each cable category or conductor diameter. The measurement procedures used to determine the constants are detailed in Annex F.

Replace the Table 1 title with the following new title:

Table 1 – Maximum current per conductor versus temperature rise in a 37 4-pair cable bundle in air and conduit

Add the following new Table 5 after Table 1:

Table 5 – Maximum current per conductor versus temperature rise in a 37 1-pair cable bundle in air and conduit

Temperature rise °C	Current per conductor 0,57 mm diameter mA		Current per conductor 0,40 mm cords mA	
	air	conduit	air	conduit
5	866	738	608	518
7,5	1 061	904	744	634
10	1 225	1 044	860	732
12,5	1 370	1 167	961	819
15	1 501	1 278	1 053	897
17,5	1 621	1 381	1 137	969
20	1 733	1 476	1 216	1 036
Temperature rise above 10 °C shown in grey background is not recommended.				
NOTE These values are based on conductor temperature measurement of typical cables and cords.				

Replace the fifth paragraph with the following new paragraph:

Table 2 shows current capacity for different categories of 4-pair cable, independent of construction, for a given temperature rise. Table 6 shows current capacity for 1-pair cables of conductor diameters of cable, independent of construction, for a given temperature rise.