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BSI Standards Publication

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

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National foreword

This Published Document is the UK implementation of ISO/IEC TS 29125:2017+A1:2020. It supersedes PD ISO/IEC TR 29125:2010, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee TCT/7, Telecommunications - Installation requirements.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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CONTENTS

FOREWORD 4
INTRODUCTION 6
1 Scope 7
2 Normative references 7
3 Terms, definitions and abbreviated terms 7
3.1 Terms and definitions 7
3.2 Abbreviated terms 8
4 Conformance 8
5 Cabling selection and performance 9
6 Installation conditions 9
6.1 General 9
6.2 Ambient temperature 9
6.3 Temperature rise and current capacity 9
6.4 Factors affecting temperature increase 12
6.4.1 General 12
6.4.2 Installation near equipment 12
6.4.3 Cable count within a bundle 12
6.4.4 Reducing temperature increase 14
6.4.5 Cable bundle suspended in air 17
6.4.6 Administration 18
7 Remote power delivery over balanced cabling 18
8 Connecting hardware 20
Annex A (informative) Mitigation considerations for installed cabling 21
A.1 General 21
A.2 Minimum cabling class 21
A.3 Bundle size and location 21
A.4 Mitigation options 21
Annex B (informative) Modelling temperature rise for cable types, bundle sizes and installation conditions 22
B.1 Model basics 22
B.2 Power dissipated (P) 22
B.3 Temperature difference from ambient temperature to bundle surface (ΔT_u) 23
B.3.1 Model equations 23
B.3.2 Typical values for constant ρ_u 23
B.4 Temperature difference from bundle surface to bundle centre (ΔT_{th}) 23
B.4.1 Model equations 23
B.4.2 Typical values for constant ρ_{th} 23
B.5 Temperature variation within the bundle ($\Delta T(x)$) 24
B.6 Alternative presentation of the model 24
B.7 Adaptation model used to derive temperature rise vs. cables in a bundle 24
B.8 Calculations 25
B.9 Example 25
B.10 Coefficients for air and conduit 26
Annex C (informative) Transmission parameters related to remote powering 27
C.1 DC loop resistance 27

C.2 DC resistance unbalance (within pair) 27
C.3 DC resistance unbalance (pair to pair) 28
Annex D (informative) Illustrations of heating of various bundle sizes and configurations 30
D.1 Limiting cable bundle size 30
D.2 Separating into smaller bundles 31
Annex E (informative) Test protocol 32
E.1 Background 32
E.2 Test set-up 32
Annex F (informative) Detailed test procedure 35
F.1 General 35
F.2 Test set-up 35
F.2.1 Thermocouple placement 35
F.2.2 Measurement of cable bundle in air 36
F.2.3 Measurement of cable bundle in conduit 37
Bibliography 39

Figure 1 – Examples of end point powering systems using signal pairs (top) and spare pairs (bottom) 18
Figure 2 – Examples of mid-span powering systems 19
Figure B.1 – Temperature rise profile 21
Figure D.1 – 91-cable bundle 30
Figure D.2 – Three bundles of 37 cables 30
Figure D.3 – Three bundles of 37 cables with separation 31
Figure E.1 – 37-cable bundle and temperature location 32
Figure E.2 – "Perfect bundle" and thermocouple configuration 33
Figure E.3 – Conductor configuration 33
Figure F.1 – Placement of thermocouple 35
Figure F.2 – Securing of the thermocouple 36
Figure F.3 – Test set-up for cable bundles in air 37
Figure F.4 – Test set-up for cable bundles in conduit 38

Table 1 – Maximum current per conductor versus temperature rise in a 37-cable bundle in air and conduit (all 4 pairs energized) 10
Table 2 – Calculated worst case current per conductor versus temperature rise in a bundle of 37 4-pair cables (all pairs energized) 11
Table 3 – Temperature rise versus cable bundle size (500 mA per conductor) 12
Table 4 – Temperature rise for a type of cable versus the number of energized pairs in a 37-cable bundle (500 mA per conductor) 15
Table B.1 – Bundling coefficients for different types of cables and cords (all 4 pairs energized) 26
Table C.1 – Maximum DC loop resistance of channels 27
Table C.2 – DC resistance unbalance of cables, connecting hardware and channels 28
Table C.3 – DC resistance unbalance (pair to pair) 29

INFORMATION TECHNOLOGY –

TELECOMMUNICATIONS CABLING REQUIREMENTS FOR REMOTE POWERING OF TERMINAL EQUIPMENT

FOREWORD

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The main task of the joint technical committee is to prepare International Standards. In exceptional circumstances, the joint technical committee may propose the publication of a Technical Specification when

- the required support cannot be obtained for the publication of an International Standard, despite repeated efforts, or
- when the subject is still under technical development or where, for any other reason, there is the future but not immediate possibility of an agreement on an International Standard.

Technical Specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

ISO/IEC TS 29125, which is a Technical Specification, has been prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

This first edition cancels and replaces ISO/IEC TR 29125:2010. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) extension of the current per conductor from 300 mA to 500 mA;
b) provision of additional details of installation conditions that were not described in ISO/IEC TR 29125:2010;
c) inclusion of guidelines for cords;
d) inclusion of a model to calculate temperature rise in different bundle sizes.

This Technical Specification has been approved by vote of the member bodies, and the voting results may be obtained from the address given on the second title page.

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

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FOREWORD to the amendment

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

This document specifies the use of generic balanced cabling for customer premises, as specified in the ISO/IEC 11801 series, for remote powering of terminal equipment. It provides guidance on new cabling installations and renovations. The customer premises may encompass one or more buildings or may be within a building that contains more than one organization. The cabling may be installed prior to the selection of remote powering equipment or powered terminal equipment.

ISO/IEC 11801-1 specifies a structure and performance requirements for cabling subsystems that support a wide range of applications. They provide appropriate equipment interfaces to the cabling infrastructure in equipment rooms, telecommunications rooms and work areas.

A growing number of organizations employ equipment at locations that require the provision of remote powering. This document was created to provide supplementary information to ISO/IEC 11801-1 to implement remote powering over generic balanced cabling as specified in ISO/IEC 11801-1.

This document provides additional guidance for remote powering on the use of balanced cabling systems as specified in ISO/IEC 11801-1 and guidance on different installation conditions that require special considerations:

- information to bring together all the considerations about remote powering in a single document;
- guidance on mating and un-mating of connectors that convey remote power.

This document does not include requirements from national or local safety standards and regulations.

This document was developed based on a number of contributions describing remote powering over telecommunications cabling under different installation conditions. The relevant safety standards and regulations, application standard, and equipment manufacturers give guidance on factors that should be taken into account during design of the generic balanced cabling that supports the distribution of remote powering.

This document extends the current per conductor specified in ISO/IEC TR 29125:2010 from 300 mA to 500 mA. This document covers additional details of installation conditions that are not described in ISO/IEC TR 29125:2010. This document includes guidelines for cords.

〚A1〛 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. 〚A1〛

〚A1〛 INTRODUCTION to the amendment

This amendment incorporates changes necessary to include remote powering using single pair cabling. 〚A1〛

INFORMATION TECHNOLOGY –

TELECOMMUNICATIONS CABLING REQUIREMENTS FOR REMOTE POWERING OF TERMINAL EQUIPMENT

1 Scope

This document

〈A1〉 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, 〈A1〉

a) covers the transmission and electrical parameters needed to support remote power over balanced cabling,

b) covers various installation scenarios and how these may impact the capability of balanced cabling to support remote powering,

c) specifies design and configuration of cabling as specified in ISO/IEC 11801-1.

NOTE SELV requirements specify a maximum voltage of 60 V DC and LPS is understood in the applications referenced to be up to 100 W supplied within 4-pair cabling.

This document includes a mathematical model to predict the behaviour of different bundle sizes, various cabling constructions, and installation conditions for different current capacities.

Safety (e.g. electrical safety and protection and fire) and electromagnetic compatibility (EMC) requirements are outside the scope of this document, and are covered by other standards and regulations. However, information given by this document can be of assistance.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO/IEC 11801-1, *Information technology – Generic cabling for customer premises – Part 1: General requirements*

ISO/IEC 14763-2, *Information technology – Implementation and operation of customer premises cabling – Part 2: Planning and installation*

ISO/IEC TR 24746, *Information technology – Generic cabling for customer premises – Mid-span DTE power insertion*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 11801-1, ISO/IEC 14763-2 and the following apply.