SLOVENSKI STANDARD
SIST EN 3375-001:2009

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Aeronavtika - Elektriļ ni kabli za digitalni prenos podatkov - 001. del: Tehniļ na specifikacija

Aerospace series - Cable, electrical, for digital data transmission - Part 001: Technical specification

Luft- und Raumfahrt - Elektrische Leitungen für Digitaldatenübertragungen - Teil 001: Technische Lieferbedingungen

Série aérospatiale - Câbles électriques pour transmission de données numériques - Partie 001 : Spécification technique

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ICS:

49.060	Letalska in vesoljska elektriļ na oprema in sistemi	Aerospace electric equipment and systems

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Aerospace series - Cable, electrical, for digital data transmission - Part 001: Technical specification

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This document (EN 3375-001:2007) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2008, and conflicting national standards shall be withdrawn at the latest by January 2008.

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1 Scope

This standard specifies the required characteristics, test methods, qualification and acceptance conditions of signal data transmission electrical cables.

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.

ISO 2574, *Aircraft — Electrical cables — Identification marking*.

ISO 8815, *Aircraft — Electrical cables and cable harnesses — Vocabulary*.

EN 2083, *Aerospace series — Copper and copper alloys conductors for electrical cables — Product standard*.

EN 2084, *Aerospace series — Cables, electric, single-core, general purpose, with conductors in copper or copper alloy — Technical specification*.

EN 2235, *Aerospace series — Single and multicore electrical cables, screened and jacketed.*

EN 3475-100*, *Aerospace series — Cables, electrical, aircraft use — Test methods — Part 100: General.*

EN 3838, *Aerospace series — Requirements and tests on user-applied markings on aircraft electrical cables.* 1)

EN 4434, *Aerospace series — Copper or copper alloy lightweight conductors for electrical cables — Product standard (Normal and tight tolerances).*

EN 9133, *Aerospace series — Quality management systems — Qualification procedure for aerospace standard parts.*

3 Terms and definitions

For the purposes of this standard, the terms and definitions given in ISO 8815 and EN 3475-100 apply.

4 Materials and construction of cables

4.1 General

The composition, dimensions and mass of the cable shall conform to the characteristics below, as well as the values specified in the product standards.

The individual cores shall conform to EN 2083 or EN 4434, EN 2084 and the product standards.

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* And all parts quoted in this standard.

1) Published as ASD Prestandard at the date of publication of this standard.

4.2 Materials

The materials shall conform to the product standard.

The surface of conductive materials used shall be free from corrosion and other contamination.

Insulation and others materials shall have no corrosive effect upon the conductors and screens and shall not be susceptible to attack by mould and other micro-organisms.

4.3 Construction of cables

4.3.1 General

The permissible operating temperature of conductors shall not be lower than the maximum operating temperature of the cable as a whole.

4.3.2 Cabled cores

The lay length of the outer lay shall not be less than eight times and not more than 16 times the nominal diameter of the cabled cores, except if a different value is necessary to maintain the required characteristics.

The core shall not be spliced.

Where filler cores are used, this shall be specified in the product standard.

The assembly may be held together with an overall wrap.

4.3.3 Screened cables

4.3.3.1 General

The construction shall conform to the product standard.

Depending on protection level, the screening may be composed of:

— one or several spiral layers;

— one or several braids made using strands or strips;

— one or several metallic or other strips;

— one or several layers of extruded conductive or non-conductive materials;

— a combination of the above.

The screening may be individual and/or overall.

The individual strands or strips used for the screen shall be free from kinks, loops or breaks. Except when particular materials are used, they shall conform to standard EN 2083 or EN 4434 or shall satisfy the mechanical tests in EN 3475-505 to EN 3475-508 before use.

Where spiral screening is used, the first lay direction shall be contrary to that of the cabled cores.

4.3.3.2 Joints

Splices of the individual strands or strips may be affected by brazing, soldering or folding in.

There shall be no more than one splice per 3 m cable length (measured between different individual strands or strips).

4.3.3.3 Braid screen pushback capability

In accordance with Table 1, test 6.49.

4.3.3.4 Angle of spiral screening or braiding

The angle γ of spiral screening or braiding (as shown in Figure 1 of EN 2235), measured against the longitudinal axis of the cable shall be at least 10°, except if a different value is necessary to maintain the required characteristics.

4.3.3.5 Screen coverage

Coverage β, if specified, is determined in accordance with EN 2235.

4.3.4 Outer jacket

The construction shall conform to the product standard.

4.4 Colours of components and jacket

See product standard.

5 Required characteristics

The characteristics of the cables, tested according to the methods described hereafter shall comply with the values given in the product standard.

6 Tests methods

See Table 1.

Table 1 — Tests: methods, application and requirements

No.	Tests						Requirements (and/or particulars)
	Description	EN 3475- (and/or particulars)	Qualification [a] (see 7.1)	Each delivery		Periodic Every three years (see 7.2.4)	
				On all cables (see 7.2.1 and 7.2.2)	Prior to delivery (see 7.2.1 and 7.2.3)		
6	General	100	X	X	X	X	
6.1	Visual examination [b]	201	3	X			Cable construction as described in Clause 4. Marking: See Clause 8.
6.2	Mass	202	3		X		Product standard
6.3	Dimensions (all) [b] — outer diameter	203	3		X		Product standard
6.4	Ohmic resistance per unit length	301	3		X		EN 2083 or Product standard
6.5	Voltage proof test: — immersion test — dry test — dry impulse test — dielectric strength of cores	302 Alternative to dry test	3	X X X			Product standard
6.6	Insulation resistance — dry test — immersion test	303	3		X	X	Product standard
6.7	Surface resistance [b]	304	3			X	For component: 1 250 MΩ.mm
6.8	Overload resistance	305	Not applicable				
6.9	Continuity of conductors	306	1	X			
6.10	Corona extinction voltage	307	1			X	If applicable: see Product standard
6.11	Accelerated ageing	401 Mandrel diameter, test load and temperature: Product standard	3			X	
6.12	Shrinkage and delamination	402 Temperature: Product standard	3		X		Product standard
6.13	Delamination and blocking	403 Mandrel diameter and temperature: Product standard	3		X		
6.14	Thermal shock	404 Product standard	3			X	Product standard

continued