



SLOVENSKI STANDARD SIST EN 4604-008:2009

01-oktober-2009

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Aerospace series - Cable, electrical, for signal transmission - Part 008: Cable, coaxial, 50 ohms, 200 °C, Type WD - Product standard

Luft- und Raumfahrt - Elektrische Leitungen für Signalübertragungen - Teil 008:
Koaxialkabel, 50 Ohm, 200 °C, Typ WD - Produktnorm

Série aérospatiale - Câbles électriques pour transmission de signaux - Partie 008: Câble,
coaxial, 50 ohms, 200 °C, type WD - Norme de produit

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Ta slovenski standard je istoveten z: **EN 4604-008:2009**

ICS:

49.060 Š^cp\ æš Ą^•[|b\ æ Aerospace electric
^|\ dā} æ[]!^{\ æš Ą ã c^{\ ã equipment and systems

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EUROPEAN STANDARD

EN 4604-008

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2009

ICS 49.060

English Version

**Aerospace series - Cable, electrical, for signal transmission -
Part 008: Cable, coaxial, 50 ohms, 200 °C., Type WD - Product
standard**

Série aérospatiale - Câbles électriques pour transmission
de signaux - Partie 008: Câble, coaxial, 50 ohms, 200 °C,
type WD - Norme de produit

Luft- und Raumfahrt - Elektrische Leitungen für
Signalübertragungen - Teil 008: Koaxialkabel, 50 Ohm, 200
°C, Typ WD - Produktnorm

This European Standard was approved by CEN on 20 June 2009.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 4604-008:2009) 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 February 2010, and conflicting national standards shall be withdrawn at the latest by February 2010.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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EN 4604-008:2009 (E)**1 Scope**

This standard specifies the required characteristics of a coaxial cable, 50 Ω , type WD, for use in aircraft electrical systems at operating temperature between $-55\text{ }^{\circ}\text{C}$ and $200\text{ }^{\circ}\text{C}$ and specially for high frequency up to 8 GHz. Nevertheless, if needed, $-65\text{ }^{\circ}\text{C}$ is also acceptable as shown by thermal stability test.

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.

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

EN 4604-001, *Aerospace series — Cable, electrical, for signal transmission — Part 001: Technical specification.*

EN 4604-002, *Aerospace series — Cable, electrical, for signal transmission — Part 002: General.*

TR 6058, *Aerospace series — Cable code and identification list.* ¹⁾

ASTM-B298-99, *Standard specification for silver-coated soft or annealed copper wire.* ²⁾

3 Terms and definitions

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

4 Required characteristics**4.1 Material, constructions, dimension and mass****4.1.1 Material**

See Table 1.

Table 1 — Material

	Material	Finish	Colour
Conductor	Multi-strands copper per ASTM-B298-99	Class A silver plated	—
Dielectric	Fluorocarbon	—	—
Shield	2 braids, copper per ASTM-B298-99.	Class A silver plated	—
Jacket	Fluorocarbon	—	white

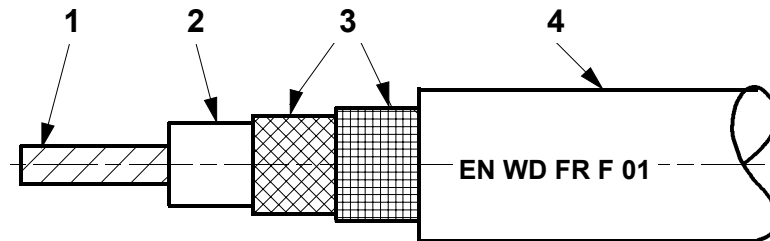
* And all parts quoted in this standard.

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

2) Published by: American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959 USA.

4.1.2 Construction, dimensions and mass

See Figure 1 and Table 2.



Key

- 1 Conductor
- 2 Dielectric
- 3 Shield
- 4 Jacket

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 Figure 1 — Construction
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Table 2 — Dimensions and mass

Conductor	Diameter (mm)		Shield	Cable	Mass	
	min.	max.			nom.	max.
2,33 ± 0,05 (37 × 0,34) mm	5,9	6,1	7,1 ± 0,1	7,70 ± 0,20	130	137

Shield strand diameter shall be 0,13 mm.

4.2 General characteristics

- a) Operating temperature: – 55 °C to 200 °C
- b) Minimum bend radius:
 - 1) in static use: 40 mm
 - 2) in dynamic use: 80 mm
- c) Performances are guaranteed up to 8 GHz.

4.3 Electrical characteristics

- a) Characteristic impedance: $Z_c = (50 \pm 2) \Omega$ at 200 MHz
- b) Capacitance per unit length: $C_p = 85 \text{ pF/m}$

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- c) Transfer impedance: see Table 4.
- d) Operating voltage: 1 000 V RMS max.
- e) Maximum power handling (at sea level): See Table 3.
- f) Attenuation versus frequency: See Table 3.
- g) Velocity of propagation: 240 000 km/s ($V_r = 80 \%$) min.

Table 3 — Frequency, attenuation, power handling and VSWR

Frequency MHz	50	100	150	200	400	1 000	1 600	2 500	3 000	8 000
Attenuation max. dB/100 m	5,0	7,2	9,1	10,7	16,1	28,6	39,6	55,0	61,0	110,0
Attenuation nom. dB/100 m	4,6	6,5	8,3	9,7	14,6	26,0	36,0	50,0	55,0	105,0
Power cw nom. W	5 700	4 000	3 100	2 700	1 800	1 000	730	530	480	250
Max. return loss VSWR	1,10		1,15				1,20			1,35

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Table 4 — Frequency, transfer impedance

Frequency MHz	0 to 0,01	0,1	1	5	10	30	100
Transfer impedance Z_t max. m Ω /m	4,2	4	1,3	0,6	1,0	2,3	5,5

4.4 Tests

See Table 5.

Table 5

EN 3475-	Designation of the test	Remarks
201	Visual examination	—
202	Mass	Applicable 137 g/m max.
203	Dimensions	Applicable See 4.1 and Table 2.
301	Ohmic resistance per unit length	Applicable 5,5 Ω/km
302	Voltage proof test	Applicable Dielectric Dry test: 2 500 V AC Jacket Dry impulse: 5 000 V Dry test: 1 750 V AC
303	Insulation resistance	Applicable > 5 000 MΩ.km between shield and conductor
304	Surface resistance	Not applicable
305	Overload resistance	Not applicable
306	Continuity of conductors	Applicable
307	Corona extinction voltage	Applicable Extinction voltage 1 500 V
401	Accelerated ageing	Not applicable
402	Shrinkage and delamination	Not applicable
403	Delamination and blocking	Not applicable
404	Thermal shock	Not applicable
405	Bending at ambient temperature	Not applicable
406	Cold bend test	Not applicable
407	Flammability	Applicable. Method 1. Load = 20 N Extinction time < 3 s
408	Fire resistance	Not applicable
409	Air-excluded ageing	Not applicable
410	Thermal endurance	Not applicable

continued