SLOVENSKI STANDARD

SIST EN 4604-007:2008

01-februar-2008

Aeronavtika - Kabli, elektriļ ni, za prenos signala - 007. del: Kabli, koaksialni 50 ohm, 200 ÁC, tip WN - Standard za proizvod

Aerospace series - Cable, electrical, for signal transmission - Part 007: Cable, coaxial 50 ohm, 200 °C, type WN - Product standard

Luft- und Raumfahrt - Elektrische Leitungen für Signalübertragungen - Teil 007: Koaxialkabel, 50 ohm, 200 °C, Typ WN - Produktnorm

Série aérospatiale - Câbles électriques pour transmission de signaux - Partie 007 : Câble coaxial, 50 ohm, 200 °C, type WN - Norme de produit

Ta slovenski standard je istoveten z: **EN 4604-007:2007**

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49.060

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EUROPEAN STANDARD

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EN 4604-007

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English Version

Aerospace series - Cable, electrical, for signal transmission - Part 007: Cable, coaxial 50 Ω, 200 °C, type WN - Product standard

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN 4604-007:2007) 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of an identical text or by endorsement, at the latest by April 2008 and conflicting national standards shall be withdrawn at the latest by April 2008.

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.

1 Scope

This standard specifies the required characteristics of a coaxial cable, 50 Ω, type WN, for use in aircraft electrical systems at operating temperature between −55 °C and 200 °C and especially for high frequency up to 6 GHz.

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, *Aerospace series — Cables, electrical, aircraft use — Test methods*[1)]

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*

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

TR 6058, *Aerospace series — Cable code identification list*[2)]

ASTM B298-99, *Standard specification for silver-coated soft or annealed copper wire*[3)]

MIL-PRF-39012, *Connectors, coaxial, Radiofrequency, general specification for*[4)]

3 Terms and definitions

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

3.1
Epsilon
ε
value of dielectric constant

1) All its parts quoted in this standard.

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

3) Published by: American Society for Testing and Material (ASTM), 1916 Race Street, Philadelphia, PA 19103, USA.

4) Published by: Department of Defence (DOC), the Pentagon, Washington, D.C. 20301, USA.

4 Requirement characteristics

4.1 Material, construction, dimensions and mass

4.1.1 Material

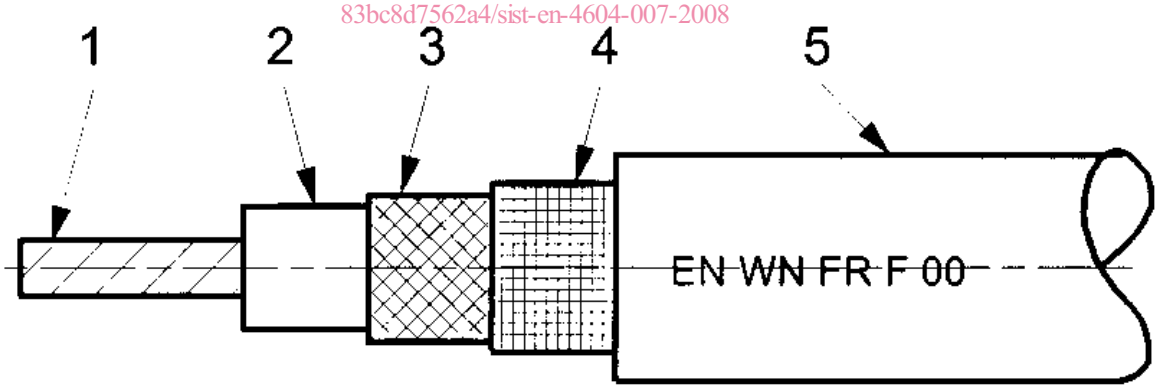
See Table 1.

Table 1 — Material

	Material	Finish	Colour
Conductor	Single-strand copper per ASTM B298-99	1 µm silver plated	–
Dielectric	Fluorocarbon dielectric with low epsilon (PTFE)	–	–
Screen (foil)	Tape, silver plated copper or silver alloy		–
Shield	Braid copper per ASTM B298-99	1 µm silver plated	–
Jacket	Extruded Fluorinated Ethylene Propylene (FEP)	–	Violet

4.1.2 Construction, dimensions and mass

See Figure 1 and Table 2.



Key

1 Conductor
2 Dielectric
3 Screen
4 Shield
5 Jacket

Figure 1 — Construction

Table 2 — Dimensions and mass

Diameter mm									Mass g/m	
Conductor			Dielectric		Shield	Cable				
min.	nom.	max.	min.	max.		min.	nom.	max.	nom.	max.
2,27	2,30	2,33	6,1	6,3	7,5 ± 0,2	7,80	8,00	8,20	135	145

In order to ensure mechanical integrity (connection strength as per MIL-PRF-39012) the minimum shield strand diameter shall be 0,20 mm.

The dielectric diameter (min. – max.) shall be maintained during the connection (after unwrapping off screen).

4.2 General characteristics

— Operating temperature: –55 °C to 200 °C

— Minimum bend radius:

  — in static use: 80 mm

  — in dynamic use: 120 mm

— Performances are guaranteed up to 6 GHz.

4.3 Electrical characteristics

— Characteristic impedance: Zc = (50 ± 3) Ω

— Capacitance per unit length: Cp = 82 pF/m max.

— Transfer impedance up to 400 MHz: 20 mΩ/m max.

— Operating voltage: 1 000 V RMS max.

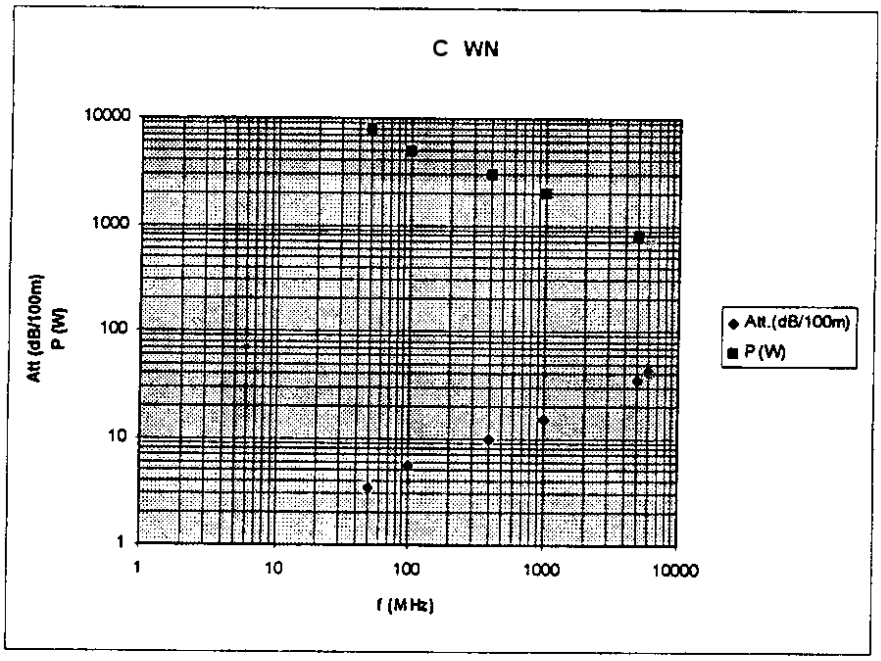
— Maximum power handling (at sea level): see Table 3 and Figure 2.

— Attenuation versus frequency: see Table 3 and Figure 2.

— Velocity of propagation: v ≥ 243.000 km/s (vr = 81 % min.).

Table 3 — Frequency, attenuation and power handling

Frequency MHz	50	100	400	1 000	5 000	6 000
Attenuation dB/100 m	3,5	5,5	10	15	35	41
Power handling W	8 000	5 000	3 000	2 000	800	700



Key:

C Cable

Figure 2 — Maximum attenuation curve (ascending) — Power curve (descending)

4.4 Tests

See Table 4.

Table 4 — Tests

EN 3475-	Designation of the test	Remarks
201	Visual examination	Applicable
202	Mass	Applicable
203	Dimensions	Applicable See 4.1 and Table 2
301	Ohmic resistance per unit length	Applicable 4,22 Ω/km max.
302	Voltage proof test	Applicable **Dielectric** — Dry test: 3 000 VAC **Jacket** — Dry impulse: 5 000 V — Dry test: 1 750 VAC
303	Insulation resistance	Applicable > 5 000 MΩ/km between shield and conductor