



SLOVENSKI STANDARD

SIST EN 4604-009:2017

01-maj-2017

Nadomešča:

SIST EN 4604-009:2014

Aeronavtika - Kabli, električni, za prenos signala - 009. del: Kabli, koaksialni, lahki, 50 ohmov, 180 °C, tip KW (lahki WN) - Standard za proizvod

Aerospace series - Cable, electrical, for signal transmission - Part 009: Cable, coaxial, light weight, 50 ohms, 180 °C, type KW (light WN) - Product standard

Luft- und Raumfahrt - Elektrische Leitungen für Signalübertragungen - Teil 009: Koaxialkabel, Leichtbauweise, 50 Ohm, 180 °C, Typ KW (WN Leichtbauweise) - Produktnorm

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Série aérospatiale - Câbles électriques pour transmission de signaux - Partie 009 : Câble, coaxial, allégé 50 ohms, 180 °C, type KW (WN allégé) - Norme de produit

Ta slovenski standard je istoveten z: EN 4604-009:2017

ICS:

33.120.10	Koaksialni kabli. Valovodi	Coaxial cables. Waveguides
49.060	Letalska in vesoljska električna oprema in sistemi	Aerospace electric equipment and systems

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en,fr,de

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EUROPEAN STANDARD
 NORME EUROPÉENNE
 EUROPÄISCHE NORM

EN 4604-009

March 2017

ICS 49.060

Supersedes EN 4604-009:2014

English Version

**Aerospace series - Cable, electrical, for signal transmission
 - Part 009: Cable, coaxial, light weight, 50 ohms, 180 °C,
 type KW (light WN) - Product standard**

Série aérospatiale - Câbles électriques pour
 transmission de signaux - Partie 009 : Câble, coaxial,
 allégé 50 ohms, 180 °C, type KW (WN allégé) - Norme
 de produit

Luft- und Raumfahrt - Elektrische Leitungen für
 Signalübertragungen - Teil 009: Koaxialkabel,
 Leichtbauweise, 50 Ohm, 180 °C, Typ KW (WN
 Leichtbauweise) - Produktnorm

This European Standard was approved by CEN on 24 September 2016.

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-CENELEC 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-CENELEC Management Centre has the same status as the official versions.

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



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN 4604-009:2017) 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 September 2017, and conflicting national standards shall be withdrawn at the latest by September 2017.

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.

This document supersedes EN 4604-009:2014.

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, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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EN 4604-009:2017 (E)**1 Scope**

This European Standard specifies the required characteristics of a light weight coaxial cable, 50 Ω , type KW for use in aircraft electrical systems at operating temperature between $-55\text{ }^{\circ}\text{C}$ and $180\text{ }^{\circ}\text{C}$ and specially for high frequency up to 6 GHz. Nevertheless, if needed, $-65\text{ }^{\circ}\text{C}$ is also acceptable as shown by rapid change of temperature 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 (all parts), *Aerospace series — Cables, electrical, aircraft use — Test methods — Part 100: General*

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

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 identification list* ¹⁾

ASTM-B566, *Standard specification for copper-clad aluminium wire* ²⁾

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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

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

See Table 1.

1) Published as ASD-STAN Technical Report at the date of publication of this European Standard.
<http://www.asd-stan.org/>

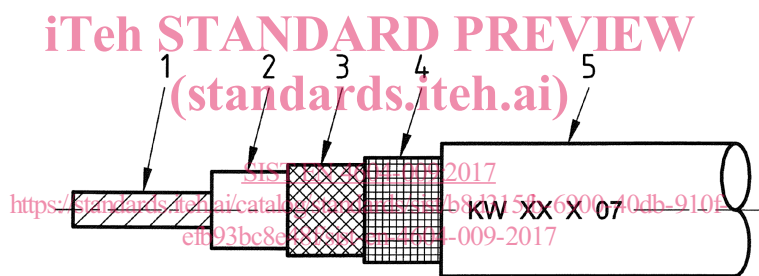
2) Published by: ASTM National (US) American Society for Testing and Materials. <http://www.astm.org/>

Table 1 — Material

	Material	Finish	Colour
Conductor	Single-strand (copper clad aluminium as per ASTM-B566 class 15 A)	1 µm silver plated	—
Dielectric	Fluorocarbon dielectric with low epsilon	—	—
Screen (foil)	Foil, silver plated copper or silver alloy		—
Shield	Reinforced braid made of a mix of strands in <ul style="list-style-type: none"> copper or copper alloy as per EN 4434 and copper clad aluminium as per ASTM-B566 class 15 A 	1 µm silver plated	—
Jacket	Fluorocarbon	—	Turquoise

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	
Conductor			Dielectric		Shield	Cable			g/m	
min.	nom.	max.	min.	max.		min.	nom.	max.	nom.	max.
2,28	2,30	2,32	6,1	6,3	6,87 ± 0,2	7,5	7,65	7,8	85	95

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

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4.2 General characteristics

- operating temperature: -55 °C to 180 °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: $Z_c = (50 \pm 3)\ \Omega$ at 200 MHz,
- capacitance per unit length: $C_p = 88\text{ pF/m}$ max.,
- transfer impedance up to 400 MHz: $20\text{ m}\Omega/\text{m}$ max.,
- operating voltage: 1 000 V r.m.s. 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 $\geq 243\ 000\text{ km/s}$.

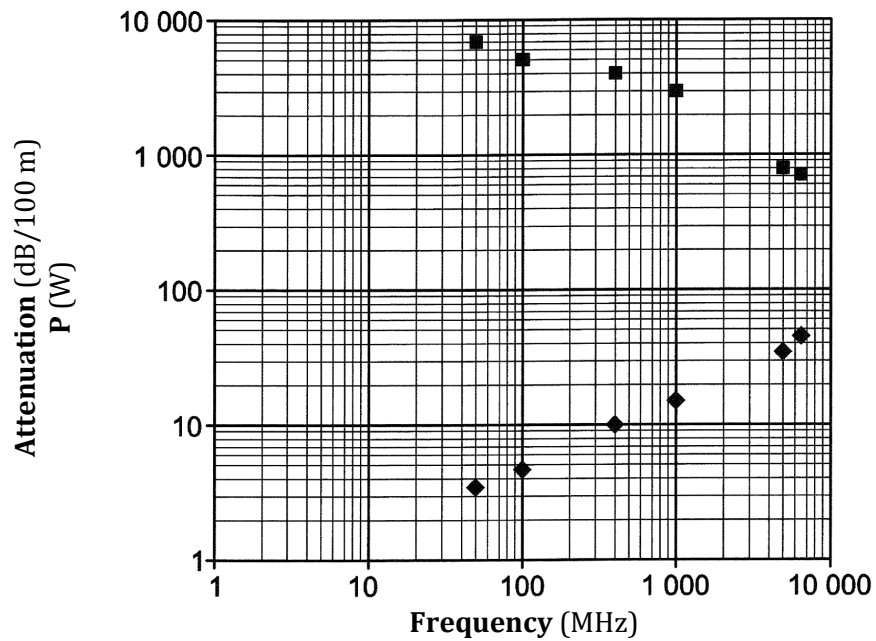
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Table 3 — Maximum attenuation, power handling and return loss

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
Return loss dB	1,1	1,1	1,15	1,15	1,2	1,35

Values of power have to be confirmed by measurement or calculation.

**Key**

- Attenuation (dB/100 m)
- ◆ P (W)

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

4.4 Tests

See Table 4.

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