



SLOVENSKI STANDARD
oSIST prEN 4604-003:2022

01-september-2022

Aeronavtika - Kabli, električni, za prenos signala - 003. del: Kabli, koaksialni, 50 ohm, 200 °C, tip WZ - Standard za proizvod

Aerospace series - Cable, electrical, for signal transmission – Part 003 : Cable, coaxial, 50 Ohm, 200 °C, type WZ – Product standard

Luft- und Raumfahrt - Elektrische Leitungen für Signalübertragungen - Teil 003: Koaxialkabel, 50 Ohm, 200 °C, Typ WZ - Produktnorm

Série aérospatiale - Câbles électriques pour transmission de signaux - Partie 003 : Câble coaxial, 50 ohms, 200 °C, type WZ - Norme de produit

Ta slovenski standard je istoveten z: prEN 4604-003

ICS:

29.060.20	Kabli	Cables
49.060	Letalska in vesoljska električna oprema in sistemi	Aerospace electric equipment and systems

oSIST prEN 4604-003:2022

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 4604-003

June 2022

ICS

Will supersede EN 4604-003:2019

English Version

Aerospace series - Cable, electrical, for signal transmission
- Part 003 : Cable, coaxial, 50 Ohm, 200 °C, type WZ -
Product standard

Série aérospatiale - Câbles électriques pour
transmission de signaux - Partie 003 : Câble coaxial, 50
ohms, 200 °C, type WZ - Norme de produit

Luft- und Raumfahrt - Elektrische Leitungen für
Signalübertragungen - Teil 003: Koaxialkabel, 50 Ohm,
200 °C, Typ WZ - Produktnorm

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee ASD-STAN.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents		Page
European foreword		3
1	Scope.....	4
2	Normative references.....	4
3	Terms and definitions.....	6
4	Required characteristics.....	6
4.1	Material, construction, dimensions and mass.....	6
4.2	General characteristics.....	7
4.3	Electrical characteristics.....	7
5	Quality assurance	13
6	Designation	13
7	Identification and marking	14
8	Packaging, labelling and delivery length	14
8.1	Packaging and labelling.....	14
8.2	Delivery length.....	14
9	Technical specification	14
Annex A (informative) Standard evolution form.....		15

[oSIST prEN 4604-003:2022](https://standards.iteh.ai/catalog/standards/sist/ceb3cfb5-1312-4829-a0fa-1bd7037beab5/osist-pren-4604-003-2022)

<https://standards.iteh.ai/catalog/standards/sist/ceb3cfb5-1312-4829-a0fa-1bd7037beab5/osist-pren-4604-003-2022>

European foreword

This document (prEN 4604-003:2022) 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 document has received the approval of the National Associations and the Official Services of the member countries of ASD-STAN, prior to its presentation to CEN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 4604-003:2019.

For a list of the changes between prEN 4604-003:2022 and EN 4604-003:2019, see Annex A.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[oSIST prEN 4604-003:2022](https://standards.iteh.ai/catalog/standards/sist/eeb3cfb5-1312-4829-a0fa-1bd7037beab5/osist-pren-4604-003-2022)

<https://standards.iteh.ai/catalog/standards/sist/eeb3cfb5-1312-4829-a0fa-1bd7037beab5/osist-pren-4604-003-2022>

prEN 4604-003:2022 (E)**1 Scope**

This document specifies the characteristics of a UV laser printable coaxial cable, 50 Ω , type WZ, for use in aircraft electrical systems at operating temperatures between -65 °C and 200 °C and especially for high frequency up to 6 GHz.

The document encloses also a regular and reinforced cable version (code R) which is used for sensitive systems with controlled VSWR.

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.

EN 3475-100:2010, Aerospace series - Cables, electrical, aircraft use - Test methods - Part 100: General

EN 3475-201, Aerospace series - Cables, electrical, aircraft use - Test methods - Part 201: *Visual examination*

EN 3475-202, Aerospace series - Cables, electrical, aircraft use - Test methods - Part 202: *Mass*

EN 3475-203, Aerospace series - Cables, electrical, aircraft use - Test methods - Part 203: *Dimensions*

EN 3475-301, Aerospace series - Cables, electrical, aircraft use - Test methods - Part 301: *Ohmic resistance per unit length*

EN 3475-302, Aerospace series - Cable, electrical, aircraft use - Test methods - Part 302: *Voltage proof test*

EN 3475-303, Aerospace series - Cables, electrical, aircraft use - Test methods - Part 303: *Insulation resistance*

EN 3475-304, Aerospace series - Cables, electrical, aircraft use - Test methods - Part 304: *Surface resistance*

EN 3475-306, Aerospace series - Cables, electrical, aircraft use - Test methods - Part 306: *Continuity of conductors*

EN 3475-307, Aerospace series - Cables, electrical, aircraft use - Test methods - Part 307: *Corona extinction voltage*

EN 3475-406, Aerospace series - Cables, electrical, aircraft use - Test methods - Part 406: *Cold bend test*

EN 3475-407, Aerospace series - Cables, electrical, aircraft use - Test methods - Part 407: *Flammability*

EN 3475-411, Aerospace series - Cables, electrical, aircraft use - Test methods - Part 411: *Resistance to fluids*

EN 3475-415, Aerospace series - Cables, electrical, aircraft use - Test methods - Part 415: *Rapid change of temperature*

EN 3475-416, Aerospace series - Cables, electrical, aircraft use - Test methods - Part 416: *Thermal stability*

EN 3475-502, Aerospace series - Cables, electrical, aircraft use - Test methods - Part 502: *Notch propagation*

- EN 3475-503, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 503: Scrape abrasion*
- EN 3475-505, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 505: Tensile test on conductors and strands*
- EN 3475-506, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 506: Plating continuity*
- EN 3475-507, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 507: Adherence of plating*
- EN 3475-508, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 508: Plating thickness*
- EN 3475-512, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 512: Flexure endurance*
- EN 3475-513, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 513: Deformation resistance (Installation with plastic cable ties)*
- EN 3475-515, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 515: Crush resistance*
- EN 3475-601, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 601: Smoke density*
- EN 3475-602, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 602: Toxicity*
- EN 3475-701, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 701: Strippability and adherence of insulation to the conductor*
- EN 3475-702, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 702: Screen pushback capability*
- EN 3475-703, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 703: Permanence of manufacturer's marking*
- EN 3475-705, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 705: Contrast measurement*
- EN 3475-706, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 706: Laser markability*
- EN 3475-801, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 801: Capacitance per unit length*
- EN 3475-804, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 804: Velocity of propagation*
- EN 3475-805, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 805: Characteristic impedance*
- EN 3475-806, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 806: Attenuation*
- EN 3475-807, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 807: Transfer impedance*
- EN 3475-812, *Aerospace series - Cables, electrical, aircraft use - Test methods - Part 812: Return loss (VSWR)*

prEN 4604-003:2022 (E)

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

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 B 298-99, Standard specification for silver-coated soft or annealed copper wire²⁾

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 3475-100:2010 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1**epsilon (ϵ)**

value of dielectric constant TBD

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

See Table 1.

Table 1 — Material

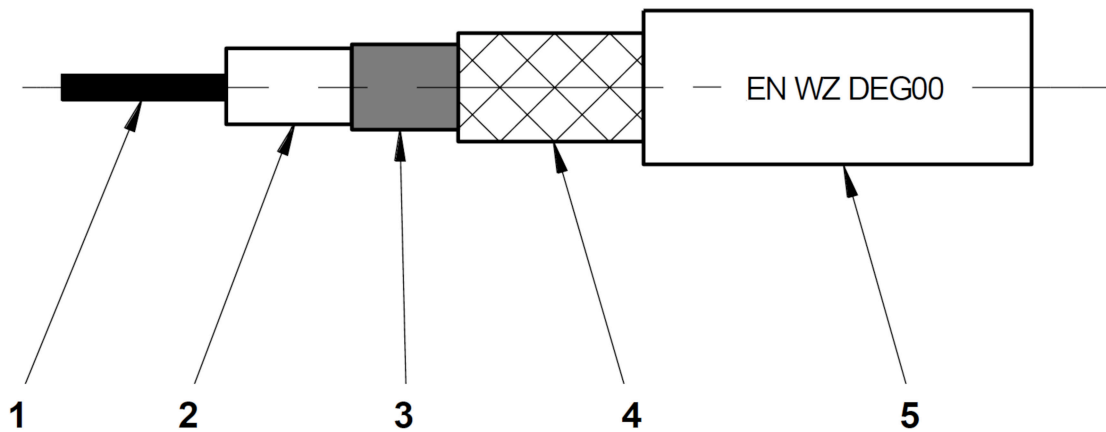
	Material	Finish	Colour
Conductor	Single strand copper per ASTM B298-99	1 μ m silver plated	Without colouration
Dielectric	Fluoropolymer	—	Without colouration
Screen (foil)	Metallized Foil	—	Without colouration
Shield	Braid, copper per ASTM B 298-99	1 μ m silver plated	Without colouration
Jacket	Fluorinated Ethylene Propylene (FEP)	—	White

4.1.2 Construction, dimensions and mass

See Figure 1 and Table 2.

¹⁾ Published as ASD-STAN Technical Report at the date of publication of this document by AeroSpace and Defence industries Association of Europe — Standardization (ASD-STAN), <https://www.asd-stan.org/>.

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

**Key**

- 1 Conductor
- 2 Dielectric
- 3 Screen (foil)
- 4 Shield
- 5 Jacket

Figure 1 — Construction**Table 2 — Dimensions and mass**

Diameter mm									Mass g/m	
Conductor		Dielectric		Shield		Cable			nom.	max.
min.	max.	min.	max.	min.	max.	min.	nom.	max.		
0,88	0,93	2,20	2,50	2,90	3,20	3,40	3,60	3,70	26	30

4.2 General characteristics

- Operating temperature: -65 °C to 200 °C.
- Minimum bend radius:
 - in static use: 37 mm;
 - in dynamic use: 55 mm.
- Performances are guaranteed up to 6 GHz.

4.3 Electrical characteristics

- Characteristic impedance: $Z_c = 50 \Omega$.
- Maximum power handling (at sea level): see Table 3 and Figure 2.
- Attenuation versus frequency: see Table 3 and Figure 2.
- Capacitance per unit length: 88 pF/m max.
- Velocity of propagation: $v: \geq 225\,000$ km/s ($v_r = 0,75$ % min.).

prEN 4604-003:2022 (E)

— Transfer impedance from 1 MHz to 6 000 MHz: 30 mΩ/m max.

Table 3 — Frequency, attenuation, power handling and return loss

Frequency MHz	50	200	400	1 000	3 000	5 000	6 000
Attenuation max dB/100 m	11	19	28	47	90	tbc	tbc
Power handling min W	1 100	660	450	250	150	tbc	tbc
Return loss max ^a	1.1	1.15	1.15	1.15	1.2	1.35	1.35

^a Applicable to regular and reinforced cable version (code R) only.

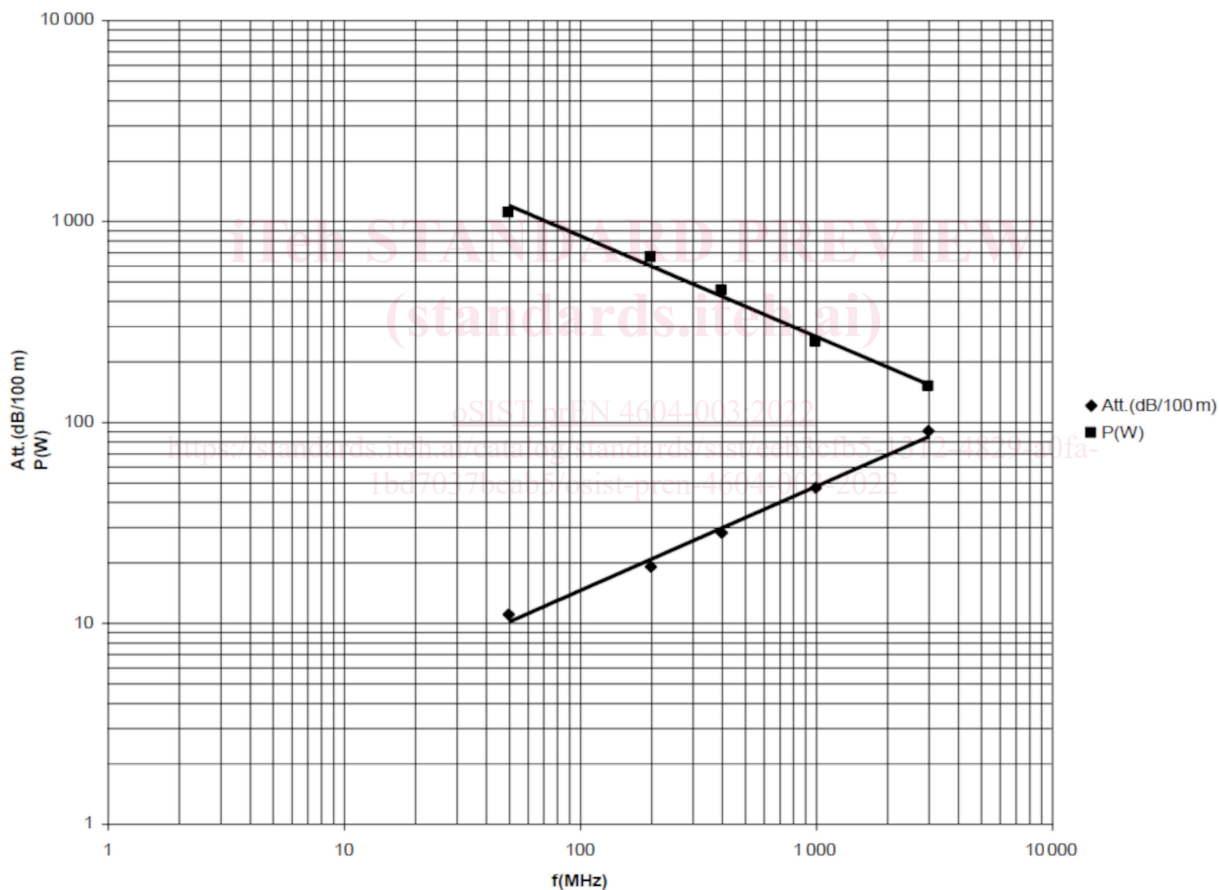


Figure 2 — Maximum attenuation curve (ascending) — Power curve (descending)