SLOVENSKI STANDARD

SIST EN 3475-416:2006

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Aeronavtika ï Elektriļ ni kabli za uporabo v zraļ nih plovilih ï Preskusne metode ï 416. del: Toplotna stabilnost

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

Luft- und Raumfahrt - Elektrische Leitungen für Luftfahrtverwendung - Prüfverfahren - Teil 416: Thermische Beständigkeit

Série aérospatiale - Câbles électriques à usage aéronautique - Méthodes d'essais - Partie 416 : Vieillissement a la chaleur

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

Série aérospatiale - Câbles électriques à usage aéronautique - Méthodes d'essais - Partie 416 : Vieillissement à la chaleur

Luft- und Raumfahrt - Elektrische Leitungen für Luftfahrtverwendung - Prüfverfahren - Teil 416: Thermische Beständigkeit

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This European Standard (EN 3475-416:2005) has been prepared by the European Association of Aerospace Manufacturers - Standardization (AECMA-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 AECMA, 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of an identical text or by endorsement, at the latest by May 2006, and conflicting national standards shall be withdrawn at the latest by May 2006.

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

1 Scope

This product standard defines a test method to evaluate the performance of a coaxial cable after thermal stability.

It shall be used together with EN 3475-100.

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

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

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

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

EN 3475-801, *Aerospace series — Cables, electrical, aircraft use — Test methods — Part 801: Capacitance per unit length.*

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.*

3 Preparation of specimens

3.1 Specimen

Test is to be performed on four specimens. Length of each specimen:

First specimen = 150 × nominal overall diameter;

Second specimen = 75 × nominal overall diameter;

Third specimen = as specified in the product norm;

Fourth specimen = at least three metres.

3.2 Conditioning

The specimen shall not be bent with a radius less than 30 times the overall diameter of the cable, during low or high temperature exposure.

4 Definition of tests

4.1 Visual examination (EN 3475-201)

4.2 Voltage proof test (EN 3475-302)

4.3 Continuity of conductors (EN 3475-306)

4.4 Capacitance per unit of length (EN 3475-801)

4.5 Attenuation at 200 MHz (EN 3475-806)

4.6 Characteristic impedance (EN 3475-805 – Method B)

4.7 Cold bend test (EN 3475-406)

Maintain the specimen at the temperature specified in the test method (EN 3475-406) but for 16 hours.

During the conditioning period, the specimen shall be kept reasonably straight with a weight specified in the product standard.

After the conditioning period, and while the specimen is still at the test temperature, the specimen shall be wrapped around the mandrel (diameter of mandrel defined in product standard) for three full turns. The mandrel shall be turned at a maximum uniform rate of one revolution per four seconds.

4.8 Dynamic winding

The entire specimen is wound round a mandrel with a diameter of 15 times the overall nominal diameter of the cable. The specimen is then totally unwound.

Duration of a cycle: (30 ± 5) s.

Number of cycles: 10.

4.9 Shrinkage measurement

Measurement of the distance between inner conductor and dielectric.

4.10 Heat exposure

Specimens are placed in a heat chamber for seven days at the temperature specified in the product norm.

After the heat exposure period, remove the specimen from the heat chamber and condition it at room ambient temperature for 24 hours.

4.11 Bend test (without ageing)

Fix one of the specimen to the mandrel (diameter given in product standard) in such a way that the performance of the cable is unaffected.

Turn the mandrel at between two and three turns until 90 % of the total length is wound round the mandrel whilst ensuring that the bent portion of the cable maintains contact with the mandrel throughout its length. If a load is used to ensure contact with the mandrel then it shall not exceed that given in the product standard.

Whilst the cable is still wrapped around the mandrel repeat the measurement of the impedance of the sample.

5 Test program list

5.1 On first specimen

— initial shrinkage measurement;

— heat exposure;

— final shrinkage measurement;

— visual examination;

— cold bend test;

— visual examination;

— voltage proof test;

— continuity of conductors.

5.2 On second specimen

— initial shrinkage measurement;

— heat exposure;

— final shrinkage measurement;

— visual examination;

— dynamic winding;

— visual examination;

— final shrinkage measurement;

— voltage proof test;

— continuity of conductors.