SLOVENSKI STANDARD
SIST EN 3475-807:2004

01-maj-2004

Aerospace series - Cables, electrical, aircraft use - Test methods - Part 807: Transfer impedance

Aerospace series - Cables, electrical, aircraft use - Test methods - Part 807: Transfer impedance

Luft- und Raumfahrt - Elektrische Leitungen für Luftfahrtverwendung - Prüfverfahren - Teil 807: Kupplungswiderstand

Série aérospatiale - Câbles électriques à usage aéronautique - Méthodes d'essais - Partie 807: Impédance de transfert

Ta slovenski standard je istoveten z: **EN 3475-807:2002**

ICS:

49.060	Letalska in vesoljska elektriļ na oprema in sistemi	Aerospace electric equipment and systems

SIST EN 3475-807:2004 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 3475-807

June 2002

ICS 49.060

English version

Aerospace series - Cables, electrical, aircraft use - Test methods - Part 807: Transfer impedance

Série aérospatiale - Câbles électriques à usage aéronautique - Méthodes d'essais - Partie 807: Impédance de transfert

Luft- und Raumfahrt - Elektrischen Leitungen für Luftfahrt Verwendung - Prüfverfahren - Teil 807: Kupplungswiderstand

This European Standard was approved by CEN on 1 March 2002.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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

Ref. No. EN 3475-807:2002 E

Foreword

This document (EN 3475-807:2002) has been prepared by the European Association of Aerospace Manufacturers (AECMA).

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 December 2002, and conflicting national standards shall be withdrawn at the latest by December 2002.

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

1 Scope

This standard specifies methods for measuring the transfer impedance of a cable.

It shall be used together with EN 3475-100.

2 Normative references

This European Standard incorporates by dated or undated reference provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

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

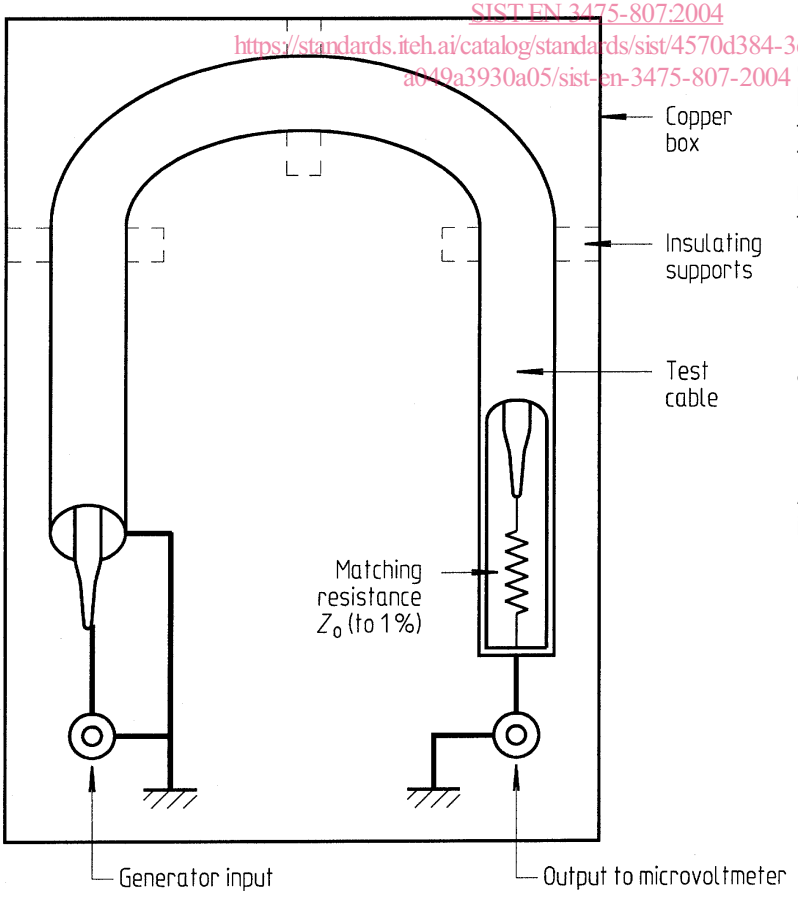
3 Preparation of specimens

These shall be stripped and prepared for connection to the measuring device required for the method chosen.

4 Methods

4.1 Method A: cable leakage method

Simple method valid up to 10^{-5} Ω/m and 10 MHz



Place the length of test cable (approximately 1 m) in a sealed copper box with two lead-throughs as shown in figure 1 (dimensions 500 mm × 660 mm). The lead-throughs for the generator and microvoltmeter detector are as shown in figure 2.

So that:

V_g = the generator voltage after the attenuator (input to cable)

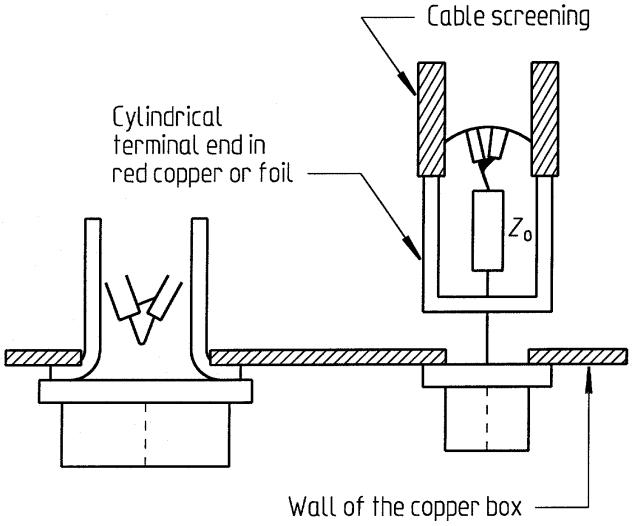
V = voltage detected

Z_o = value in ohms of characteristic impedance in common mode

L = length of cable in metres; therefore:

$$Z_T = \frac{V \cdot Z_o}{V_g \cdot L}$$

Figure 1



For multicore cables, the two conductors shall be connected to each other at both ends.

For multiscreened cables, these shall be connected to each other at both ends.

Figure 2

The test cable shall be connected via its characteristic impedance Z_o.

Select a generator with the closest possible impedance to Z_o.

4.2 Method B: method of susceptible cable

Valid up to f = $\frac{30}{L}$, where: f is the frequency, in megahertz

L is the cable length, in metres

The conductors inside the screening, the transfer impedance of which is specified in the product standard, shall be connected together at both ends (figure 3).

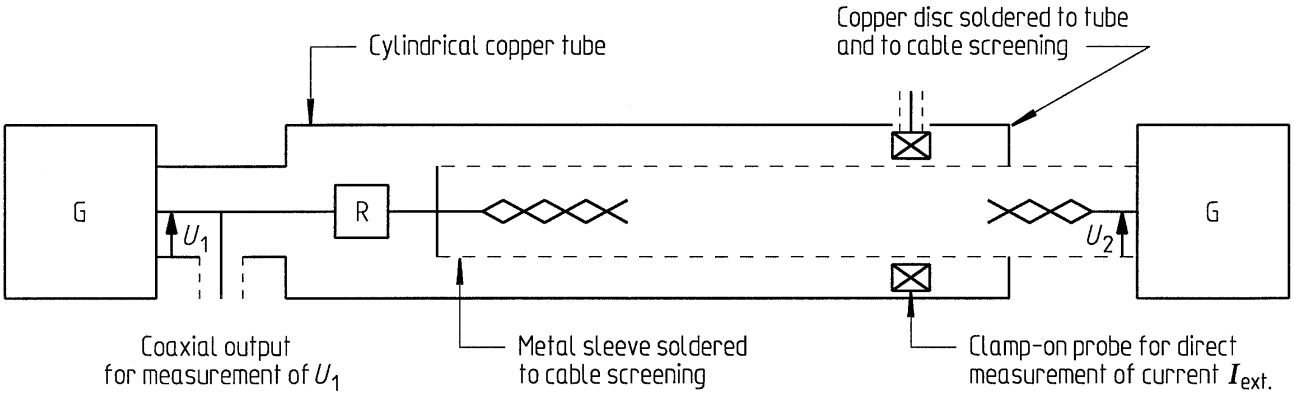


Figure 3

G is a variable frequency power generator.

V is a selective voltmeter (field intensity meter) with input impedance Z_1.

The value of $I_{ext.}$ is obtained either by direct measurement using a clamp-on current tester or by measuring U_1, by the formula:

$$I_{ext.} = \frac{U_1}{R}$$

R is a power limiting resistor

U_1 is the generator output voltage

The short circuited elements are considered in the same way as the conductor of a coaxial cable. See figure 4.

The length of the cable inside the copper tube is L.

The transfer impedance of the cable screening Z_T is defined by the following theoretical formula:

$$Z_T = \frac{1}{L} \cdot \frac{V_{int.}}{I_{ext.}}$$

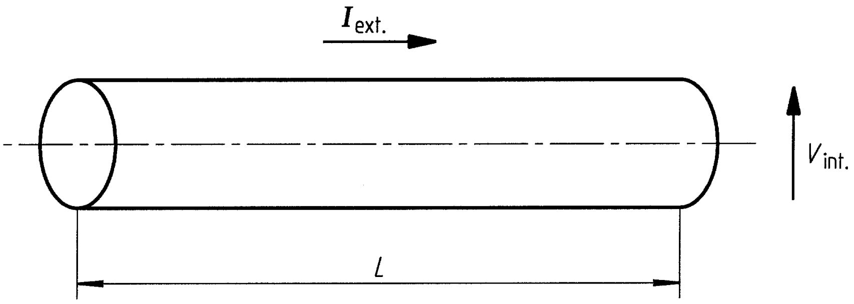


Figure 4

in which $V_{int.}$ is the interference voltage appearing between the conductor and the screening.

5 Requirement

The transfer impedance values Z_T shall be below the values specified in the product standard.