SLOVENSKI STANDARD

SIST EN 2591-224:2008

01-marec-2008

Aeronavtika - Elementi elektriļnih in optiļnih povezav - Preskusne metode - 224. del: Radiofrekvenļno uhajanje

Aerospace series - Elements of electrical and optical connection - Test methods - Part 224: RF leakage

Luft- und Raumfahrt - Elektrische und optische Verbindungselemente - Prüfverfahren - Teil 224: HF-Streuverlust

Série aérospatiale - Organes de connexion électrique et optique - Méthodes d'essais - Partie 224: Fuite HF

Ta slovenski standard je istoveten z: **EN 2591-224:2007**

ICS:

49.060

SIST EN 2591-224:2008 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 2591-224

December 2007

ICS 49.060

English Version

Aerospace series - Elements of electrical and optical connection - Test methods - Part 224: RF leakage

Série aérospatiale - Organes de connexion électrique et optique - Méthodes d'essais - Partie 224: Fuite HF

Luft- und Raumfahrt - Elektrische und optische Verbindungselemente - Prüfverfahren - Teil 224: HF-Streuverlust

This European Standard was approved by CEN on 27 April 2006.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 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 2591-224:2007: E

Contents

Page

Foreword

This document (EN 2591-224:2007) 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 June 2008, and conflicting national standards shall be withdrawn at the latest by June 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 a test method of measuring the total RF leakage of wired coaxial connectors.

It shall be used together with EN 2591-100.

2 Normative references

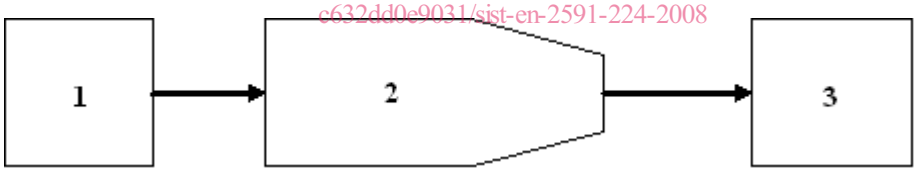
The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 2591-100, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 100: General*.

3 Preparation of specimens

The mating connector pair to be tested shall be assembled as shown on Figure 2 and tested as shown on Figure 1.

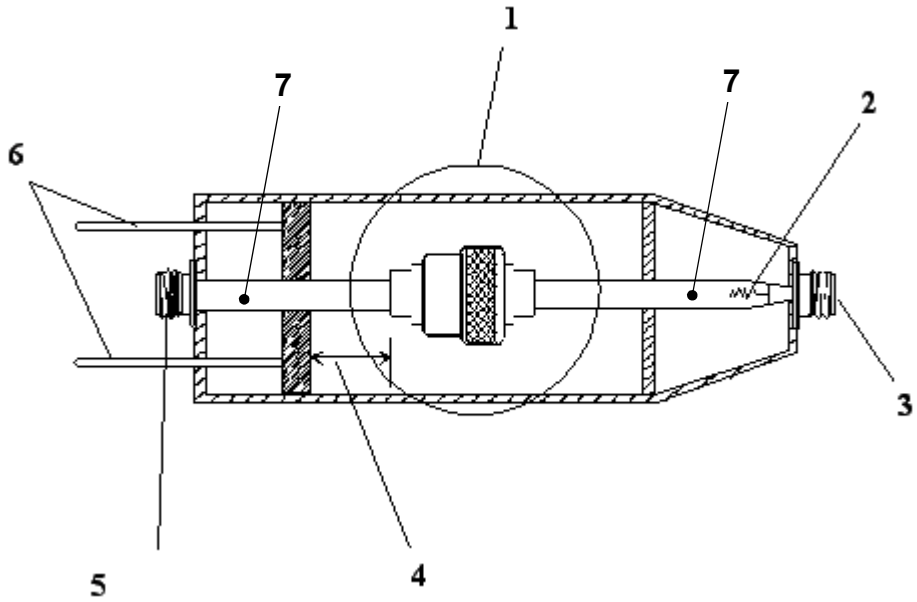
Detail of Test assembly shall conform to Figure 3.



Key

1 RF source
2 Triaxial test set up.
3 Sensitive calibrated microwave receiver

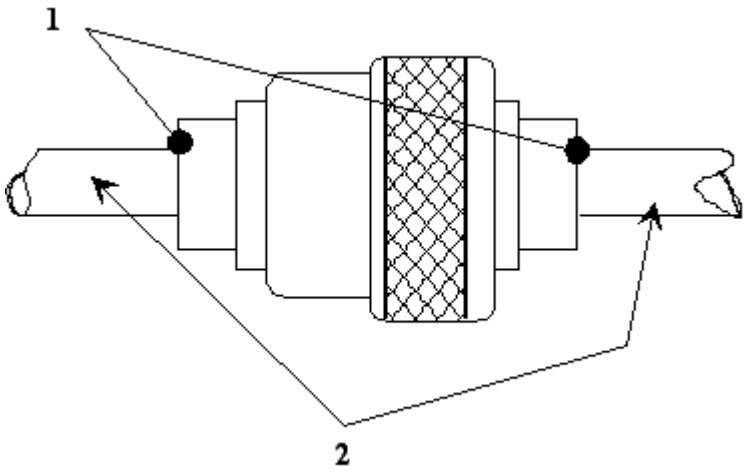
Figure 1 — RF leakage set-up



Key

1 See Figure 3.
2 Self contained termination for inner conductor (VSWR < 1,30)
3 High performance connector to RF detector
4 Travel of short must exceed λ/2
5 High performance connector from RF source
6 Push rods or devices for adjusting position of short
7 Brass tubing

Figure 2



Key

1 Metal to metal contact
2 Brass tubing forming a continuous shielding (external conductor of triaxial assembly)

Figure 3 — Mated connector pair

4 Apparatus

Mounting of specimens

The close fitting brass tubing shall be machined to thread into connector in lieu of compression nut or any device, which insure the coaxial braid connection.

This test set-up between 500 MHz and 11 GHz shall have a dynamic range from – 20 dBm to < – 100 dBm. Using an additional RF source amplifier (e.g. 20 dB), increase total dynamic range.

The shorting plunger is adjusted to produce a maximum reading in the detector with the triaxial assembly inserted.

5 Method

The insertion loss caused by the insertion of the triaxial assembly adjusted as shown in a measure of total leakage of the mated connector pair both at its interface as well as the clamping points at both cable ends.

The short circuit position is adjusted to assure that adequately low impedance appears behind the equivalent leakage generator.

The characteristic impedance of the outer coaxial line of the triaxial system, which is formed with the inner conductor, should be matched to the detector, 50 Ω coaxial circuits are generally desired for convenience.

6 Results

The leakage power ratio is defined as the ratio of the power detected to a detector at the output of the triaxial unit to the power flowing through the internal flowing power (also through a 50 Ω load).

The relative leakage is the ratio:

$$Z_{21} = \frac{E_2}{I_1}$$

where

E_2 is equivalent leakage voltage in external line;

I_1 is the current flowing in internal line.

The value must be under the requirement given in the product standard.

The insertion loss caused by the insertion of the triaxial assembly adjusted as shown is a measure of the total leakage of the mated connector pair both at its interface as well as at the clamping points to both cables.