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Communication cables - Specifications for test methods - Part 4-9: Environmental test methods - Pneumatic resistance

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Kommunikationskabel - Spezifikationen für Prüfverfahren -- Teil 4-9: Umweltprüfverfahren - Pneumatischer Widerstand

Câbles de communication - Spécifications des méthodes d'essai -- Partie 4-9: Méthodes d'essais d'environnement - Résistance pneumatique

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English version

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CENELEC
European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 46X, Communication cables.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50289-4-9 on 2001-05-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2002-04-01

- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2004-04-01

This European Standard has been prepared under the European Mandate M/212 given to CENELEC by the European Commission and the European Free Trade Association.

Contents

1 Scope

This Part 4-9 of EN 50289 details the method of test to determine the pneumatic resistance used in analogue and digital communication systems. This test only applies to cables which are protected by gas pressurisation.

It is to be read in conjunction with Part 4-1 of EN 50289, which contains essential provisions for its application.

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 (including amendments).

EN 50289-4-1	2001	Communication cables - Specifications for tests methods – Part 4-1: Environmental test methods - General requirements
EN 50290-1-2[1)]		Communication cables - Part 1-2: Definitions

3 Definitions

For the purposes of this European Standard, the definitions of EN 50290-1-2 apply.

4 Test method

4.1 Equipment

Pneumatic equipment to supply a regulated pressure of air to the sample, flow-meter, barometer and thermometer.

4.2 Test sample

The sample of finished cable having a sufficient length to carry out the test specified.

4.3 Procedure

The ambient temperature and barometric pressure shall be measured.

A length of finished cable shall have one end connected to a steady state flow of dry air supplied by a pressure regulated source providing air with a dryness of 5 % RH or better at 20 °C. The other end of the cable shall be open to the atmosphere.

[1)] At draft stage.

The pressure applied across the cable shall be 62 kPa ± 2 % and the steady state air flow shall be recorded using a flow-meter calibrated to ± 10 %. Other pressures may be applied in accordance with particular user requirements and specified in the Detail specification.

Only those air paths which access the interior of the sheath shall be used in the measurement.

A second measurement shall be made with the air flow direction reversed and the results shall be recorded separately.

The pneumatic resistance is derived from :

$$\text{Pneumatic resistance} = \frac{3\,720}{f \; x \; L} \text{ kPa x m}^3\text{/s x m}$$

where

L = the sample length (m),

f = the flow (m^3/s).

5 Requirements

The pneumatic resistance shall comply with the maximum value given in the detail specification.

5.1 Details to be specified

The detail specification shall mention

- maximum pneumatic resistance,
- sample length,
- pressure, if different from 62 kPa.

6 Test report

The test report shall include

- test conditions,
- test temperature,
- pneumatic resistance,
- pass/fail criteria.