SLOVENSKI STANDARD
SIST HD 351.2 S1:2004

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[Not translated]

Rigid precision coaxial lines and their associated precision connectors - Part 2: 50 ohm 7 mm rigid precision coaxial line and associated hermaphroditic precision coaxial connector (IEC 60457-2:1974)

Präzisionsrohrleitungen und zugehörige Präzisionssteckverbinder - Teil 2: 7 mm Präzisionskoaxialleitungen (50 Ohm) mit zugehöriger Präzisions-Zwittersteckverbindung (IEC 60457-2:1974)

Lignes coaxiales rigides de précision et leurs connecteurs de précision associés - Partie 2: 50 ohm 7 mm - Ligne coaxiale rigide de précision et connecteur coaxial de précision hermaphrodite associé (CEI 60457-2:1974)

Ta slovenski standard je istoveten z: **HD 351.2 S1:1977**

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INFORMATION SHEET

HD 351.2 S1

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

RIGID PRECISION COAXIAL LINES AND THEIR ASSOCIATED PRECISION CONNECTORS

Part 2: 50 ohm 7 mm rigid precision coaxial line and associated hermaphroditic precision coaxial connector

FOREWORD

1) The formal decisions or agreements of the I E C on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.

2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.

3) In order to promote international unification, the I E C expresses the wish that all National Committees should adopt the text of the I E C recommendation for their national rules in so far as national conditions will permit. Any divergence between the I E C recommendations and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

PREFACE

This recommendation has been prepared by Sub-Committee 46D, Connectors for R.F. Cables, of I E C Technical Committee No. 46, Cables, Wires and Waveguides for Telecommunication Equipment.

A first draft was discussed at the meeting held in The Hague in 1970. As a result of this meeting, a final draft, document 46D(Central Office)2, was submitted to the National Committees for approval under the Six Months' Rule in July 1971. Amendments, document 46D(Central Office)11, were submitted to the National Committees for approval under the Two Months' Procedure in September 1972.

The following countries voted explicitly in favour of publication:

Australia
Belgium
Czechoslovakia
Denmark
France
Germany
Hungary
Israel
Italy
Japan
Korea (Democratic People's Republic of)
Netherlands
Poland
Sweden
Switzerland
Turkey
United Kingdom
United States of America

RIGID PRECISION COAXIAL LINES AND THEIR ASSOCIATED PRECISION CONNECTORS

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Clause and Sub-clause of IEC Publication 457-1	Item
3.1.7.2	*Maximum frequency* The maximum frequency at which the reflection coefficient and attenuation are measured is 18 GHz.
3.1.15	*Electrical length* The electrical length, expressed in millimetres, of a connector pair shall be specified by the manufacturer. The inaccuracy of the measurement shall be not more than 0.05 mm (0.002 in).
4.	**Type designation** Under consideration.
5.	**Standard atmospheric conditions for testing** *Operating* The performance of the assemblies shall comply with the specified electrical requirements over the range of environmental conditions specified in IEC Publication 68-1, Basic Environmental Testing Procedures, Part 1: General, Sub-clause 4.3.
	Environmental requirements
22.	*Dry heat*
23.	*Cold* *Non-operating* The performance of the assemblies shall remain within the electrical and mechanical specifications when tested under normal operating conditions, after having been exposed to the environmental conditions specified in IEC Publication 457-1, Rigid Precision Coaxial Lines and their Associated Precision Connectors, Part 1: General Requirements and Measuring Methods. The following severities apply: Test A: — 55 °C; Test B: + 70 °C.
8.	**Dimensions** The inch dimensions are derived from the original millimetre dimensions. The nominal inside diameter of the outer conductor shall be 7 mm (0.275 590 in). Maximum deviations on the inner and outer diameters shall limit the uncertainty in the characteristic impedance to 0.2% or less, with a maximum deviation on the inside

Clause and Sub-clause of I E C Publication 457-1	Item
	diameter of the outer conductor of ± 0.005 mm (± 0.0002 in). The nominal outside diameter of the centre conductor shall be 3.040 mm (0.119 685 in). Dimensions shall also be checked after the tests according to I E C Publication 457-1, Section Four, have been carried out. For the critical dimensions of the mating faces, coupling attachment or coupling means, refer to Figures 1, 2 and 3, pages 10, 11 and 12, respectively.
10.1	*Centre contact force of mated hermaphroditic connectors* When two connectors are mated, the axial force exerted by the contact mechanism on the centre conductor of a connector shall be max. 9.0 N and min. 4.0 N. When a force of 18 N is applied for a least 12 h, the centre conductor of a connector shall be displaced axially less than 0.03 mm (0.001 in).
11.	**Bending moment on outer conductor** The bending moment of 2 Nm $^{+0}_{-0.5}$ shall be applied. All measurements on mated pairs shall be carried out after the coupling nut has been tightened with a maximum or minimum torque as specified for the measurement and given in the relevant figure.
12.	**Centre contact deflection** The angular deflection resulting from the application of a perpendicular force of 0.8 N for at least 12 h shall be less than 1° at the front end of the connector. The force shall be applied to the front end of the centre conductor in such a way that damage to the contact mechanism is avoided.
13.	**Mechanical endurance test** The electrical performance shall remain within the specification requirements when the connector is subjected to 5 000 complete engagement/separation operations. Non-abrasive cleaning is permitted, but not more frequently than at the end of each 100 operations. The coupling nut shall be tightened with the maximum coupling torque as specified in the relevant figure.
15.	**Attenuation** The attenuation of a mated pair above 10 MHz shall be less than: $A = 7 \times 10^{-3} \sqrt{\text{frequency/GHz}}$ dB Minimum coupling torque to be applied as specified in the relevant figure.

Clause and Sub-clause of IEC Publication 457-1	Item
16.	**Reflection coefficient *r*** The maximum reflection coefficient of a connector pair shall be less than: $r = 0.0015 + 0.001 \times f/\text{GHz}$ The maximum reflection coefficient of a single connector shall be less than: $r = 0.0008 + 0.0005 \times f/\text{GHz}$ The residual error of the measuring equipment (covers known error) shall be less than 50% of the above-mentioned values. With a bending moment applied to the outer conductor according to Clause 11, the change of *r* shall be less than 30% of the above-mentioned values. Minimum coupling torque to be applied as specified in the relevant figure.
17.	**Contact resistance** The d.c. resistance of the centre- and outer-conductor contacts shall be less than: Centre conductor 1 mΩ Outer conductor 0.1 mΩ when the minimum coupling torque is applied as specified in the relevant figure.
18.	**Screening efficiency of connectors (leakage)** The screening efficiency (leakage) measured as transfer impedance, for a mated pair of connectors, shall be less than: $Z_T = Z_O \cdot 10^{\frac{-A}{20}}$ where: $A = 120 - f/\text{GHz}$ dB $Z_O = 50\ \Omega$ when the maximum bending moment and the minimum coupling torque are applied according to Clause 11.