

IEC/PAS 62338

Edition 1.0
2002-10

**Screened balanced cables –
Coupling attenuation measurement,
triaxial method**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SCREENED BALANCED CABLES –
COUPLING ATTENUATION MEASUREMENT,
TRIAXIAL METHOD**

FOREWORD

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IEC/PAS 62338 has been prepared by IEC technical committee 46: Cables, wires, waveguides, r.f. connectors, r.f. and microwave passive components and accessories.

The text of this PAS is based on the following document:

This PAS was approved for publication by the P-members of the committee concerned as indicated in the following document:

Draft PAS	Report on voting
46/107/PAS	46/110/RVD

Following publication of this PAS, the technical committee or subcommittee concerned will investigate the possibility of transforming the PAS into an International Standard.

This PAS shall remain valid for no longer than 3 years starting from 2002-10. The validity may be extended for a single 3-year period, following which it shall be revised to become another type of normative document, or shall be withdrawn."

SCREENED BALANCED CABLES – COUPLING ATTENUATION MEASUREMENT, TRIAxIAL METHOD

1 General

This test method determines the coupling attenuation a_c of screened balanced cables. Due to the concentric outer tube, measurements are independent of irregularities on the circumference and outer electromagnetic field.

A wide dynamic and frequency range can be applied to test even super screened cables with normal instrumentation from low frequencies up to the limit of defined transversal waves in the outer circuit at approximately 4 GHz.

For balanced cables the upper frequency is limited by the properties of the baluns.

The procedure to measure the coupling attenuation a_c is based on the procedure to measure the screening attenuation a_s according to IEC 61196-1, Amendment 1.

2 Principle of the measuring method

The test set up is a triaxial system consisting of the cable under test and a solid metallic tube.

The matched cable under test which is fed by a generator forms the disturbing respectively the inner or primary circuit. The disturbed respectively the outer or the second circuit is formed by the outer conductor (or the outer most layer in the case of multiscreen cables) of the cable under test and a solid metallic tube having the cable under test in its axis.

The voltage peaks at the far end of the secondary circuit have to be measured. The near end of the secondary circuit is short-circuited. For this measurement a matched receiver is not necessary. The likely voltage peaks at the far end are not dependant on the input impedance of the receiver, provided that it is lower than the characteristic impedance of the secondary circuit. However, it is an advantage to have a low mismatch, for example by selecting a range of tube diameters for several sizes of coaxial cables.