

Anechoic chambers - Part 1: Shield attenuation measurement

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 50147-1:2002 sisaldab Euroopa standardi EN 50147-1:1996 ingliskeelset teksti. Käesolev dokument on jõustatud 18.12.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 50147-1:2002 consists of the English text of the European standard EN 50147-1:1996. This document is endorsed on 18.12.2002 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.
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English version

Anechoic chambers
Part 1: Shield attenuation measurement

Chambres anéchoïques
Partie 1: Mesure d'atténuation
de blindage

Absorberräume
Teil 1: Schirmdämpfungsmessung

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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 working group WG 4 of CENELEC Technical Committee TC 210, EMC.

It was submitted to the CENELEC Unique Acceptance procedure (UAP) in August 1994 and was approved by CENELEC as EN 50147-1 on 1995-07-04.

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) 1996-09-01
 - latest date by which national standards
conflicting with the EN have to be withdrawn (dow) 1996-09-01
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1 Scope

This standard applies to measurements of shielding attenuation of shielded enclosures (chambers, rooms) in the frequency range 9 kHz - 40 GHz. The object of this standard is to establish a common measurement procedure for validating the shielding effectiveness of a shielded enclosure.

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 listed hereafter. 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.

IEC 50(161)	1990	International Electrotechnical Vocabulary (IEV) Chapter 161: Electromagnetic Compatibility
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3 Definitions

For the purposes of this standard the definitions contained in IEC 50(161) apply.

4 General points relating to shielding effectiveness

4.1 Shielding

Shield attenuation can be calculated only in ideal cases. The most significant factor is that the shielded enclosure should be homogeneous and consist of materials whose properties are defined in every respect. In practice, deviations from these conditions may be so great that the calculation results only in approximate values.

4.2 Shield attenuation

The shield attenuation is given by (see figure 1)

$$a_s = 20 \log(E_0 / E_1) \text{ for the electric field}$$
$$a_s = 20 \log(H_0 / H_1) \text{ for the magnetic field}$$

where:

a_s is the shield attenuation in dB.

E_0 and H_0 are the E and H field strengths at a location without shielding between the transmitting and receiving antennas (reference level).

E_1 and H_1 are the E and H field strengths at the same location as above with shielding between the transmitting and receiving antennas.

Figure 2 shows typical shield attenuation values of a state of the art shielded enclosure.