SLOVENSKI STANDARD
SIST-TS CEN ISO/TS 7849-2:2022

01-julij-2022

Akustika - Določanje ravni zvočnih moči v zraku, ki jih povzročajo stroji, z merjenjem vibracij - 2. del: Informativna metoda, ki vključuje določanje ustreznega faktorja sevanja (ISO/TS 7849-2:2009)

Acoustics - Determination of airborne sound power levels emitted by machinery using vibration measurement - Part 2: Engineering method including determination of the adequate radiation factor (ISO/TS 7849-2:2009)

Akustik - Bestimmung der von Maschinen abgestrahlten Luftschallleistungspegel durch Schwingungsmessung - Teil 2: Verfahren der Genauigkeitsklasse 2 einschließlich Bestimmung des geeigneten Strahlungsfaktors (ISO/TS 7849-2:2009)

Acoustique - Détermination des niveaux de puissance acoustique aériens émis par les machines par mesurage des vibrations - Partie 2: Méthode d'expertise incluant la détermination d'un facteur de rayonnement approprié (ISO/TS 7849-2:2009)

Ta slovenski standard je istoveten z: **CEN ISO/TS 7849-2:2022**

ICS:

17.140.20	Emisija hrupa naprav in opreme	Noise emitted by machines and equipment
17.160	Vibracije, meritve udarcev in vibracij	Vibrations, shock and vibration measurements

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TECHNICAL SPECIFICATION

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CEN ISO/TS 7849-2

February 2022

ICS 17.140.20

English Version

Acoustics - Determination of airborne sound power levels emitted by machinery using vibration measurement - Part 2: Engineering method including determination of the adequate radiation factor (ISO/TS 7849-2:2009)

Acoustique - Détermination des niveaux de puissance acoustique aériens émis par les machines par mesurage des vibrations - Partie 2: Méthode d'expertise incluant la détermination d'un facteur de rayonnement approprié (ISO/TS 7849-2:2009)

Akustik - Bestimmung der von Maschinen abgestrahlten Luftschallleistungspegel durch Schwingungsmessung - Teil 2: Verfahren der Genauigkeitsklasse 2 einschließlich Bestimmung des geeigneten Strahlungsfaktors (ISO/TS 7849-2:2009)

This Technical Specification (CEN/TS) was approved by CEN on 7 February 2022 for provisional application.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

The text of ISO/TS 7849-2:2009 has been prepared by Technical Committee ISO/TC 43 "Acoustics" of the International Organization for Standardization (ISO) and has been taken over as CEN ISO/TS 7849-2:2022 by Technical Committee CEN/TC 211 "Acoustics" the secretariat of which is held by DIN.

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Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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Endorsement notice

The text of ISO/TS 7849-2:2009 has been approved by CEN as CEN ISO/TS 7849-2:2022 without any modification.

TECHNICAL SPECIFICATION

ISO/TS 7849-2

First edition
2009-03-15

Acoustics — Determination of airborne sound power levels emitted by machinery using vibration measurement —

Part 2: Engineering method including determination of the adequate radiation factor

Acoustique — Détermination des niveaux de puissance acoustique aériens émis par les machines par mesurage des vibrations —

Partie 2: Méthode d'expertise incluant la détermination d'un facteur de rayonnement approprié

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of document:

— an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;

— an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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ISO/TS 7849-2 was prepared by Technical Committee ISO/TC 43, *Acoustics*, Subcommittee SC 1, *Noise*.

This first edition of ISO/TS 7849-2, together with ISO/TS 7849-1, cancel and replace the first edition of ISO/TR 7849:1987, which has been technically revised.

ISO/TS 7849 consists of the following parts, under the general title *Acoustics — Determination of airborne sound power levels emitted by machinery using vibration measurement*:

— *Part 1: Survey method using a fixed radiation factor*

— *Part 2: Engineering method including determination of the adequate radiation factor*

The following part is under preparation:

— Part 3: Amplitude and phase measurements

Introduction

This part of ISO/TS 7849 gives a procedure for the determination of the sound power of the airborne noise caused by machinery vibration, including determination and application of the adequate radiation factor.

The determination of airborne noise emission of a machine by measuring vibration of the machine's outer surface may be of interest when:

— undesired background noise (e.g. noise from other machines or sound reflected by room boundaries) is high compared with the noise radiated directly by the machine under test;

— noise radiated by structure vibration is to be separated from noise of aerodynamic origin;

— noise radiated by structure vibration is high compared to the aerodynamic component so that the total noise radiation is predominantly affected by the structure vibration;

— sound intensity measurement techniques [ISO 9614 (all parts)[14]] cannot easily be applied;

— structure vibration generated noise from only a part of a machine, or from a component of a machine set, is to be determined in the presence of noise from the other parts of the whole source.

ISO/TS 7849 (all parts) describes methods for the determination of the airborne noise emission of a machine caused by vibration of its outer surface, expressed by the associated airborne sound power being related to normalized meteorological conditions. This airborne sound power is determined under the assumption that this quantity is proportional to the mean square value of the normal component of the velocity averaged over the area of the vibrating outer surface of the machine, and is directly proportional to the area of the vibrating surface.

The calculation of the airborne sound power needs data of the radiation factor, σ, as a function of frequency for the machine under test. These values can be taken as unity ($\sigma = 1$) independently of frequency, yielding an upper limit for the sound power (see ISO/TS 7849-1); or, it can be determined for specific machines as described in this part of ISO/TS 7849.

Details of ISO/TS 7849 (all parts) are given in the foreword.