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PEOPLE'S REPUBLIC OF CHINA**

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**Acoustics -- Framework for calculating a distribution of sound
exposure levels for impulsive sound events for the purposes of
environmental noise assessment**

声学 环境噪声评价中脉冲声事件暴露声级分布的计算方法

(English Translation)

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard uses the translation method identical with ISO 13474:2009 "acoustic environmental noise evaluation pulse sound incident exposure sound level distribution Calculation method".

The documents of our country that are consistent with the corresponding international documents that are normative references in this section are as follows.

--- GB/T 3222.1-2006 Acoustical environmental noise description, measurement and evaluation - Part 1. Basic parameters and evaluation methods (ISO 1996-1:2003, IDT)

--- GB/T 3358.1-2009 statistical vocabulary and symbols - Part 1. General statistical terms and terms used in probability (ISO 3534-1:2006, IDT)

--- GB/T 17247.1-2000 acoustic outdoor sound propagation attenuation Part 1. Calculation of atmospheric sound absorption (eqv ISO 9613-1:1993) Acoustics - Outdoor sound propagation attenuation - Part 2. General methods of calculation (eqv ISO 9613-2).

1996)

This standard proposed by the Chinese Academy of Sciences.

This standard by the National Acoustic Standardization Technical Committee (SAC/TC17) centralized.

This standard was drafted unit. Zhejiang University, Zhejiang Institute of Science and Technology, Yixing City Product Quality Supervision and Inspection Institute, Institute of Acoustics, Chinese Academy of Sciences, Tongji University, Shenzhen Zhongya Electromechanical Industry Co., Ltd., China Institute of Metrology, Beijing Institute of Labor Protection, Harbin Engineering University, Changsha Aobang Environmental Protection Industry Co., Ltd., Hefei University of Technology.

Introduction

This standard is intended to provide a method for quantifying the amount of description used in environmental noise assessment. This standard gives one for calculation Engineering Method of Statistic Distribution of Acoustic Level of Acoustic Incident at a Distance from High Energy Pulsed Sound Source. This standard applies to environmental noise assessment, not applicable Assessment of risk of damage to buildings and risk of harm to animals or humans.

In ISO 9613-2, the irradiance levels calculated from downwind sources such as traffic and industrial sources are calculated, with the correction factor C_{met} Based on long-term average sound level estimation. At this time, the sound from the sound source at the calculated point is evaluated as ambient noise. ISO 9613-2 only A-weighted sound level calculation applicable to non-impulsive sound of sound source and receiving point adjacent to the ground with a pitch not exceeding approximately 1000 m. For high-energy pulse sound the duration of the source and pulsed acoustic events is short, and their low-frequency acoustic energy is more pronounced than those of traffic and industrial noise sources. At a given distance, in the atmosphere Low-frequency sound attenuation is usually less pronounced than high-frequency sound, so the effects of sound level need to be taken into account when the sound propagation distance is large.

This standard gives the method of considering the meteorological effects of ground reflection, terrain obstruction, and refraction, turbulence. This method is based on strong sound source Degrees Calculates the sound emission level distribution for a series of atmospheric conditions, each of which is a combination of specific atmospheric absorption levels and over-attenuation levels.

The actual calculation according to this procedure should take into account the statistical contribution of meteorological and surface conditions. Wind speed, wind direction, temperature, humidity and atmospheric stability Histograms of frequency of occurrence can be used to describe the above levels. According to the illumination sound level distribution

can be calculated by a number of evaluation indicators, such as weight After the average --- long-term average irradiation sound level, the weighting factor by the attention of the corresponding period at different atmospheric conditions within the probability of decision.

Impulsive Acoustic Noise Exposure in Acoustic Environmental Noise Assessment Sound level distribution calculation method

1 Scope

This standard specifies the method of calculating the statistical distribution of impulse sound exposure level by engineering method in environmental noise assessment.

This standard applies to moderate charge (such as 0.05kg ~ 1000kgTNT equivalent), the use of conventional explosives mine blasting, firing and frying Bomb explosions and other sources of long distance generated (such as 0.5km ~ 30km) pulse sound. The standard takes into account meteorological conditions and the terrestrial sound propagation Impact.

2 Normative references

The following documents for the application of this section is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document.

ISO .1996-1 Description, measurement and evaluation of acoustic ambient noise Part 1. Basic parameters and evaluation methods (Acoustics-Description, measurementandassessmentofvironmentalnoise-Part 1: Basicquantitiesandassess-mentprocedures) ISO 3534-1 Statistics Terms and Symbols Part 1. General Statistics Terms and Terms for Statistics (Statistics-Vocab-ularyandsymbols-Part 1: GeneralStatisticaltermsandtermsusedinprobability) ISO 9613-1 Acoustics outdoor acoustic propagation attenuation Part 1. Calculation of atmospheric sound absorption (Acoustics-Attenuationof soundduringpropagationoutdoors-Part 1: Calculationoftheabsorptionofsoundbytheatmosphere) ISO 9613-2 acoustic outdoor sound propagation attenuation Part 2. General calculation method (Acoustics-Attenuationofsound duringpropagationoutdoors-Part 2: Generalmethodofcalculation) ISO 17201-1 Acoustics - Part 1. Measurement of muzzle detonation (Acoustics-Noisefromshooting ranges-Part 1: Determinationofmuzzleblastby measurement) ISO 17201-2 Acoustics - Part 2. Estimation of muzzle detonation and projectile noise (Acoustics - Noise fromshootingranges-Part 2: Estimationofmuzzleblastandprojecoundoundbycalculation) ISO 17201-4 Acoustics-Noise in Scout Part 4. Acoustics-Noisefromshootingran-ges-Part 4: Predictionofprojectilesound) ISO/IEC Guide 98-3 Uncertainty of Measurement Part 3. Guidance on Uncertainty of Measurement [Uncertaintyof measurement-Part 3: Guidetotheexpressionofuncertaintyinmeasurement (GUM.1995)] VDIMSR8/559 heavy weapons noise emission and irradiation measurement standard method

[Standard Method to Measure the
Sound Exposure Emissions and Immissions from Large Weapons
(Standardmethode zur Messung der Geräuschemissionen und -immissionen von schweren
Waffen, Edmund Buchta (ed.), In Meß-, Steuerungs- und Regelungstechnik, No. 8/559,
Fortschritt-Berichte, VD Verlag, Düsseldorf, 1996 (in English and German)]

3 Terms and definitions

The following terms and definitions apply to this document.