

Method for

Preparation of test codes of engineering grade for measurement at the operator's or bystander's position of noise emitted by machinery

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Foreword

This British Standard has been prepared under the direction of the Environment and Pollution Standards Committee. It is based upon ISO 6081 but is not equivalent in technical content.

ISO 6081 was prepared by Subcommittee 1, Noise, of Technical Committee 43, Acoustics, as a result of discussion in which the UK participated, and published in 1986 by the International Organization for Standardization (ISO). The text of ISO 6081 has been used as a basis for this standard and a number of amendments have been incorporated. The principal changes that have been made are as follows.

- a) **0.3** of ISO 6081, which deals with measurement uncertainty has been deleted because, in the opinion of the UK experts, there are insufficient published data available to justify the figures quoted. As a consequence of this deletion, Table 2 has been renumbered as Table 1.
- b) Annexes A and B of ISO 6081 are informative and do not contain requirements. Therefore they do not form an integral part of this standard.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

0 Introduction

0.1 General

This British Standard provides a framework for preparing test codes that describe methods for measuring the sound pressure levels at the operator's position(s) in close proximity to a specific machine or piece of equipment or in the operator's cab. Specific test codes may specify installation and operating conditions more precisely.

The sound pressure levels determined according to the procedures of such test codes are useful for comparing the noise emissions of different machines at the operator's position(s) under similar environmental conditions. Hence, this standard relates to the emissions of noise sources. It is not the intent of this standard to describe procedures for measuring the occupational noise exposures of workers (noise immission).

The sound pressure levels at the operator's position(s) which are obtained according to the procedures of test codes based on this standard represent the noise emission of the machine for operating conditions specified for this particular type of machine. In practice, these sound pressure levels are the lowest obtainable values because they are determined by excluding effects of reflections other than those from the reflecting plane on which the machine is placed.

It is not the intent of this standard to specify requirements or assign responsibilities for meeting any specific sound pressure level criteria at the operator's position(s).

0.2 Relationship to other standards and test codes

This British Standard provides a general framework for preparing test codes requiring noise measurements at the operator's position and describing the instrumentation, test site characteristics (indoors and outdoors), microphone locations and installation and operating conditions of specific types of machinery and equipment.

This standard is to be used in conjunction with BS 4196-0. British Standards or test codes based upon BS 4196-0 are to be used for specifying mounting, operating and loading conditions of the source during its acoustical evaluation.

A specific noise test code for measurements at the operator's position(s) for a specific type of machine should be based on this standard. Preferably only one specific noise emission test code should be established based on the series BS 4196-1 to BS 4196-7 inclusive and BS 7025 for the following purposes:

- a) determination of the sound power level;

- b) determination of the sound pressure level at the operator's or bystander's position(s).

Account should be taken of the fact that BS 4196-1 to BS 4196-7 inclusive and BS 7025 describe methods for different grades (precision, engineering, survey) and different measurement environments.

If no specific test code exists for a particular type of machine, this standard should be used to provide a basis for the measurements.

The methods described in this standard are not applicable to determinations of the total noise emissions of products; for this purpose, the sound power level of the machine should be determined in accordance with the appropriate British Standard in the series BS 4196-1 to BS 4196-7 inclusive, or from appropriate test codes based upon those standards.

1 Scope

This British Standard describes the preparation of test codes of engineering grade for measurement at the operator's or bystander's position of noise emitted by machinery, indoors and outdoors. It also applies to operator positions which are partially or totally enclosed by the machine or are within a cab which may be an integral part of the machine or remote from the machine. This standard is applicable to all sources, both moving and stationary, with the exception of transportation vehicles.

NOTE The titles of publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this British Standard the following definitions apply.

2.1

sound pressure level, L_p (in dB)

ten times the logarithm to the base 10 of the ratio of the square of the sound pressure to the square of the reference sound pressure

the width of the frequency band used shall be indicated: for example, octave band sound pressure level, one-third octave band sound pressure level, etc. The reference sound pressure is 20 μ Pa

2.2

A-weighted sound pressure level, L_{pA} (in dB)

the frequency-weighted value of the sound pressure level determined with a sound level meter set for the frequency weighting characteristic A. The reference sound pressure is 20 μ Pa

NOTE Any other frequency weighting, if used, should be defined in a similar manner, for example, L_{pC} .