SIS – Standardiseringskommissionen i Sverige

Standarden utarbetad av

SEK, SVENSKA ELEKTRISKA KOMMISSIONEN

SVENSKA ELEKTROTEKNISKA NORMER, SEN

SVENSK STANDARD SS-ISO/TR 3352

Första giltighetsdag	Utgåva	Sida	Registrering
1985 - 02 - 15	1	1 (4)	Reg 459 33 52

Ingår i
SEK Översikt ISO 43

Akustik – Bedömning av bullers inverkan på taluppfattbarhet

Acoustics – Assessment of noise with respect to its effect on the intelligibility of speech

Denna standard återger den engelska texten i nedanstående dokument, utarbetat av International Organization for Standardization, ISO:

Technical report 3352, 1974 — **Acoustics – Assessment of noise with respect to its effect on the intelligibility of speech**

Denna standard är tillsvidare tillämplig för bedömning av bullers inverkan på taluppfattbarhet. Standarden kommer att revideras så snart IEC-publikation 268, Part 16, Report of the RASTI-method for objective rating of speech intelligibility in auditoria, har utgivits.

UDK 534.6:612.78

Acoustics — Assessment of noise with respect to its effect on the intelligibility of speech

Acoustique — Évaluation du bruit en fonction de son influence sur l'intelligibilité de la parole

0 INTRODUCTION

This Technical Report is based on the work of French and Steinberg, Kryter, and Beranek (see the annex). Without prejudging the difficulties which would be met, it was not considered necessary to define precisely what is understood by "normal speech", this Technical Report describing a survey method.

The mean speech power levels for normal and raised voice which have been retained were determined empirically; they were in agreement, by comparison, with the indices computed in accordance with classical methods (Kryter or Beranek). These levels may be subject to future modifications according to the results of the studies that are in the programme of work of WG 12 of ISO/TC 43/SC 1.

An intelligibility of 95 %, as indicated in this Technical Report, corresponds to an articulation index (AI) as defined by Beranek of about 0,4 (i.e. approximately 50 % of logatomes understood or 90 % of words understood).

The use of the overall weighted value A for the assessment of the sound level of the various spectra adopted does not lead to good agreement with the results obtained by the described method. For assessment of the intelligibility it seems that one cannot be satisfied with a measurement of the overall level of noise in dB(A) : that is why it appeared preferable to use the average value of the four octave bands 500, 1 000, 2 000 and 4 000 Hz to define the level of the disturbing noise.

1 SCOPE

This Technical Report describes a practical survey method for assessment of the influence of noise on sentence intelligibility in direct communication.

A simplified method is described for the estimation of the maximum distance between speaker and listener as a function of the characteristics of the noise.

2 FIELD OF APPLICATION

This Technical Report is applicable to conversation in normal or raised voice in environments with steady noise with a continuous spectrum where the influence of reverberation and/or echoes can be neglected.

NOTE – This Technical Report is not applicable to telephone conversation, nor to order-transmitting systems, nor to speech synthesizers.

3 REFERENCES

IEC Publication 179, *Precision sound level meters.*

IEC Publication 225, *Octave, half-octave and third-octave band filters intended for the analysis of sounds and vibrations.*

4 DEFINITIONS

For the purpose of this Technical Report the following definitions apply.

4.1 intelligibility : The ratio, expressed in per cent, of the number of sentences understood to the total number of sentences spoken during an ordinary verbal conversation.

4.2 satisfactory intelligibility : An intelligibility of not less than 95 % (equivalent to an articulation index AI = 0,4).

4.3 speech interference level : The arithmetic mean of the band pressure levels measured in the octave bands whose centre frequencies are 500, 1 000, 2 000 and 4 000 Hz (see clause 5).

5 METHOD OF MEASUREMENT

The band pressure level should be measured at the position of the head of the listener (if possible in his absence) in the octave bands whose centre frequencies are 500, 1 000, 2 000 and 4 000 Hz. These measurements should be made with a sound level meter in conformity with IEC Publication 179 and an octave filter in conformity with IEC Publication 225.

The time constant of these instruments is the same as specified in IEC Publication 179. The indicating apparatus should be set at "fast reponse".

NOTE – Filter sets with narrower bands may be used. The band pressure levels so obtained should be converted to octave band pressure levels.

6 METHOD FOR ASSESSMENT OF NOISE WITH RESPECT TO SATISFACTORY INTELLIGIBILITY

The speech interference level is obtained from the measurements as described in clause 5.