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P.32

TELEPHONE TRANSMISSION QUALITY SUBSCRIBERS' LINES AND SETS

EVALUATION OF THE EFFICIENCY OF TELEPHONE BOOTHS AND ACOUSTING HOODS

ITU-T Recommendation P.32

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation P.32 was published in Volume V of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

2 In this Recommendation, the expression “Administration” is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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Recommendation P.32

EVALUATION OF THE EFFICIENCY OF TELEPHONE BOOTHS AND ACOUSTING HOODS

(Melbourne, 1988)

The purpose of this Recommendation is to define the methods of measurement to evaluate the efficiency of either acoustic hoods or telephone booths intended to improve the quality of telephone transmission in noisy environments. In addition to the improvement of the transmission quality during a conversation between two users, this Recommendation takes into consideration the need to guarantee speech privacy for the user speaking from the acoustic hood or the booth with respect to a listener situated on the outside of the telephone booth.

1 Evaluation methods

The efficiency of a telephone booth or an acoustic hood can be evaluated using either subjective or objective measurements.

The objective measurements suitable for that purpose are those based on the acoustic insulation (for example in a reverberation chamber) resulting from the difference between the sound levels registered inside and outside the telephone booth or vice-versa. As the acoustic characteristics vary outside and inside the telephone booth, the acoustic insulation obtained in each case (noise source outside or inside the telephone booth) is not the same. In addition, if we consider open telephone booths or acoustic hoods, the measurement of the acoustic insulation gives results not correlatable to the ones obtained by means of a subjective evaluation of the booth performance.

A subjective measurement of the efficiency of booths or acoustic hoods consists in determining the intelligibility index inside the booth, in conditions of external noise (room noise, road noise, etc.). This measurement can also be objectively obtained by calculating the articulation index, by using, for example, the Kryter method as indicated in Annex A.

Another method used to measure subjectively the efficiency of booths and acoustic hoods consists in evaluating the intelligibility threshold variation observed between the intelligibility inside and outside the booth placed in a noisy ambient.

The performance of booths and acoustic hoods, related to the user's privacy while speaking inside the booth, can be subjectively evaluated by measuring the intelligibility of the conversation from the inside to the outside of the booth or by using an objective measurement such as calculating the articulation index (according to Kryter's method for example) outside the booth under specific noise conditions.

Since the intelligibility inside the booth is also a function of the sidetone of the telephone set used, a simple measurement of acoustic insulation which does not take into consideration the intelligibility reduction caused by the sidetone cannot furnish correct evaluations on the improvement of transmission quality due to telephone booths, or acoustic hoods.

Bearing in mind the following observations:

- 1) international telephone communication can be originated from telephone sets installed in noisy ambients and protected by booths or acoustic hoods;
- 2) there are no measurement methods recommended for evaluating the transmission quality improvement resulting from the use of the telephone booth;
- 3) an evaluation of the booth efficiency, based only on the acoustic insulation obtained by traditional methods (acoustic attenuation of the panels of the booth) is not always correlated to the subjective evaluation of the booth performance;
- 4) subjective measurements either of the intelligibility or of the intelligibility threshold variation give the possibility of evaluating the efficiency of a booth, but are time-consuming and expensive and also require a qualified and well-trained operator team;
- 5) there are no recommendations giving criteria relating the employment of the booths to the ambient noise level, in order to determine an acceptable quality of transmission,