# MOBILE BOOTHS FOR SIMULTANEOUS INTERPRETATION

# GENERAL CHARACTERISTICS AND EQUIPMENT

## Introduction

The aim of this International Standard, prepared at the request of the International Association of Conference Interpreters (AIIC) and the Joint Service Interpretation-Conferences (JSIC) of the European Commission (EU), is to provide optimal conditions for simultaneous interpretation using mobile booths.

The design of a mobile booth is governed by four requirements:

a) acoustic separation of different languages spoken simultaneously;

b) good visual and two-way audio communication between the interpreters and the participants in the meeting;

c) adequate working conditions for the interpreters, whose booths are their work-place, such as to enable them to sustain the intense effort of concentration required throughout the day's work;

d) ease of handling and assembly and of lightweight, yet sturdy construction.

## 1. Scope

The basic requirements for booths for simultaneous interpretation are specified in ISO 2603.This International Standard is an adaptation of ISO 2603 to meet the needs of transport and handling of mobile booths to be used in halls not equipped with built-in booths.

The main features of mobile booths, distinguishing them from built-in facilities, are that they can be dismantled, moved and set up inside the conference room.

Booths that can be moved but are used on the premises and stored near conference rooms are not covered by this International Standard. They should be designed to conform as closely as possible to built-in booths as specified in ISO 2603.

NOTE Clause 12 gives indications concerning the use of public address systems in conjunction with simultaneous interpretation systems.

## 2. Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 140-4: 1998, *Acoustics - Measurement of sound insulation in buildings and of building elements - Part 4: Field measurements of airborne sound insulation between rooms.*

ISO 2603:1998, *Booths for simultaneous interpretation - General characteristics and equipment.*

ISO 3382:1997, *Acoustics – Measurement of the reverberation time of rooms with reference to other acoustical parameters.*

IEC 60914:1998, *Conference Systems - Electrical and audio requirements.*

## 3. Definition

For the purposes of this International Standard, the following definition applies.

### 3.1. Mobile booth for simultaneous interpretation

A self-contained unit enclosing the interpreters' work space within a conference room, for the purpose of providing sound insulation, both from the proceedings in the room and between two or more simultaneously interpreted languages.

NOTE It is free-standing and assembled from modular components.

## 4. General requirements

### 4.1 General

Designed for temporary service in a variety of locations, mobile booths shall provide optimum sound-insulation and sound-absorption. Materials used should be easy to maintain, odourless, anti-static, fire retardant or non-flammable and cause no irritation to eyes, skin or respiratory tract. They shall neither attract nor harbour dust (pile carpeting should not be used). Colour schemes should be appropriate for the restricted work space available in a booth. All surfaces, including equipment, should have a matt finish.

Table-mounted hoods are not acceptable.

In selecting a hall in which to set up mobile booths and equipment, it is essential to ensure there is sufficient space to position them appropriately. The user should seek advice from a

consultant interpreter as well as from suppliers of such equipment or a conference technician.

### 4.2 Suitability of conference halls

Halls shall be of adequate size to accommodate participants, booths and equipment and shall be located away from all noise sources (e.g. outside traffic, noisy passages inside buildings, lifts and kitchens).

Satisfactory hall acoustics shall be ensured, to provide good speech intelligibility, and in particular, short reverberation time.

Halls shall be properly heated and ventilated (air-conditioning), with a carbon dioxide level not exceeding 0,1 %.

### 4.3 Siting in the conference hall

A sufficiently large area shall be provided to place the booths together in a position from which the rostrum, participants, blackboard and projection screen can be fully seen (see ISO 2603). To ensure adequate visibility in conference rooms with a level floor, booths should be raised to at least 0,30 m above the floor. Where necessary, a platform shall be used, provided it is stable, carpeted or suitably sound-absorbent, has safe access and does not creak.

Obstruction of view, such as pillars, beams, etc., should be avoided.

A free space (minimum of 2 m) shall be provided between conference table, delegates' chairs and booths to avoid participants being disturbed by voices from the booths.

A passage behind the booths at least 1,50 m wide should be provided (for safety and fire precautions).

Access to the hall past the booths shall be avoided. Separate access to the booths should be provided where possible.

### 4.4 Size of booths (see figures 1 and 2)

Each booth shall accommodate the required number of interpreters comfortably seated side by side while allowing the occupants to enter and leave the booth without disturbing one another. Enough space shall be provided to ensure adequate ventilation and temperature control.

The booth dimensions have been reviewed and adapted in the light of prevailing conditions and of the health and professional requirements of interpreters.

Internal dimensions for a standard mobile booth shall not be less than the following:

a) width:

| | | |
|---|---|---|
| - | for no more than two interpreters | 1,60 m |
| - | for two or three interpreters | 2,40 m |
| - | for three or four interpreters | 3,20 m |

b) depth: 1,60 m

c) height: 2,00 m

NOTE In very exception circumstances, where space restrictions and internal transport problems are such that the standard dimensions cannot be used, dimensions of 1,50 x 1,50 x 1,90 m may be used for no more than two interpreters.

### 4.5 Doors

Doors are essential to ensure proper sound-proofing. A booth shall have a hinged door that opens outwards, providing direct access from the room or platform. The door shall operate silently and not be lockable.

Sliding doors and curtains are not acceptable.

### 4.6 Cable passages

Where cable passages are necessary in the side or front panels of the booths, they should be of the smallest possible dimensions compatible with the equipment used. Access to passages should be easy (see 4.3).

## 5. Windows ()

### 5.1 General

See figures 1 and 2.

Each booth shall have front and side windows.

For maximum visibility, front windows should span the whole width of the booth. Vertical support shall be as narrow as possible and shall not be in the central field of view of any working position.

Window panes shall be untinted, clean and free from scratches that might impair visibility.

### 5.2. Dimensions

Front and side windows shall extend upwards for at least 0,80 m from the table surface or from no more than 0,10 m above that surface. Side windows should extend from the front window for a minimum of 0,60 m along the side wall, 0,10 m of which should be beyond the free edge of the working surface.

## 6. Acoustics

### 6.1 Sound insulation

Mobile booths shall be so designed as to provide reasonable sound insulation against any sound from sources outside the booth, e.g. speech from neighbouring booths or the hall (and vice versa), background noise, etc. Where walls are shared by booths, the sound insulation values shall be fully met.

The sound insulation shall be checked in accordance with ISO 140-4 as a measure of the difference in sound pressure levels, *D*, using one of the booths as receiving room while the sound source fed with white or pink noise excites the source room, being the hall or the immediately adjacent booth.

The sound pressure levels shall be measured in octave bands in the source and receiving room, and the difference between the two sets of sound pressure levels should at least equal to the values given in table 1 for the noise transmitted from the hall to a booth, and vice versa.

**Table 1 - Booth to hall (and vice versa) - Sound Pressure level differences (*D*)**

| **Frequency** Hz | 250 | 500 | 1000 | 2000 | 4000 |
|---|---|---|---|---|---|
| *D*, dB | **12** | **15** | **18** | **20** | **20** |

For the noise transmitted from booth to booth, the differences between the two sets of sound pressure levels should at least equal to the values given in table 2.

**Table 2 - Booth to Booth : Sound pressure level differences (*D*)**

| **Frequency**, Hz | 250 | 500 | 1000 | 2000 | 4000 |
|---|---|---|---|---|---|
| *D*, dB | **18** | **21** | **24** | **26** | **26** |

The measurement of *D* between booths and from outside into a booth shall be made with booths installed in a suitable hall, thus resembling practical conditions.

### 6.2 Sound absorption

Reverberation and sound reflection shall be reduced by using suitable anti-static sound-absorbing materials on inside surfaces. The reverberation time (see ISO 3382) inside the booth shall be between 0,3 s and 0,5 s, in the octave bands from 125 Hz to 4000 Hz (booth unoccupied).

A screen of absorbent material behind the booths may be used to attenuate the reflection of sound by the wall behind the booths.

In halls without carpeting, the booths shall be placed on a carpet.

## 7. Ventilation

See figures 1 and 2.

Booths shall be fitted with an effective ventilation system, ensuring complete renewal of the air at least seven times per hour, without causing harmful draughts on seated occupants. Where higher rates of air renewal can be obtained, they shall be adjustable within the booth.

Extractor fans in the ceiling should be powerful enough to meet the above requirements as soundlessly as possible.

Where air intake is direct from the meeting room, vents should be located low in booth walls (to benefit from cooler air and to ensure proper circulation) and towards the rear of the booth to avoid draughts on the interpreters' legs.

The equivalent A-weighted sound pressure level inside the booth due to the ventilating system shall not exceed 40 dB. The ventilation system shall be such that mechanical vibration is reduced to a minimum.

## 8. Working surface

See figures 1 and 2.

The working surface shall extend across the full width of the booth, it shall be horizontal and covered with shock-absorbent material to deaden noise that would otherwise be picked up by the microphones. Its strength shall be sufficient to take the weight of control consoles, documents and interpreters leaning on its surface. The under-surface shall be smooth. The following dimensions apply:

- height: 0,73 m +/- 0,01 m from the floor;
- total depth: maximum 0,50 m;
- leg-room: minimum 0,45 m; supporting structures shall not encroach on leg room or obstruct movement.

Equipment and fixtures, such as lighting, should be mounted in such a way as to leave the working surface as clear as possible.

## 9. Lighting

In each booth at least two compact low-heat, orientable light sources shall be provided, mounted on adjustable fittings and in such a way as not to encumber the working surface. The light thus provided shall cover the working surface and be regulated either in two steps with a lower range of between 100 lx and 200 lx and a higher above 300 lx, or provide continuous control from 100 lx to over 300 lx, measured at working surface level.

## 10. Seating

For each interpreter and technician, there shall be a comfortable chair with the following characteristics :

- five legs;
- adjustable height;
- adjustable back-rest;
- arm-rests;
- castors producing no perceptible noise;
- upholstery of heat-dissipating material.

Independent, movable foot-rests should be available.

NOTE Seating is usually supplied by the management of the hall.

## 11. Booth audio equipment

### 11.1 General

Equipment for simultaneous interpretation is specified in IEC 60914.

### 11.2 Controls and headphones

One set of controls and headphones, as described in ISO 2603:1998, clauses 8 to 10 shall be provided for each interpreter. If the booth is occupied by no more than two interpreters, the use of one dual-control console is permissible, but one console for each interpreter is recommended.

To allow for individual preferences, provision should be made for connecting base-mounted microphones or headset combinations to the control console.

### 11.3 Microphones

Interpreters' microphones may be mounted on a movable base or combined with headphones (i.e. headsets). However, headset combinations do not suit all interpreters. One microphone is required for each interpreter.

## 12. The use of public address systems in conjunction with simultaneous interpretation systems

Acoustic feedback and echoes in the hall may impair simultaneous interpretation and, in extreme cases, block the memory processes and/or damage hearing.

Moreover, part of each audience depends on headphone reception, which may be drowned by loudspeakers when operated at their normal level. Indeed, public address systems which are not compatible will cause interference. Therefore, every precaution shall be taken, both in the design and the volume control of the public address system, to avoid echo and feedback from loudspeakers to microphones in the hall.

When the use of speech re-inforcement cannot be avoided (e.g., the majority of participants listening to conference proceedings in the original language), public address systems should be operated at their lowest level and every endeavour should be made to eliminate loudspeaker feedback into microphones placed in the hall.

In order to provide for effective control in such situations, simultaneous (multi-channel) systems and public address (single channel) systems should:

- be fed from a single microphone system,

- have separate volume controls allowing individual level adjustment for each system,
  independently, so that lowering the public address level does not reduce the signal strength available to interpreters.

Level controls of the two systems should be located close to each other to enable both levels to be monitored in the same room, preferably by the same operator.