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Conference systems — Equipment — Requirements

Systèmes de conférence — Équipement — Exigences

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 37, *Language and terminology*, Subcommittee SC 5, *Translation, interpreting and related technology.*

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Conference systems — Equipment — Requirements

1 Scope

This document specifies requirements for typical conference systems, the parts they are composed of, the auxiliary devices necessary for their use (such as microphones, headphones, and sound reinforcement equipment) and the environment in which they are used. These requirements ensure interoperability and optimum performance under conditions of normal operation.

It is applicable to both wired and wireless systems.

The environment and areas where events are held are described in Annex A.

This document facilitates the determination of the quality of conference systems, the comparison of different systems and the assessment of their proper use by listing their characteristics. This document contains the technical backbone of ISO 20108 and ISO 20109.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 639-3, *Codes for the representation of names of languages — Part 3: Alpha-3 code for comprehensive coverage of languages*

ISO 20108, *Simultaneous interpreting — Quality and transmission of sound and image input — Requirements*

ISO 7000, *Graphical symbols for use on equipment — Registered symbols*

IEC 60118-4, *Electroacoustics — Hearing aids — Part 4: Induction-loop systems for hearing aid purposes — System performance requirements*

IEC 60268-4, *Sound system equipment — Part 4: Microphones*

IEC 60268-7, *Sound system equipment — Part 7: Headphones and earphones*

IEC 60417, *Graphical symbols for use on equipment*

IEC 61603-7, *Transmission systems of audio and/or video and related signals using infra-red radiation — Part 7: Digital audio signals for conference and similar applications*

IEC 62489-1, *Electroacoustics — Audio-frequency induction loop systems for assisted hearing — Part 1: Methods of measuring and specifying the performance of system components*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
system
combination of interacting elements organized to achieve a given objective

[SOURCE: ISO/IEC 30111:2013, 3.6, modified — the wording “one or more stated purposes” is changed to “a given objective”.]

3.2
wired
employing cables and connectors for the transfer of *signals* (3.12) and data

3.3
wireless
without cables and connectors for the transfer of *signals* (3.12) and data

3.4
discussion system
system (3.1) that controls *discussion units* (3.23)

3.5
sound reinforcement system
speech reinforcement system
public address system
system (3.1) that amplifies *sound* (3.11)

3.6
conference system
system (3.1) that controls technical equipment used to conduct an event

3.7
language distribution
transmission of the *floor* (3.9) and *interpreted* (3.32) speech to *participants* (3.25) and *audience* (3.28)

3.8
interpreting system
combination of *interpreting* (3.33) equipment and *system* (3.1) for *language distribution* (3.7)

Note 1 to entry: An interpreting system can require the use of interpreting booths compliant with ISO 2603 or ISO 4043, equipped with interpreting consoles compliant with ISO 20109, or a portable interpreting system compliant with ISO 20109.

3.9
floor
audio output of *discussion system* (3.4) conveying *microphone* (3.14) input and *auxiliary input* (3.10)

3.10
auxiliary input
audio input other than that from *discussion system* (3.4) *microphones* (3.14)

3.11
sound
form of energy that moves through media in waves of pressure

[SOURCE: ISO/TS 16976-7:2013, 3.1.5]

3.12
signal
detectable transmitted energy that is used to carry information

[SOURCE: ISO/IEC 14776-153:2015, 3.1.87]

3.13
transducer
device that converts one type of energy to another

[SOURCE: ISO/TS 19130-2:2014, 4.78]

3.14
microphone
transducer (3.13) that converts *sound* (3.11) into an electrical *signal* (3.12)

[SOURCE: ISO 20109:2016, 3.3, modified — The word "device" is replaced by "transducer".]

3.15
loudspeaker
transducer (3.13) that converts an electrical *signal* (3.12) into *sound* (3.11) that is loud enough to be heard at a distance

3.16
amplifier
electronic device that converts a small *signal* (3.12) to a larger signal

[SOURCE: ISO 5577:2017, 5.1.5, modified — The word "which" is replaced by "that"; Note 1 to entry is removed.]

3.17
headphone
transducer (3.13) that converts an electrical *signal* (3.12) into *sound* (3.11), designed to be worn close to the ear

[SOURCE: ISO 20109:2016, 3.4, modified — the plural term "headphones" is replaced by the singular "headphone", the word "device" is replaced by "transducer".]

3.18
in-ear headphone
headphone (3.17) designed to be worn inside the ear

3.19
earclip headphone
earshell headphone
one-ear *headphone* (3.17) designed to be worn attached to the ear

3.20
induction loop
system (3.1) that transmits an audio *signal* (3.12) directly to a hearing aid

Note 1 to entry: The audio signal is transmitted via a magnetic field, greatly reducing background noise, competing sounds, reverberation and other acoustic distortions in order to improve the clarity of sound.

3.21
central controller
equipment that directs the operation of the *conference system* (3.6) and the *systems* (3.1) and devices connected to it

3.22
audio mixing device
equipment for combining, routing and changing the gain, volume, timbre and dynamics of analogue or digital *signals* (3.12), summing them to produce one or more combined output signals

3.23
discussion unit
electronic device serving a *participant* (3.25) to speak at an event

3.24
control booth
room from which technical equipment and audio and video *signal* (3.12) quality are managed

[SOURCE: ISO 2603:2016, 3.3, modified — The wording "where the control instruments are located, and" is deleted and "audio and video signal quality" added.]

3.25
participant
person who takes an active part in an event

3.26
chairperson
participant (3.25) who is in charge of conducting the proceedings at an event

3.27
speaker
participant (3.25) addressing others

[SOURCE: ISO 18841:2018, 3.1.7, modified — The word "person" is replaced by "participant"; the wording "using either spoken language or sign language" is removed.]

3.28
audience
group of listeners or spectators at an event

3.29
operator
person responsible for the operation of technical equipment

3.30
technician
person responsible for the availability and maintenance of technical equipment

3.31
webcasting
web streaming
transmitting audio and video data across a network to an *audience* (3.28)

3.32
interpret
render spoken or signed information from a source language to a target language in oral or signed form, conveying both the register and meaning of the source language content

[SOURCE: ISO 18841:2018, 3.1.1]

3.33
interpreting
interpretation
rendering of spoken or signed information from a source language to a target language in oral or signed form, conveying both the register and meaning of the source language content

[SOURCE: ISO 18841:2018, 3.1.2]

3.34
simultaneous interpreting
mode of *interpreting* (3.33) performed while a *speaker* (3.27) is still speaking or signing

[SOURCE: ISO 18841:2018, 3.1.13]

4 Overall conference system

4.1 General

A conference system consists of the technical equipment used to conduct an event. Its primary function is to amplify audio signals from participants and audio sources and delivering them to other participants.

A conference system shall at least consist of a discussion system, combined with a listening system and/or a sound reinforcement system.

A conference system shall have at least one primary floor output and one auxiliary input as described in Annex B.

A conference system can be extended with an interpreting system and a language distribution system.

A conference system may, among others, also include one or more of the following elements:

— a metadata system;

— a voting system;

— a camera system;

— a display system;

— an identification/sign-in system;

— an electronic nameplate system.

A conference system can, among others, be connected to one or more of the following elements:

— a conference control system;

— an audio and/or video recording/archiving system;

— a webcasting system;

— a teleconferencing system.

Audio and video signals generated by the conference system shall comply with ISO 20108.

Modes of mounting conference systems are described in Annex C.

4.2 Audio characteristics

4.2.1 Latency

The overall latency from input (microphone or audio input) to output (discussion unit loudspeaker, headphones or audio output) shall not exceed 20 ms.

4.2.2 Sound pressure level

All sound pressure levels (dB_{spl}) referred to in this document are based on a sinusoidal frequency of 1 kHz (unless specified otherwise) measured under free field conditions.

Sound pressure level	Nominal	Maximum	Units
at the microphone housing/capsule	80	110	dB_{spl}
at 50 cm from the discussion unit loudspeaker without causing audible artefacts	72		dB_{spl}

4.2.3 System input and output

The nominal input and output of the system shall be −30 dBFS.

4.2.4 Frequency response

A conference system including microphone and individual listening system shall reproduce audio frequencies between 125 Hz and 15 000 Hz with a variation of maximum ±10 dB.

A conference system excluding microphone and individual listening system shall reproduce audio frequencies in the useful frequency range with a variation of maximum ±3 dB.

Additionally, a high-pass filter shall attenuate the frequencies below 125 Hz with a slope of at least 12 dB per octave in order to improve speech intelligibility.

Parameter	Min.	Typical	Max.	Unit
Low frequency limit			125	Hz
High frequency limit	15 000			Hz
Amplitude variation in the useful frequency range including microphone and individual listening system			±10	dB
Amplitude variation in the useful frequency range excluding microphone and individual listening system			±3	dB
High-pass filter corner frequency		125		Hz
High-pass filter slope	12			dB/Oct

Microphones shall comply with IEC 60268-4. Headphones shall comply with IEC 60268-7.

4.2.5 Distortion

A conference system shall be free of any perceptible audio distortion.

A conference system including a microphone shall exhibit a total harmonic distortion (THD) level below 1 % at any sound pressure levels up to 110 dB_{spl} at 1 kHz.

4.2.6 Noise and hum

A conference system shall be free of perceptible noise and hum.

A conference system including a microphone shall exhibit a signal to noise ratio (SNR) of at least 90 dB at 1 kHz at the maximum sound pressure level.

4.2.7 Level consistency

The variation of the level of the individual listening system shall be no more than ±3 dB for each distributed interpreted language and distributed floor at an input level of 80 dB_{spl} ± 12 dB.

4.2.8 Interference

A conference system shall be immune to interference from any source, including nearby electromagnetic sources such as (but not limited to) mobile phones, wireless LANs and other conference systems. Audible artefacts resulting from interference shall be at least 50 dB below the nominal level; system noise shall not be considered as audible interference.

4.3 Confidentiality

A conference system can include features that warrant the confidentiality of the event, in particular when wireless systems are used, the conference is accessible via webcasting or when the audio and/or video are transmitted over a LAN/WAN.

4.4 Markings and symbols

Markings and symbols shall be those identified in the collection of graphical symbols for use on equipment that contains the complete set of graphical symbols included in IEC 60417 and ISO 7000.

Markings not included in this collection shall be clearly identified in the user manual.

4.5 Accessibility and usability

Physically impaired participants and audience members should be able to use all features of the conference system without assistance (see ISO/IEC Guide 71 and ISO/TR 22411).

5 Discussion system

5.1 General

A discussion system consists of discussion units, often daisy-chained together and connected to a central controller that can power the discussion units. It can be operated centrally by an operator and/or in a decentralized way by the participants. In general, the number of discussion units is the same as the number of participants; however, two participants can share one unit. The connection between the discussion units and the central controller can be either wired or wireless.

The entire discussion system's audio signal path shall be digital.

5.2 Discussion unit

5.2.1 Required elements

The unit shall contain:

— a microphone with a polar pattern that provides the best intelligibility, taking into account the speaker's position, and that avoids ambient noises to be picked up;

— a microphone button that provides adequate haptic perception to locate it and haptic feedback to operate it. The operation of the microphone button should not result in audible artefacts;

— an indicator near the button to show that the microphone is ON. The indicator should be coloured red;

— an indicator near the button to show that the participant is placed in the queue. The indicator should be coloured green.

The chairperson's unit shall contain:

— a priority button that provides adequate haptic perception to locate it and haptic feedback to operate it. Pressing this button can activate a chime and shall temporarily mute or switch OFF all other microphones.

5.2.2 Additional elements

The unit can, among others, contain:

— an indicator visible for the participants or the audience to show the microphone status. The indicator shall have the same colour as the microphone button indicator;

— a non-locking socket to connect an individual listening system. The socket shall be compatible with a TS, TRS and TRRS mini-jack plug of 3,5 mm. In case two participants use the unit, it shall have two connectors;

— a volume control for the individual listening system. In case two participants use the unit, it shall have two controls;

— a loudspeaker.

In case two participants use a unit, it shall have two microphone buttons.

5.2.3 Optional features

The unit can, among others, contain features of:

— a language distribution system;

— a metadata system;

— a voting system;

— a camera system;

— a display system;

— an identification/signing-in system;

— an electronic nameplate system.

5.2.4 Autonomy

If the discussion unit is wireless, its batteries shall have an autonomy of at least 12 h of fully burdened operation with all functions active.

5.3 Microphone management

Annex D specifies microphone operation and activation modes.

The system shall provide at least central and participant microphone operation modes.

The system shall provide at least request to speak mode and queue mode.

The system shall provide a feature to adjust the sensitivity of each microphone while in use.

5.4 Microphone routing

In order to allow for the creation of groups of microphones in the system, e.g. in order to direct them to a specific loudspeaker, it should be possible to route the audio signal of each microphone to one or more audio groups. Each audio group should have a dedicated audio output on the system.

5.5 Microphone processing

In order to improve the sound quality of each microphone according to its position or to the speaker's, each microphone can contain an individual audio processing capability.

6 Individual listening systems

6.1 General

An individual listening system may consist of a single earclip headphone, an in-ear headphone, headphones or an induction loop.

6.2 Earclip headphone

An earclip headphone shall have the following characteristics:

— mass: ≤40 g, excluding the cable and connector;

— ear contact pressure: ≤2,5 N;

— wearable on either ear;

— a lead no less than 80 cm long and terminating in a non-locking, TS mini-jack plug of 3,5 mm;

— if foam padding is provided, for hygienic reasons it shall be replaceable and the earclip headphone shall be wearable without it. A protective disposable cover on top of the foam padding may be used. The hard surface in contact with the ear shall be easily cleanable.

6.3 In-ear headphone

An in-ear headphone shall have the following characteristics:

— mass: ≤25 g, excluding the cable and connector;

— wearable in either ear;

— a lead no less than 80 cm long and terminating in a non-locking, TS mini-jack plug of 3,5 mm;

— for hygienic reasons in-ear headphones are recommended for personal use only.

6.4 Headphones

Headphones shall have the following characteristics:

— mass: ≤100 g, excluding the cable and connector;

— ear contact pressure: ≤2,5 N;

— headband or neckband: adjustable in length and sufficiently flexible to adapt to individual ear pressure requirements. It should not provoke perspiration;

— a lead no less than 80 cm long and terminating in a non-locking, TRS mini-jack plug of 3,5 mm;

— if foam padding is provided, for hygienic reasons it shall be replaceable and the headphones shall be wearable without it. Protective disposable covers on top of the foam padding may be used. The hard surface in contact with the ears shall be easily cleanable.

6.5 Individual induction loop

An individual induction loop shall comply with IEC 60118-4 and IEC 62489-1.

7 Sound reinforcement system

A sound reinforcement system may be integrated as a loudspeaker in the discussion unit according to 5.2.2 or stand alone.

A stand-alone system shall at least contain one or more amplifiers and one or more loudspeakers and can contain signal processors and an audio mixing device to balance and equalize sound levels. The system shall also ensure that sound is loud enough to be heard by the participants and the audience.

A sound reinforcement system shall be configurable to prevent echo and acoustic feedback from the loudspeakers into the microphones in the hall. The sound level of the loudspeakers shall be configurable

so as not to disturb the participants and the audience using a language distribution system with an individual listening system.

8 Interpreting system

An interpreting system may be integrated in or added to the conference system for the delivery of simultaneous interpreting services.

9 Language distribution system

A language distribution function may be integrated into the discussion unit according to 5.2.3 or stand alone.

A language distribution system shall distribute the floor and each interpreted language. It shall be digital and can be wired or wireless. If an infrared wireless system is used, it shall comply with IEC 61603-7.

Language distribution systems shall have the following characteristics:

— a selector to choose the floor or one of the interpreted languages;

— an indicator showing the selection;

— when language abbreviations are shown they shall comply with ISO 639-3;

— a control to adjust the sound volume of the individual listening system;

— in case an interpreted language is selected but no interpreting is provided, the system shall be able to provide the floor;

— in case the discussion unit is used by two participants it shall have two selectors and two indicators.

A wireless language distribution device shall weigh no more than 200 g; its batteries shall have an autonomy of at least 12 h.

10 Metadata system

The main function of a metadata system is to provide operational metadata to external systems.

If a conference system is interfaced with a third-party capturing system at least the active speaker's identity and the microphone activity shall be available.

11 Voting system

A voting function may be integrated in the discussion unit according to clause 5.2.3 or stand alone.

Such a system shall provide at least three alternative choices, e.g. “for” {yes}, “against” {no} and “abstain”.

The system shall allow the chairperson or operator to select, open and close the vote. After the vote is closed the totalized results shall be available to the chairperson, the operator, the participants and the audience. Individual and intermediate results may be shown.

12 Camera system

A camera may be integrated in the discussion unit according to clause 5.2.3 or stand alone.

A camera system shall capture the live image of the active speaker and an overview image of the meeting or conference hall.

Camera system behaviour is described in Annex E.

13 Display system

A display may be integrated into the discussion unit according to clause 5.2.3 or stand alone. Stand-alone displays may be located at the participant's seat or centrally as hall displays.

A display shall show the image of the active speaker or event-related information.

Displays should be non-reflective and legible at the intended viewing angle; reflections shall never decrease readability.

The projection to the hall display of the direct signal of images of a speaker present in the room shall not be delayed by more than 120 ms.

The characteristics of a display system are described in Annex F.

14 Identification/sign-in system

An identification/sign-in function may be integrated into the discussion unit according to clause 5.2.3 or stand alone.

An identification/sign-in system shall identify the participants at an event and may include a function to allow participants access to conference system features such as switching the microphone ON or OFF or voting.

Identification data may be used to display the participants' names through an electronic nameplate system.

15 Conference control system

A conference control system shall enable the operator and/or technician to monitor and control the functions of the conference system and all its parts in the conference hall, as dictated by the conference proceedings and by the chairperson.

A conference control system should contain an electronic synoptic display to control the microphones and to show their place.

Conference hall management and control equipment may be placed in a centralized control booth or room, or in a control booth next to the conference hall from which the operator and/or technician shall have a clear view of all proceedings, including the speakers and the displays.

In case of a temporary installation an interpreting booth according to ISO 4043 may be used.

16 Recording/archiving system

A recording/archiving system shall store audio from the floor for archiving purposes. It may also record interpreted languages, a video signal of a camera system, and metadata provided by metadata or voting systems.

Sound and image shall be synchronized. This means that sound shall neither lag image by more than 30 ms nor shall it lead it by more than 22,5 ms (see ITU-R BT.1359-1).

17 Webcasting system

A webcasting system shall make an event available to a wider audience across a network.

A webcasting system shall at least stream the audio from the floor. When applicable, it shall prevent unauthorized access. It may also stream interpreted languages, a video signal of a camera system, voting results, etc.

Sound and image shall be synchronized. This means that sound shall neither lag image by more than 100 ms nor shall it lead it by more than 25 ms (see ITU-R BT.1359-1).

18 Teleconferencing system

A teleconferencing system shall enable participants to take part in an event from a distant location.

A teleconferencing system shall at least transmit audio to and retrieve audio from the floor from the distant participant; the transmission can be extended with a video signal and metadata.

In case an interpreting system is used the teleconferencing system shall comply with ISO 20108.

Sound and image shall be synchronized. This means that sound shall neither lag image by more than 100 ms nor shall it lead it by more than 25 ms (see ITU-R BT.1359-1).

19 Combining of conference halls and distant connections

When connecting any audio sources from a distant location echo and audio feedback shall be prevented. This can be realized using the mix-minus mode according to Clause B.3

For a more convenient and centralized management, the control and voting signals between conference halls shall be combined.

In case interpreting systems are combined, the relay status of each interpreted language shall be synchronized between the connected locations.

20 Split rooms

If a conference hall is divided into two or more parts, the conference system should be able to manage all parts while effectively separating the discussion and listening and/or sound reinforcement systems in line with the division of the conference hall.

21 Diagnostics

Provisions shall be made available to assist with system diagnostics.

22 Interoperability

It should be possible to interconnect conference systems, for instance in accordance with AES67 and possibly with AES70.

Annex A
(informative)

Meeting and conference hall setups

A.1 General

Meeting and conference halls can be set up in the styles given in Clauses A.2 to A.6 or a combination thereof.

A.2 Meeting table style

A.2.1 General

The participants are seated at a table or tables and can actively contribute to the proceedings.

A.2.2 Boardroom style

Participants are seated at a round (see Figure A.1), oval (see Figure A.2) or rectangular (see Figure A.3) table with chairs set up around all sides and ends.

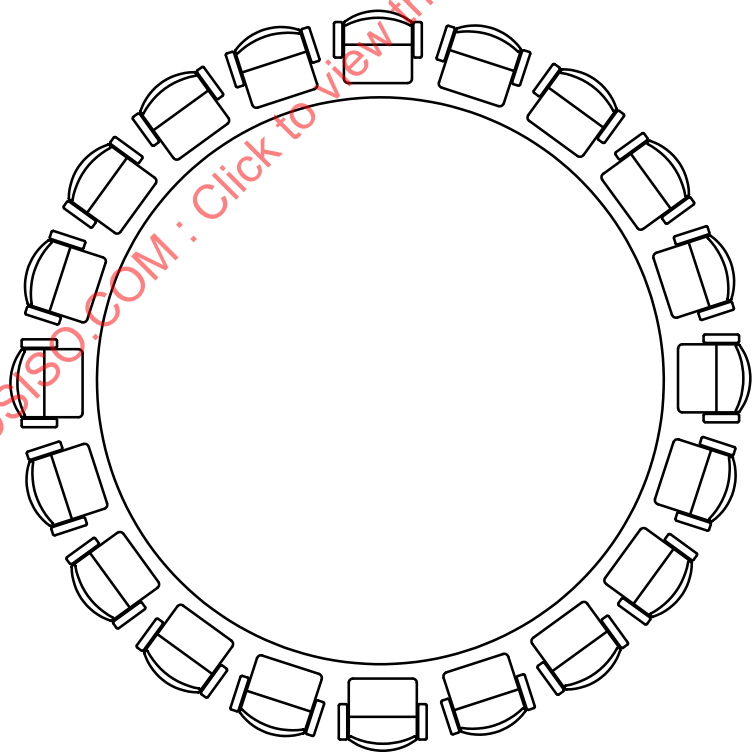


Figure A.1 — Round table

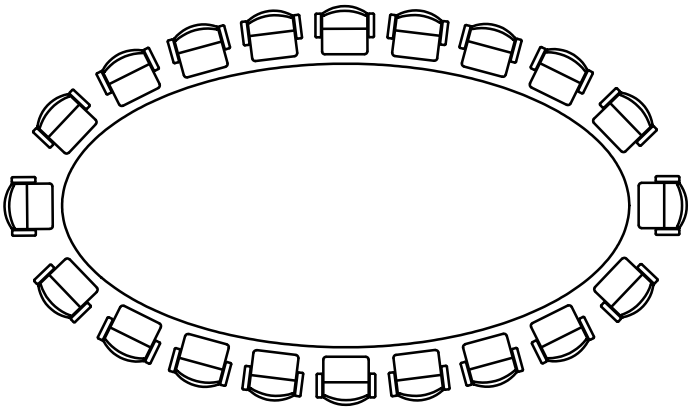


Figure A.2 — Oval table

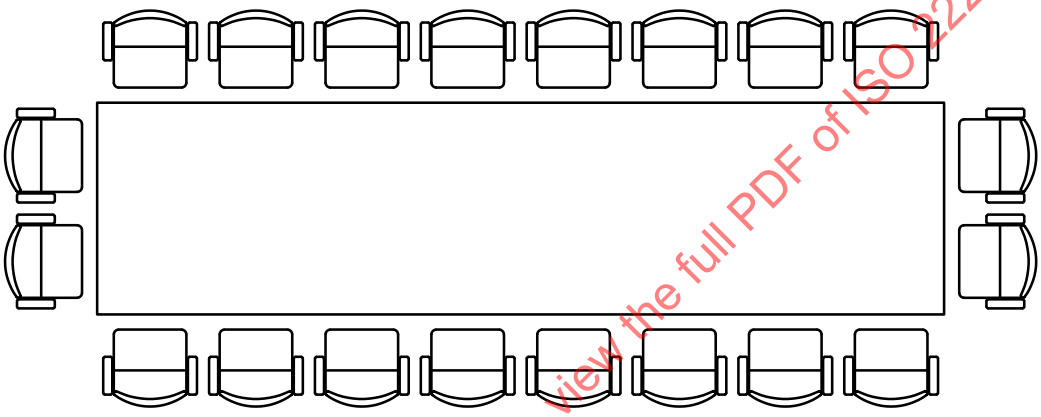


Figure A.3 — Rectangular table

A.2.3 Hollow style

Participants are seated at the outside of tables arranged in a square or rectangle or even octagon, leaving the centre open (see Figure A.4).

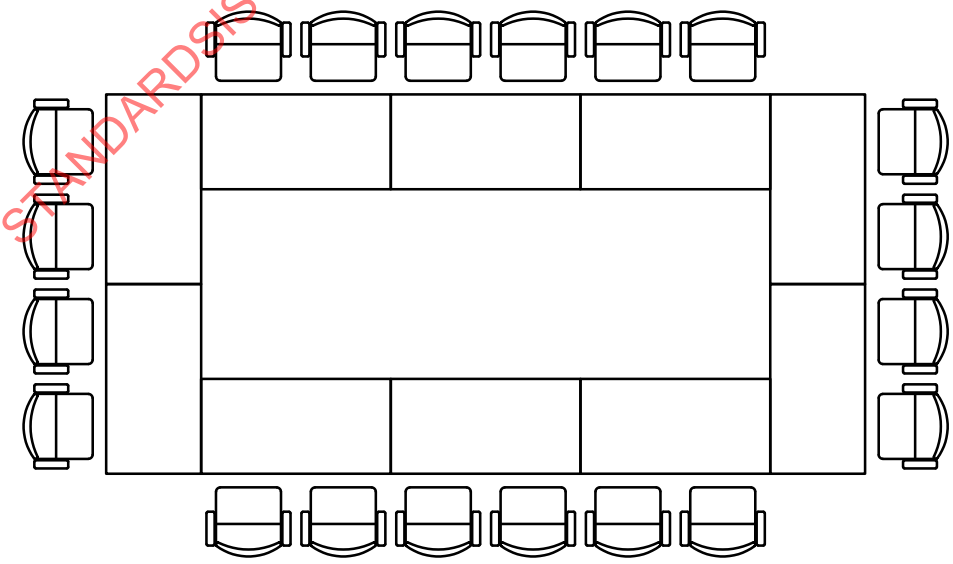


Figure A.4 — Hollow style

A.2.4 U-shape style

Participants are seated at the outside of tables set in the shape of the letter U (see Figure A.5).

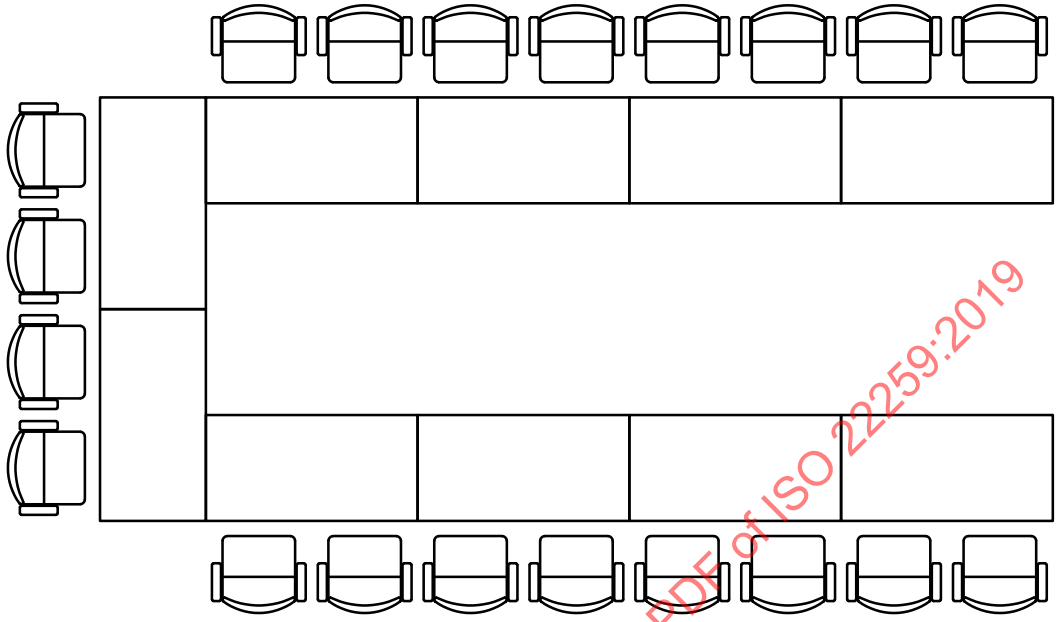


Figure A.5 — U-shape style

A.2.5 Comb-shaped style

Participants are seated behind a table or tables, which are placed perpendicularly to the head table (see Figure A.6).

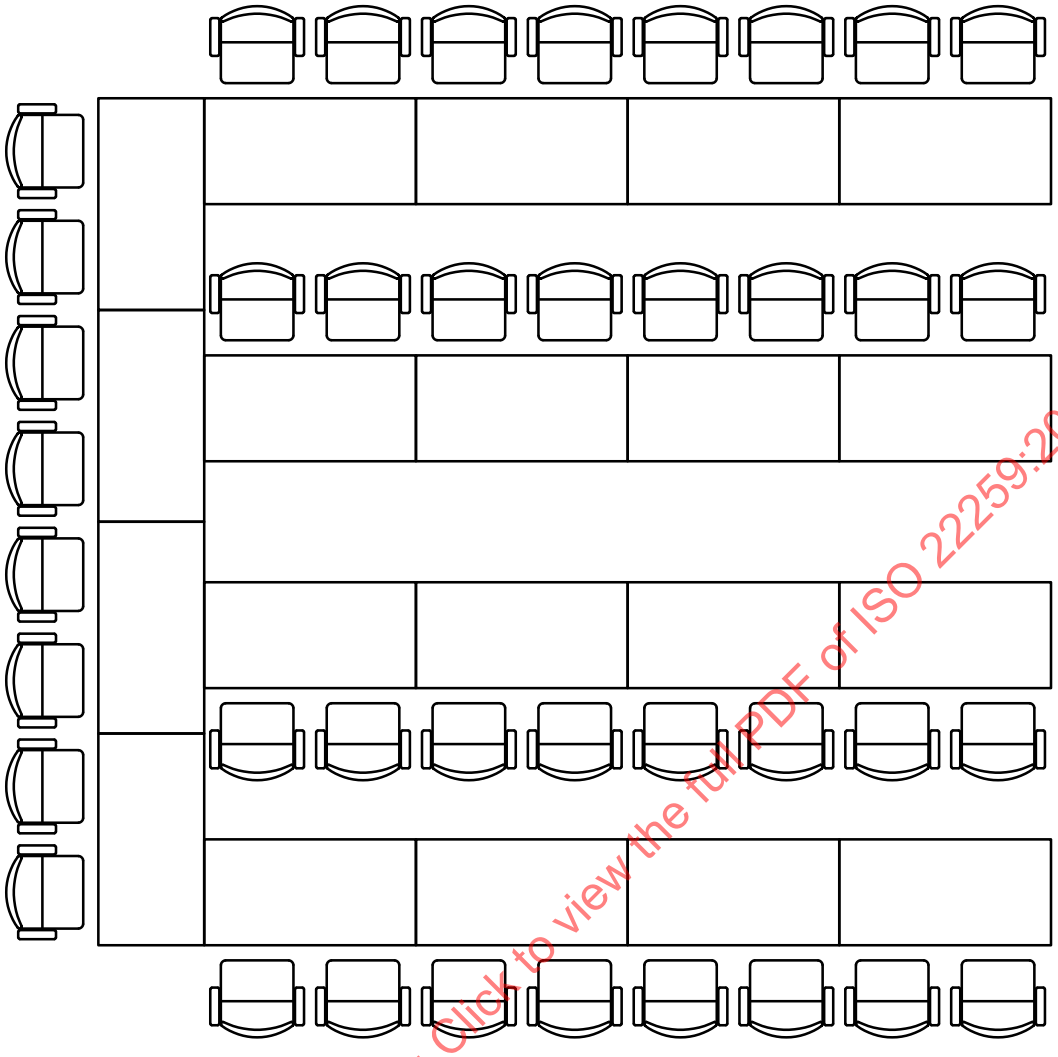


Figure A.6 — Comb-shaped style

A.2.6 Classroom style

Participants are seated at rows of tables facing the front of the hall and usually the speaker, providing writing space for each participant (see Figure A.7).

The speaker and/or the chairperson/panel/commission as well as the participants are able to actively contribute to the proceedings.

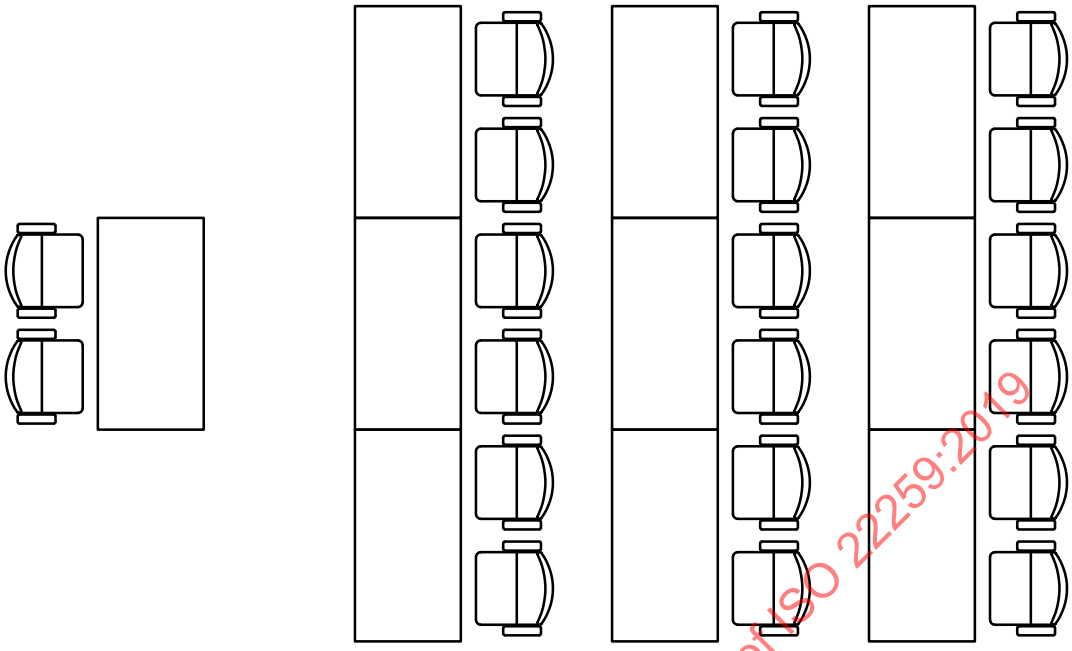


Figure A.7 — Classroom style

A.3 Conference/auditorium/press room style

The audience is seated in rows facing the front of the hall and usually the speaker.

A speaker delivers the speech from a stage, freestanding or behind a lectern or a table at the front of the hall. There may also be a table for a chairperson and/or a panel/commission (see Figure A.8).

The speaker and optionally the chairperson and/or the panel/commission are able to actively contribute to the proceedings.

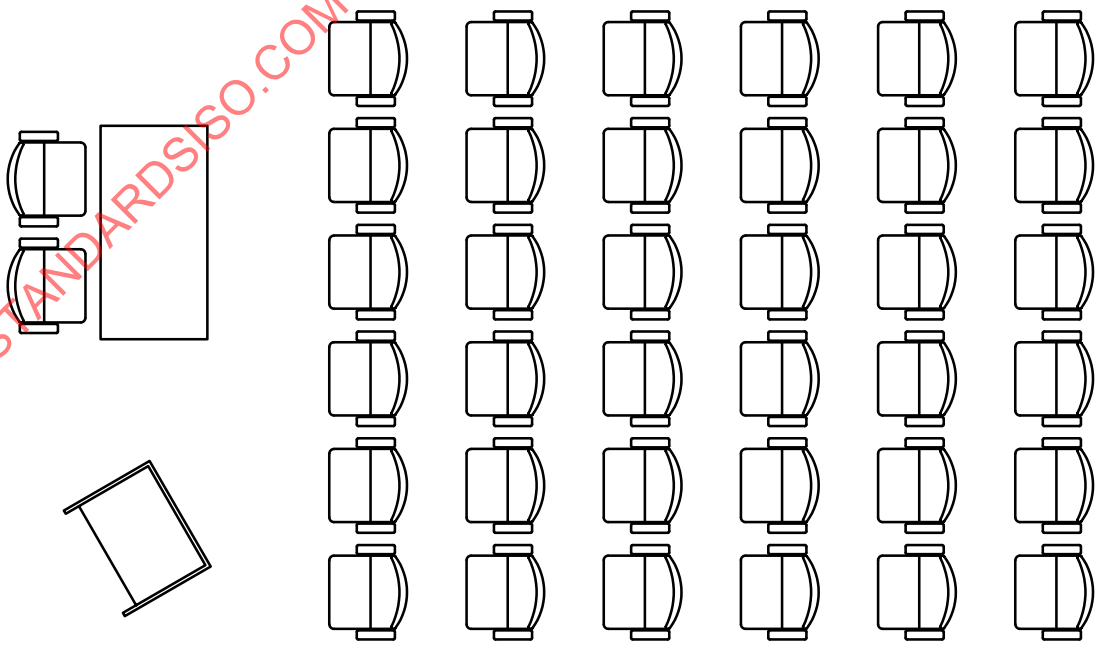


Figure A.8 — Conference/auditorium/press room style

A.4 Parliament/Council style

A speaker delivers the speech from a lectern at the front of the hall. The chairperson, with support staff, faces the audience and is able to actively contribute to the proceedings. The members of Parliament or Council are positioned facing the front of the hall and are able to actively contribute to the proceedings (see Figure A.9).

The audience is positioned facing the front of the hall.

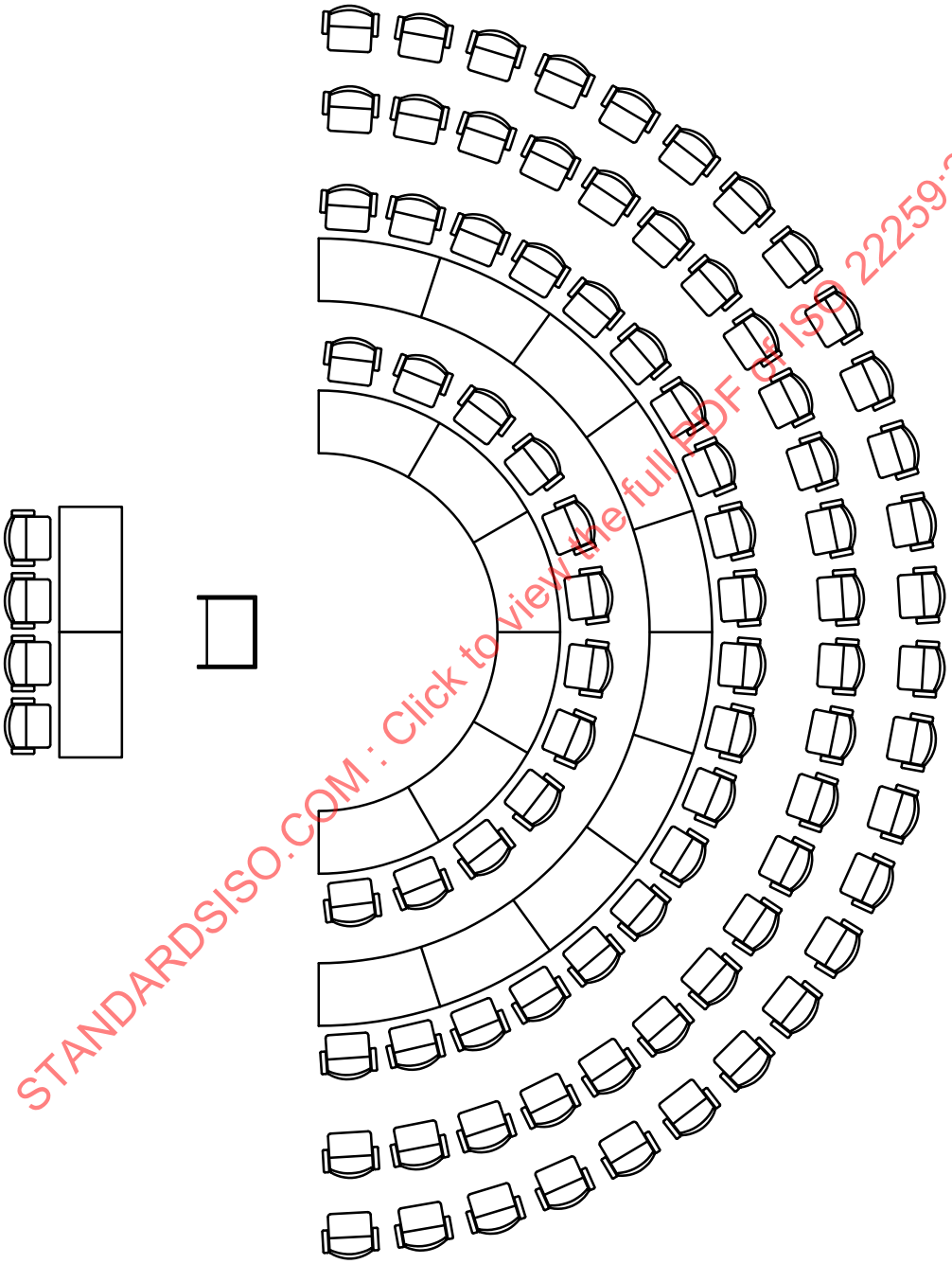


Figure A.9 — Parliament/Council style

A.5 Retreat session style

Participants are seated in easy chairs, with a small table at their side and can actively contribute to the proceedings (see Figure A.10).

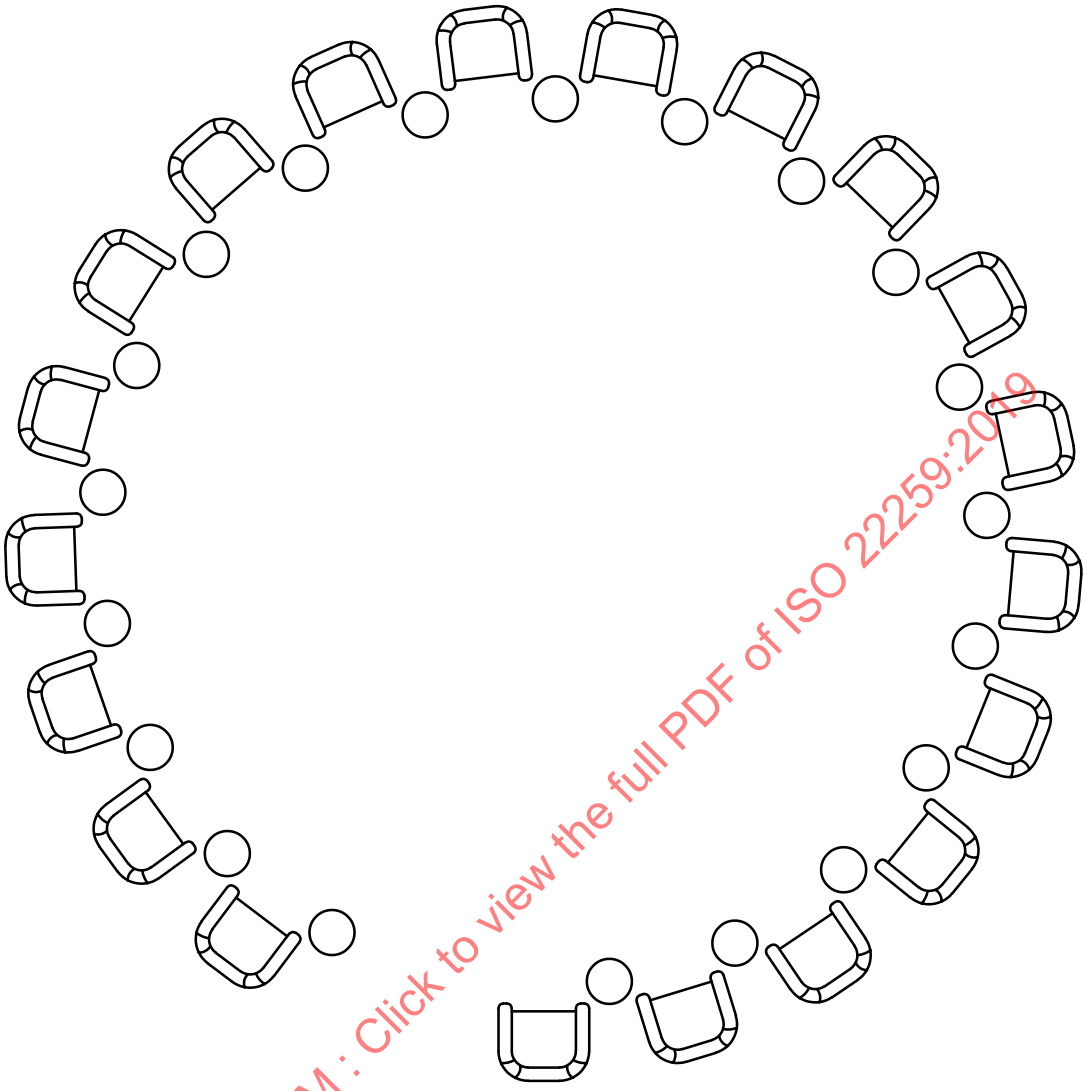


Figure A.10 — Retreat session style

A.6 Cluster/World café/knowledge café style

Participants are seated around multiple small tables and can actively contribute to the proceedings (see Figure A.11).

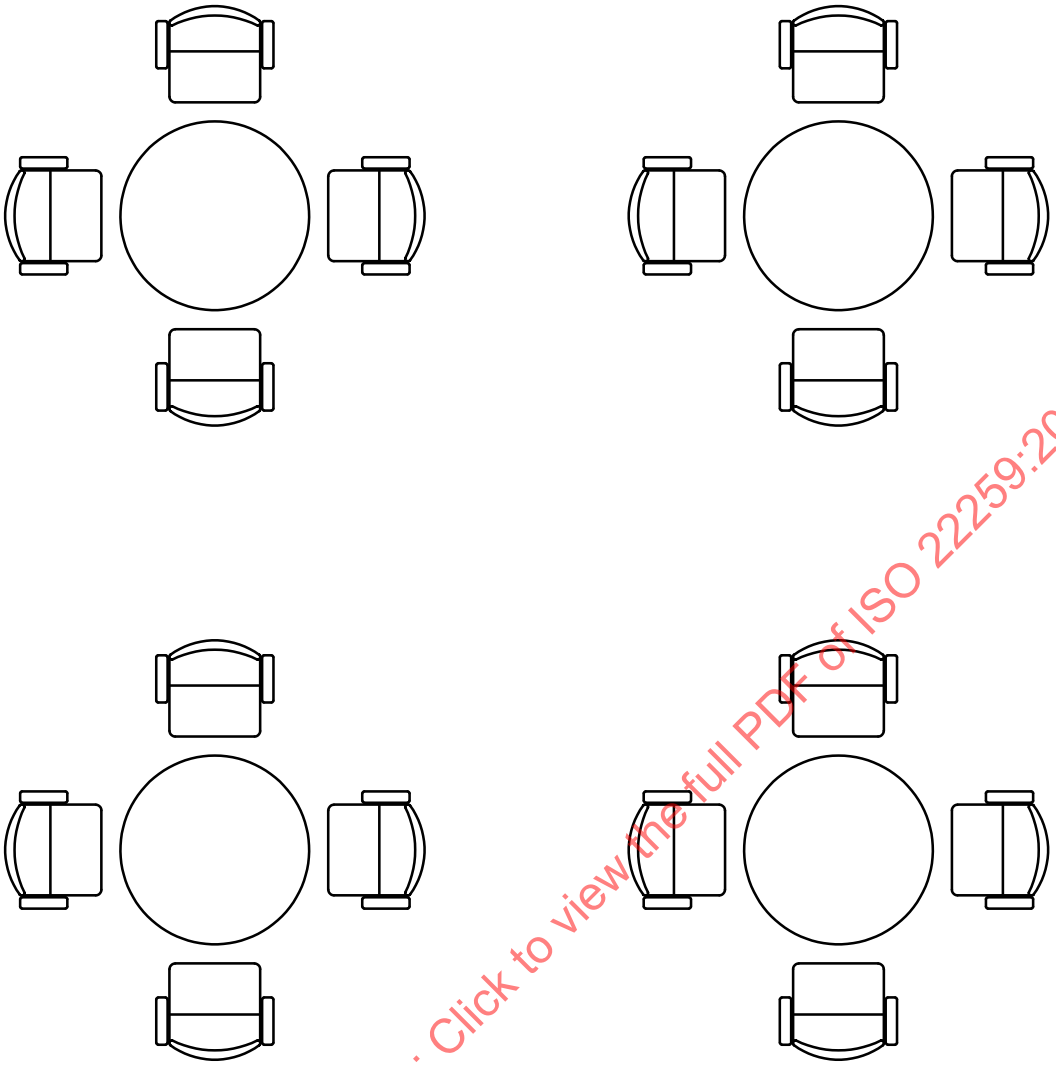


Figure A.11 — Cluster/World café/knowledge café style

A.7 Overflow/listening hall style

Audience which is unable to find room or is not allowed into the main/contributing meeting hall can follow the proceedings in an overflow/listening hall.

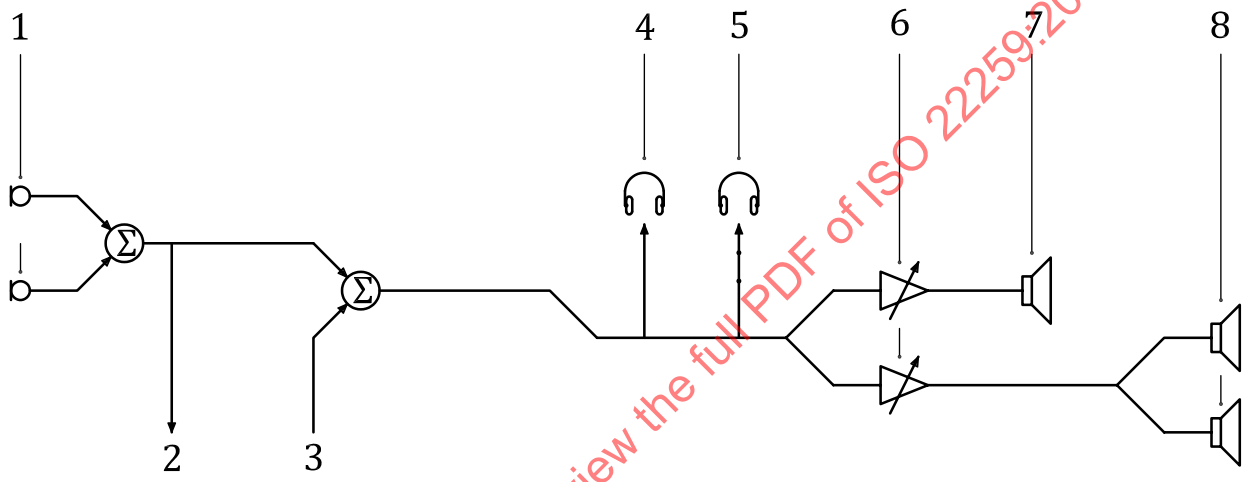
The audience will see a camera image of the speaker (talking head) and possibly presentations and/or of a teleconference from a distant site. In general the speaker is not able to see the audience in the overflow/listening hall, which is not able to interact with the speaker in the main conference hall.

Annex B
(informative)

Routing modes of a conference system

B.1 Basic mode

Figure B.1 shows an example of the basic mode of a conference system.



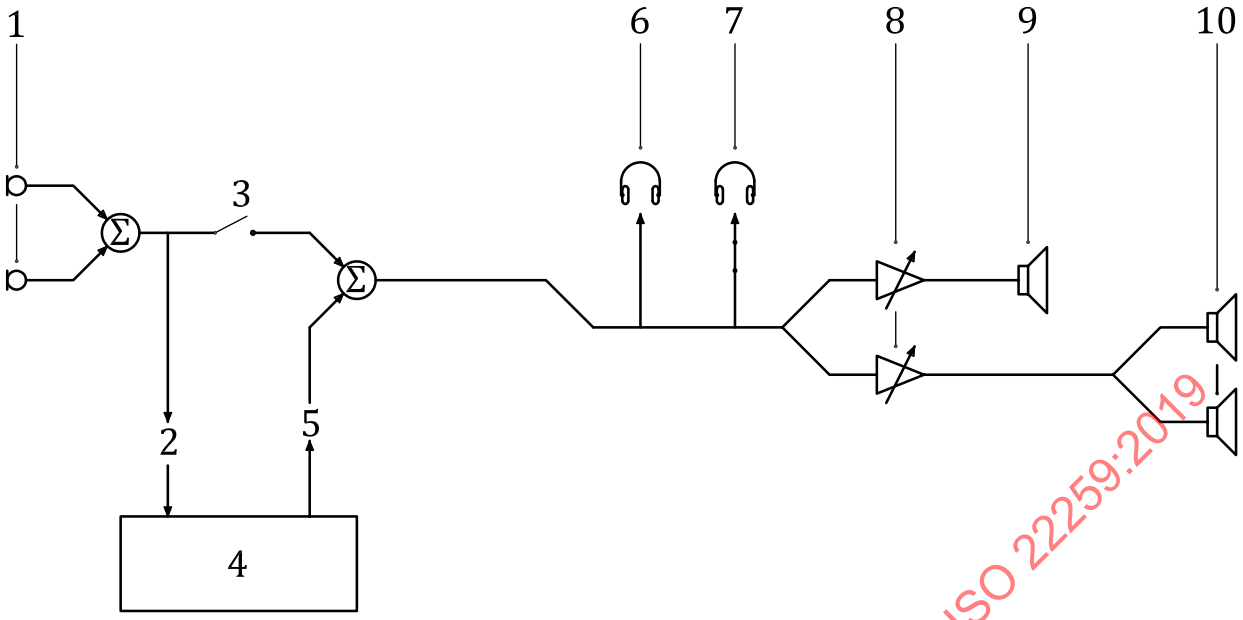
Key

1 discussion system microphones
2 primary floor output
3 auxiliary input
4 participant floor output
5 interpreter floor output
6 volume controls
7 sound reinforcement system
8 discussion unit loudspeakers

Figure B.1 — Basic mode

B.2 Insertion mode

Figure B.2 shows an example of the insertion mode of a conference system.



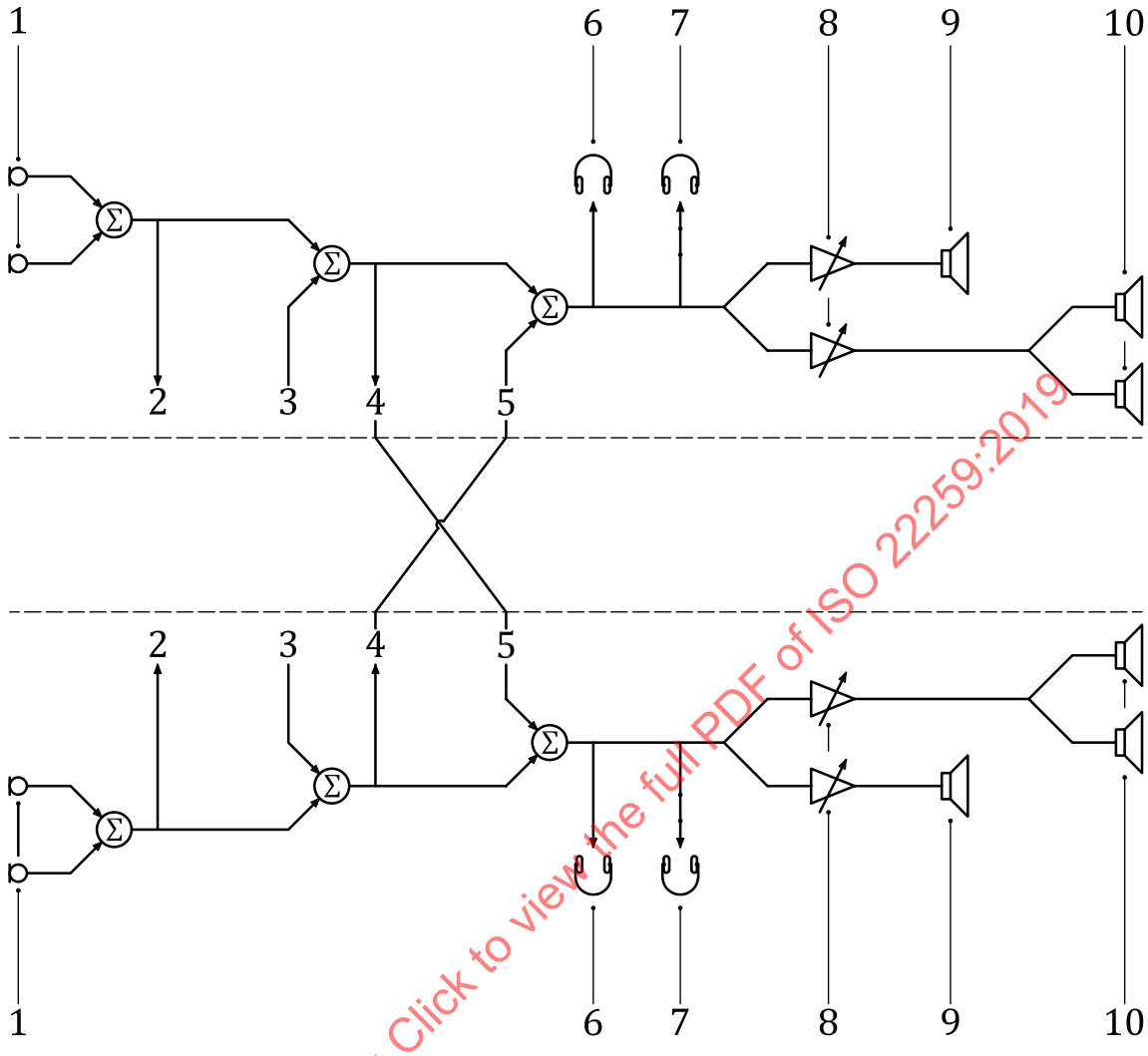
Key

1 discussion system microphones
2 primary floor output
3 switch
4 audio processing device
5 auxiliary input
6 participant floor output
7 interpreter floor output
8 volume controls
9 sound reinforcement system
10 discussion unit loudspeakers

Figure B.2 — Insertion mode

B.3 Mix-minus mode

Figure B.3 shows an example of the mix-minus mode of a conference system.



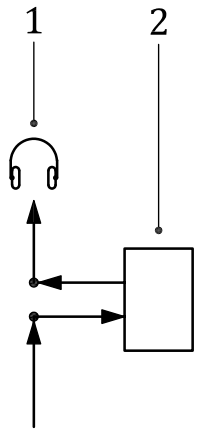
Key

1 discussion system microphones
2 primary floor output
3 auxiliary input
4 sum floor output (to distant site)
5 auxiliary input (from distant site/mix-minus input)
6 participant floor output
7 interpreter floor output
8 volume controls
9 sound reinforcement system
10 discussion unit low-level loudspeakers

Figure B.3 — Mix-minus mode

B.4 Interpreter output insertion mode

Figure B.4 shows an example of the interpreter output insertion mode of a conference system.



Key

1 interpreter floor output
2 audio processing device

Figure B.4 — Interpreter audio insertion mode

Annex C
(informative)

Modes of mounting conference systems

C.1 Flush-mount

A flush-mount/integrated device is mounted into a hole made into a surface like a conference table.

C.2 Tabletop

A tabletop/surface mounted/freestanding device is put/mounted on top of a surface like a conference table.

C.3 Permanent system

Cabling is fixed; the conference equipment is flush-mount or tabletop.

C.4 Semi-permanent system

Cabling is fixed; the conference equipment is tabletop.

C.5 Portable system

Cabling is portable; the conference equipment is tabletop.

Annex D
(normative)

Microphone management

D.1 Modes of operation

D.1.1 General

The system shall include a mode in which the control of the participants' microphones is managed centrally and modes allowing the participants to control their own microphones.

The chairperson's microphone should always switch ON when the microphone button is pressed.

D.1.2 Central management

D.1.2.1 General

In general, central management is used for meetings that need to be managed by a chairperson or by an operator who is delegated by the chairperson.

D.1.2.2 Request to speak mode

A participant can request the floor by pressing the microphone button; the participant is placed on a queue list. The chairperson or the operator is required to activate the participant's microphone.

D.1.3 Participant management

D.1.3.1 General

This mode allows participants to activate their own microphones.

Participant management shall support the modes described in D.1.3.2 and D.1.3.3.

D.1.3.2 Queue mode

In queue mode a predefined number of microphones can be ON at the same time.

A participant requests the floor by pressing the microphone button. As long as the predefined number of microphones ON is not reached, the participant's microphone is switched ON and the participant can contribute the speech to the floor. As soon as the predefined number of microphones ON is reached the participant is placed in a queue and shall wait until the number of microphones ON falls below the predefined number. Then the microphone of the first participant in the queue is automatically switched ON.

The participant can leave the queue by pressing the microphone button or switch the microphone OFF.

D.1.3.3 Cut-off mode

In cut-off mode a predefined number of microphones can be ON at the same time.

A participant requests the floor by pressing the microphone button. The participant's microphone is switched ON and the participant may contribute the speech to the floor. As soon as the predefined