



Self Help for Hard of Hearing People



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Information Sheets

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Information Sheet Number 10

ASSISTIVE LISTENING SYSTEMS IN PUBLIC PLACES

It has been gratifying to people with a hearing impairment to observe the increasing trend in recent years in the installation of Assistive Listening Systems (ALS) in cinemas, theatres, public meeting rooms, churches and other centres where groups of people gather. The installation of an appropriate ALS provides a means of delivering clear sound at adequate listening levels to people with a hearing loss who are affected by distance from the source (e.g. speaker or vocalist), background noise and reverberation (echo). It helps them to understand speech and enjoy music and other significant sounds during movies, stage performances and other presentations. Many people using an ALS with their own hearing aids will usually hear better in these situations and some will be entirely dependent on it.

ALS are divided into two main types – wireless and hardwired – and can be used in large areas (e.g. lecture and concert halls) or in interpersonal situations such as small group discussions, banks and ticket offices.

WIRELESS SYSTEMS

In wireless systems, there is no wire between the unit that picks up the sound and the unit that delivers into the ear(s).

There are three ALS wireless technologies available:

- Audio Induction Loop Systems
- Infra-red Listening Systems
- Frequency Modulation (FM) Listening Systems.

An **Audio Induction Loop System** comprises a cable installed in the form of a loop, usually around the perimeter of the room in which the facility is to be provided. The cable is connected via an amplifier to one or more microphones or other sources of sound signals. The amplifier produces an audio-frequency electric current in the induction loop cable, creating a magnetic field. This magnetic field is a reproduction of the signal feeding the amplifier and can be picked up by an individual wearing a hearing aid fitted with a T switch (telecoil) or by using a small loop receiver. The system is suitable for use in ticket offices, banks, cinemas, churches, meeting rooms and similar situations.

An **Infra-red Listening System** utilises infra-red light waves to transmit the sound signal from a public address system or other sound source directly to the personal receiver used by the listener. All infra-red systems have three basic components: modulator, emitter and receiver; the first two are often combined. The areas served range from small meeting rooms to large cinemas and auditoriums. Two types of battery operated receivers are available for a range of hearing impairments.

A **FM Listening System** is an FM radio transmitter-receiver combination. The desired signal (speech, music, etc) is 'broadcast' to the listener in the audience, who picks up the signal with a special FM radio receiver tuned to the transmitting frequency. This system is also suitable for small meeting rooms, theatres, etc, but is capable of serving much larger areas associated with entertainment centres and sports grounds. Some receivers are preset to a factory-selected fixed channel; others may be tuneable receivers which can be set to any one of 8 or 10 channels for use in locations where several transmitters are broadcasting on different channels.

CHOOSING AN ASSISTIVE LISTENING SYSTEM

In the selection of an appropriate ALS, the advantages and disadvantages of each system must be considered.

- The ALS must be usable by people who do not have hearing aids and by people who do have aids with or without a T switch (telecoil) or audio input
- The frequency response and the adjustable volume of the receivers needs to be suitable for people with varying degrees of hearing loss
- The equipment must be safe and easy to manipulate with the hygiene of reusable earpieces on receivers ensured
- The equipment chosen must not be subject to interference from or cause interference to other equipment or interfere with the listening enjoyment of other people.

Audio Induction Loop System

Advantages

- Audio Induction Loop Systems can be portable or permanently installed in a room or part of a room
- A person wearing a hearing aid fitted with the T switch (telecoil) can directly use audio induction loop systems without additional equipment
- Any number of hearing aids or receivers can be used
- Seating within the loop is generally unrestricted.

Disadvantages

- This system may be subject to interference from other ambient electromagnetic currents from fluorescent lights or high-voltage lines
- A person with a hearing aid using a T switch (telecoil) or loop receiver may pick up the sound outside the room in which the loop is installed
- Systems in nearby rooms may interfere with one another
- The system is usually unsuitable if privacy is an issue
- Receivers will need to be made available for people who do not have a hearing aid which is equipped with a T switch (telecoil).

Infra-red System

Advantages

- Transmission is confined inside opaque walls
- Any number of systems may be used in adjacent auditoriums without spillover
- A secure transmission is provided if privacy is an issue
- It is unaffected by external radio interference and cannot cause radio interference
- The same receiver will work in any auditorium and pick up the correct program
- Any number of receivers can be used

- It generally allows unrestricted seating.

Disadvantages

- Transmitter placement is very important
- Persons or other obstructions can block the infra-red transmission
- Infra-red cannot be used in strong sunlight (outdoors)
- Receivers will need to be made available for people with hearing impairment.

FM System

Advantages

- Multiple channels are available for multiple auditoriums
- The channels can be changed to avoid radio interference
- The FM receiver "capture effect" can be used to minimise the number of channels needed for multiple auditoriums
- Multi-channel receivers are available to simplify receiver management
- Any number of receivers can be used
- It generally allows unrestricted seating
- Persons or other obstructions will not block the transmission
- FM is portable and easy to install and can be used in strong sunlight (outdoors).

Disadvantages

- FM can be affected by external radio interference
- There is a limited number of channels available
- The receiver must match the transmitter channel being used
- Receivers can pick up other auditoriums; with multi-channel receivers the user can select the wrong channel
- The system is usually unsuitable if privacy is an issue
- Receivers will need to be made available for people with hearing impairment.

HARDWIRED SYSTEMS

These require a direct connection between the sound source (e.g. microphone, amplifier or TV set) and the listener; the distance is limited only by the length of the cord or wire. The receiving device may be headphones, a neckloop (which requires a hearing aid with a T switch or telecoil) or direct auditory input into a hearing aid.

Some cinemas currently offer a headphone socket located in a designated seat.

SUGGESTIONS FOR THE PERSON WITH A HEARING IMPAIRMENT

- Before attending a venue where you will need an ALS, contact the management about the availability of such a service. Check whether a suitable receiver will be provided.
- On arrival, and after obtaining the receiver, inquire if the ALS has been switched on. Ask whether you have to be seated in a particular section.
- If the system is not working satisfactorily, tell the staff.
- If the service, all told, was to your satisfaction, compliment the management.
- Each venue that provides an ALS should display the blue "ear" symbol (the International symbol for Hearing Help Available); its purpose is to indicate to the community that an ALS is available. A check could be made of prospective venues in the local area.

SUGGESTIONS FOR VENUE MANAGEMENT

Information

A general coverage of the characteristics, installation and operation of audio loop systems and a list of companies involved in design and supply is given in SHHH Information Sheet No 11: *Audio Loop Systems in Public Places*. In particular this sheet mentions the Australian Standards pertaining to the system and a British Standard code of practice which, although specifically concerned with audio loop systems, contains a lot of advice on installation and operation applicable to each of the three technologies discussed above.

Specialised acoustical advice may be obtained from the acoustic consultants listed in the above-mentioned information sheet.

Operation

Staff must be trained in procedures of operating the system including routine testing and maintenance. Remember that training must be on-going to cover changes in staff. Providers should be asked how best to test the system when the system is purchased.

Arrange for prominent displays of the international 'ear' symbol as seen in the upper right hand corner of the first page of this Information Sheet. The traditional colour should be blue. The sign is to let people know that an ALS is available. Such signs are sometimes supplied by installers or can be obtained from SHHH Australia in either an adhesive back or adhesive front version for displaying behind glass.

THE DISABILITY DISCRIMINATION ACT (DDA) 1992

This Federal legislation was designed to ensure that all people had access to all public buildings and whatever facilities, services or presentations were available within these buildings. The enforceable part of the legislation will be spelled out in various Standards. Progress on the details of these Standards has been slow but the general attitude to provide better access for all people with disabilities, including hearing impaired people, has greatly improved. Contact the SHHH office (see contact details on the letterhead above) to receive up to date information