

# LARGE AREA ASSISTIVE LISTENING SYSTEMS FOR INDIVIDUALS WHO ARE HARD OF HEARING

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## I. LARGE AREA ASSISTIVE LISTENING SYSTEMS: REVIEW AND RECOMMENDATIONS

<http://www.access-board.gov/research&training/ALS/alsreport.htm>

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## II. ADA Compliance

- There are regulations that require public accommodations to provide equal access to individuals that are Deaf and Hard of Hearing. Some examples of equipment that can be required: pay phone TTY, Closed Caption, strobe smoke detector, amplifier, visual telephone ringer, and personal amplifier.

## III. Assistive Listening Devices

- Assistive Listening Devices are designed to help people hear better in a variety of difficult listening situations. Listening in groups, meetings, restaurants, lectures, theaters, or in one-on-one conversations is not only affected by noise but also by the distance between the speaker and the listener. ALD's can bring the sound directly to your ears without increasing background noise and can be used with or without hearing aids. Assistive Listening Devices include Personal, FM, Infrared, Loop, and Television Systems.
1. **FM Assistive Listening Systems** use a specific radio frequency (generally 72-76 MHz) to carry sound from the transmitter to the receiver. The sound source can be either a microphone or audio input. FM systems are the most versatile since they are portable. Both the user and speaker have complete mobility. Ideal for classrooms and meetings.
  2. **Infrared Assistive Listening Systems** use invisible infrared light waves to carry sound from the transmitter to the receiver. Infrared systems are considered to be line-of-sight devices often used in theaters, courtrooms, and meetings. The

infrared system uses a single transmitter and one or more receivers, which must be on the same channel (95 KHz, 250 KHz and 2.3 MHz). The receiver converts the infrared light waves back into sound, which then can be amplified.

3. **Loop Assistive Listening Systems** use a wire antenna "loop" that surrounds a room. A transmitter circulates a signal through the loop wire creating a magnetic field. Hearing aid users switched to "t-coil" will pick up the signal when they are within the "looped" area.

#### **IV. What Exactly Is CART?**

- Communication Access Realtime Translation (CART) is the instant translation of the spoken word into English text using a stenotype machine, notebook computer and realtime software. The text appears on a computer monitor or other display. This technology is primarily used by people who are late-deafened, oral deaf, hard-of-hearing, or have cochlear implants. Culturally deaf individuals also make use of CART in certain situations. Please keep in mind that CART is also often referred to as realtime captioning.
- The Americans with Disabilities Act specifically recognized CART as an assistive technology which affords "effective communication access." Thus communication access more aptly describes a CART provider's role and distinguishes CART from realtime reporting in a traditional litigation setting.
- Communication Access Realtime Translation is an evolving and maturing profession, and the available technology associated with CART is rapidly advancing. Consequently, the information and guidelines listed here will be updated from time to time. Please check in often.

#### **GLOSSARY**

ADA (Americans with Disabilities Act): Federal legislation that impacts accessibility for people with disabilities in the areas of employment, public services, public accommodations, and telecommunications.

American Sign Language: A language communicated by signs, expressions, and gestures with its own syntax and grammar, used primarily by people who are deaf. (Sign Language: A method of communication in which hand movements, gestures, and facial expressions convey grammatical structure and meaning. Primarily used by individuals who are deaf or hard of hearing.)

Assistive Listening Devices (ALD's): Amplification systems designed to help people hear better in a variety of difficult listening situations.

Assistive Devices: Products to assist people with needs in the areas of hearing, vision, speech, mobility, and more.

Audio Loop: An assistive listening device that enhances the use of hearing aids with telecoils; used in schools, theaters, religious places, and public buildings and auditoriums  
Assistive Listening Devices (ALD's): Amplification systems designed to help people hear better in a variety of difficult listening situations.

Assistive Devices: Products to assist people with needs in the areas of hearing, vision, speech, mobility, and more.

Captioning: A text display of spoken words presented on a television or movie screen that allows a viewer to follow the dialogue and the action of a program simultaneously. Most commonly used by individuals who are deaf or hard of hearing.

Deaf: Hearing loss that is severe enough to make it hard for a person to understand speech through hearing.

Digital: A radio channel that transmits voice in digital form. Voice data is encoded as a stream of information bits before being converted to a radio signal. After reception, the data is decoded back into sound.

FM System: An assistive listening device that has a transmitter and one or more receivers, which uses a specific radio frequency (generally 72-76 MHz) to carry the sound from the transmitter to the receiver worn by the listener. It is wireless and is useful in classrooms or meeting areas since the signal can pass through physical

Hard of Hearing: A partial hearing loss ranging from mild to severe.

Hearing Aid Compatible (HAC): A product or device that incorporates a telecoil. These products or devices are compatible with hearing aids that have telecoils. Note: Not all telecoils in hearing aids are the same. Strength and method of installation may vary.

Infrared Systems: Assistive listening devices which use invisible infrared light waves to carry the sound from the source (microphone or audio feed) to a receiver. The receiver converts the infrared light back into sound and then can amplify the sound. This type of device is useful in places like theaters and courtrooms as the signal cannot travel through physical obstructions such as walls and it ensures privacy.

Real-Time Captioning: On-line captioning for television screens and monitors giving the printed speech of live speakers.

Telecoil: The telecoil, also called the "t-switch" or "t-coil", is a small, coiled wire inserted into a hearing aid. The telecoil reacts to electromagnetic waves produced by an amplified sound source, like a telephone or microphone, by creating an electrical current in its wires. The electrical signal is then amplified by the hearing aid and converted to sound. The sound is transmitted directly into your ear. Other room noises are eliminated when the telecoil is turned "on".