



# The ADA is More than Wheelchair Ramps: Meeting the ADA Compliance Changes for Assistive Listening Systems

by Cory Schaeffer

## **Learning Objective:**

- Learn about the ADA regulations for Assistive Listening Systems.
- Learn about the technology used for Assistive Listening in a venue.
- Understanding what facilities are required to utilize Assistive Listening Systems.
- Learn how many Americans are affected by hearing loss.

It can be difficult to accept from today's perspective, but not very many years ago it was legally permissible for a person to be denied service because of a disability. It may not have been an individual's intent, a certain building may not have been able to accommodate the person with a disability, but discrimination was taking place nonetheless. Then, in July of 1990, the landmark Americans with Disabilities Act was passed by congress. It was the nation's first comprehensive civil rights law addressing the needs of people with disabilities by prohibiting discrimination in employment, public services, public accommodations, and telecommunications.

An individual is considered to have a "disability" and is protected by the ADA if he or she has a physical or mental impairment that substantially limits one or more major life activities, has a record of such impairment, or is regarded as having such impairment.

Major life activities include, among other things, walking, seeing, hearing, speaking, breathing, learning, and working. To be substantially limited means that such activities are restricted in the manner, condition, or duration in which they are performed in comparison with most people.

## **Hearing Loss, "The Invisible Disability"**

Most architects are familiar with the ADA requirements for wheelchair ramps and Braille in the elevators, on doors, and so on; however, recent changes to the laws related to providing assistive listening solutions for those with hearing loss (which is a much more pervasive disability than many would realize), need to be understood. An Assistive Listening System leverages technology to provide those who are hard of hearing with an enhanced audio experience for increased communication and understanding.

To put the need for assistive listening systems into perspective, people with a visual disability, who benefit from Braille in buildings, make up less than one percent of the population. People with a physical disability, requiring a wheelchair or other mobility device, number about two percent of the population. Conversely, 17 percent of American adults report some degree of hearing loss. Hearing loss is the reduced ability to hear sound and may be caused by various reasons including congenital loss, an illness the effects of aging, an injury, or progressive loss over time due to excessive or prolonged exposure to loud noise. It is important to note that as people age everyone experiences some degree of hearing loss.

## **Updates to the ADA Law**

As of March 15, 2012, the new standards that replaced the 1990 Americans with Disabilities Act provisions for accessibility became the law and are now mandatory for all new construction and alterations. The following are brief highlights of the changes to the ADA requirements for assistive listening systems, and some of the technologies to meet the new guidelines.

These changes apply to the following:

1. An Assistive Listening System needs to be provided in assembly areas where audible communication is integral to the use of the space. This means that essentially any space where people gather, whether it's a boardroom, a banquet hall, a classroom or a movie theater, the space is required to have an assistive listening system.
2. Assistive Listening is required to be provided where there is amplified sound. If there is a microphone and/or speakers, there needs to be an assistive listening system.
3. In the original standards, the number of Assistive Listening devices was 4 percent of seating capacity. This proved to be prohibitive. With the new standards, the number of receivers has been scaled to match the total occupancy of the venue. (See chart below.)
4. Receiver Hearing-Aid Compatibility: A percentage of receivers (25%) are required to be hearing-aid compatible shall interface with tele-coils in hearing aids. This is accommodated via a neck loop with RF or IR assistive listening systems.

### Assistive Listening for Public Facilities

Places of public accommodation that must comply with ADA requirements include restaurants, hotels, theaters, convention centers, retail stores, shopping centers, dry cleaners, Laundromats, pharmacies, doctors' offices, hospitals, museums, libraries, parks, zoos, amusement parks, private schools, day care centers, health spas, and bowling alleys.

Commercial facilities are required to comply with ADA - they include office buildings, factories and warehouses whose operations affect commerce.

In section '219.2 Required Systems' the ADA states "In each assembly area where audible communication is integral to the use of the space, an Assistive Listening System shall be provided". EXCEPTION: Other than in courtrooms, assistive listening systems shall not be required where audio amplification is not provided. (All courtrooms are required to have assistive listening systems.)

Assembly areas are also required to provide signs informing patrons of the availability of the Assistive Listening System. Assistive Listening signs "shall include the International Symbol of Access for Hearing Loss complying with 703.7.2.4."

### Assistive Listening Systems

The ADA defines an Assistive Listening System as: "An amplification system utilizing transmitters, receivers, and coupling devices to bypass the acoustical space between a sound source and a listener by means of induction loop, radio frequency, infrared, or direct-wired equipment."

Three types of technologies are used to deploy an Assistive Listening System: RF (radio frequency), IR (infrared) and IL (induction loop). Each of these technologies takes a different approach to arrive at the same result: the audio source (i.e. a speaker's voice) is transmitted wirelessly to a personal receiver or directly to a compatible hearing-aid. For the hearing impaired, this creates a situation where the ambient noise and reverb is blocked out and the source is directly and clearly delivered to the ear. It does not simply increase the volume; all that would do is increase noise. The purpose is to focus the signal, content and clarity, which increases communication and understanding.

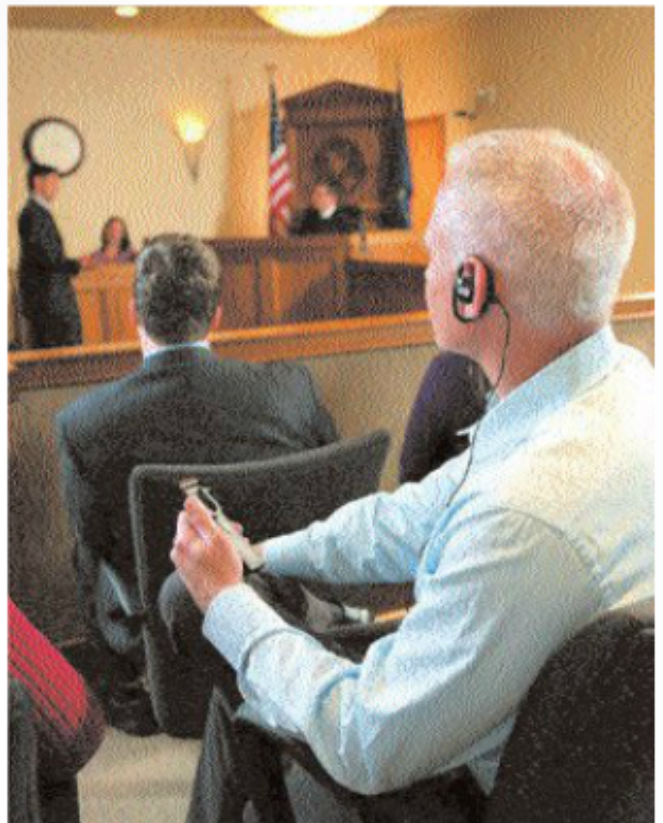
### Radio Frequency System

In an RF Assistive Listening System, the signal is transmitted over radio frequencies (specifically the FCC mandated 72 and 216 MHz bands) to a personal receiver. The advantage of RF technology is that there are no "line-of-site" issues and the technology can cover a wide area, both indoors and outdoors. This technology uses an antenna to transmit, the placement of the antenna is critical to the performance and range of an RF system. Ideally for optimum range, the antenna should be in the general vicinity of the receivers. The transmitter can be installed anywhere in a space, however the antenna should be high up and in the area of where the receivers will be used. An RF Assistive Listening System is typically the least expensive system to purchase and install. For users with a hearing aid that have tele-coil (T-Coil) capabilities, a personal neck loop can be used with the personal RF receivers. The audio signal is transmitted via magnetic field to the user's hearing aid, therefore using the actual hearing aid as the receiver to the ear.

### Infrared System

An IR Assistive Listening System uses infrared light to transmit audio, much like a television remote control. The advantage of IR technology is that the system is secure and you can be confident that the audio signal will never leave the room that the system is used in. Light cannot transmit through walls. The biggest challenge of IR technology is that the listener should be within "line-of-site" to the emitter/radiators. To achieve maximum range and coverage of an IR system, emitter/radiators need to cover the listening area. This may require multiple emitter/radiators. The shape of the room, the coverage and line-of-site requirements usually necessitate more thought and consideration on the installation than an RF assistive listening

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system. The height of the emitters/radiators is a critical consideration as well. For users with a hearing aid that have T-Coil capabilities, a personal neck loop can be used with the personal IR receivers as well.

### Induction Loop

In an Induction Loop (or Hearing Loop) Assistive Listening System, an integral wire connected to a loop driver is installed around the venue room in a variety of ways; creating an induction field that can be picked up by hearing aids with a T-Coil. Many venues and users alike enjoy this type of an assistive listening system because the users' disability is invisible as they simply use their hearing aids to receive the audio signal. There is no need to ask for a receiver or to wear something that draws attention to their hearing disability. Loop receivers can be added to an induction loop system to accommodate those that do not have a T-coil hearing aid or for those that do not wear a hearing aid.

Hearing loops are becoming more pervasive because the signal is fed directly into the person's hearing aid—no headphones or other listening devices are required. If loops are used they accommodate the requirement to be hearing aid compatible, however to be totally compliant they will need to include loop receivers. (See table 219.3).

### Early Design of Assistive Listening System

With new legislation and rapid technological advancements, it is becoming increasingly important for architects to proactively design assisted listening solutions into the project as early as possible. Too often, the planning for Assistive Listening technology is partitioned under the audio visual team at the end of the design/building process; but in doing so, it forces unnecessary limitations and increases costs. For instance, if a project waits too long to determine the technology on a project, the Induction Loop technology may no longer be an option for the space. It's ideally a technology that should be considered early on as it may need to be put into the floor or under the carpet or even in the ceiling, a relatively low cost option if designed in early in the project. Deciding this early on will determine if this is a viable technology option.

**TABLE 219.3 RECEIVERS FOR ASSISTIVE LISTENING SYSTEMS**

Capacity of Seating in Assembly Area	Minimum Number of Required Receivers	Minimum Number of Required Receivers Required to be Hearing-aid Compatible (using Listen LA-166)
50 or less	2	2
51 to 200	2, plus 1 per 25 seats over 50 seats*	2
201 to 500	2, plus 1 per 25 seats over 50 seats*	1 per 4 receivers*
501 to 1000	20, plus 1 per 33 seats over 500 seats*	1 per 4 receivers*
1001 to 2000	35, plus 1 per 50 seats over 1000 seats*	1 per 4 receivers*
2001 and over	55 plus 1 per 100 seats over 2000 seats*	1 per 4 receivers*



### Enforcement

The Department of Justice (DOJ) is responsible for enforcing the ADA standards, which it does under five separate categories. The three largest are Title I – Employment practices by units of state and local government, Title II – Programs, services and activities of state and local government and Title III – Public accommodations and commercial facilities. The DOJ leverages lawsuits and settlement agreements to gain greater accessibility for individuals with disability. The DOJ may file lawsuits in federal court to enforce the ADA, and courts may order compensatory damages and back pay to remedy discrimination if the DOJ wins the lawsuit. The DOJ may also obtain civil penalties under Title III of up to \$55,000 for the first violation and \$110,000 for any subsequent violation.

The Intent of ADA, Title III is essentially to require owners of facilities to remove barriers and provide people with disabilities accommodations equal to or similar to those available to the general public.

There are no "ADA police" that are specifically responsible for uncovering violations. As such, ADA enforcement is generally handled through a complaint/response system. This means that anyone can complain about a non-compliance issue to the DOJ. Across the country disability groups are being organized in an effort to call out specific organizations, businesses or types of businesses relative to equal access.

Additionally, on a positive note, there may be tax benefits for the venue accommodating the ADA via the IRS 8826 form which outlines the possible tax credits or tax deductions.

36 million Americans suffer from hearing loss. Where an appropriate Assistive Listening System is in place, the owners and designers of the building are not only protected, but the individuals with hearing loss also maintain a connection to the people as well as the space—which is almost always the architect's intention.

Cory Schaeffer is a founder of Listen Technologies Corporation. Established in 1998, Listen manufactures wireless audio products used in venues for auditory assistance, sound field, tour group, language interpretation and conferencing. For more information call 877.760.9270 or visit [www.listentech.com/architects](http://www.listentech.com/architects).