

# Assistive Listening Devices For People with Hearing Loss

A Guide for Performing Arts Settings

**REVISED EDITION, JULY 2012** 

The Kennedy Center

## 

Funding for the Kennedy Center's VSA and Accessibility Initiatives is provided by the Rosemary Kennedy Education Fund and Mike and Julie Connors.



The John F. Kennedy Center for the Performing Arts has long been in the forefront of making the performing arts accessible to people with disabilities. The Center is committed to creating innovative and effective educational programs, models, and resources for the arts community and has launched an initiative to create a series of practical guides about accessible and universally usable arts programs and facilities.

With 54 million people with disabilities – 36 million who are deaf or hard of hearing<sup>1</sup> – living in the United States, providing access is not only a mandate of federal law, but also an asset to be valued in welcoming new patrons and keeping audiences as their lives change. The Kennedy Center works to ensure that programs, performances, events, and facilities are fully accessible to people with disabilities. We are eager to find solutions to challenges and to share them with others in the field of arts and accessibility. We hope this guide will be useful and will assist in fulfilling the ultimate goal of making the arts accessible to everyone.

Sincerely,

Darrell M. Ayers Vice President, Education

Betty Siegel Director, VSA and Accessibility

<sup>1</sup> Pleis JR, Lethbridge-Çejku M. Summary health statistics for U.S. adults: National Health Interview Survey, 2006. National Center for Health Statistics. Vital Health Stat 10(235). 2007. Retrieved October 12, 2010 from http://www.cdc.gov/nchs/data/series/sr\_10/sr10\_235.pdf.



# Part I: To Begin

### What is an Assistive Listening Device (ALD)?

Assistive Listening Devices (ALDs), also known as Assistive Listening Systems (ALS), are tools designed to improve audibility in certain environments. The devices reduce the noise-to-sound ratio by bringing sound to the listener without interference or loss of intelligibility. ALDs can be used with a television; in small gathering spaces, such as classrooms or meeting rooms; and in larger venues like auditoriums, churches, lecture halls, and theaters. They can be used in conjunction with compatible personal hearing devices, such as hearing aids with telecoils and cochlear implants.

### Who Uses ALDs?

ALDs are one of many tools that can provide effective communication for people who experience hearing loss. ALDs are most effective for people with mild to moderate hearing loss but can also benefit individuals with more severe hearing loss who use hearing aids and cochlear implants.

In the United States, approximately 17 percent (36 million) of adults report some degree of hearing loss, with the prevalence of hearing-related disabilities increasing significantly with age. Within that population, there is a great deal of diversity with regard to degree of hearing loss and the use of personal hearing devices. According to the National Institute on Deafness and Other Communication Disorders:

- Only 1 out of 5 people who could benefit from a hearing aid actually wears one.
- Approximately 188,000 people worldwide have received cochlear implants, including 41,500 adults and 25,500 children in the United States.<sup>2</sup>

While individuals with more severe hearing loss may benefit from ALDs, performing arts venues should explore additional means of providing effective communication, such as captioning and sign language interpretation, for patrons and visitors who have more severe or complete hearing loss.

### Percentage of American Adults Reporting Hearing Loss by Age<sup>3</sup>

18%	of adults ages	45-64 years
30%	of adults ages	65-74 years
47%	of adults ages	75 years or older

<sup>2</sup> National Institute on Deafness and other Communication Disorders: Quick Statistics Retrieved on January 12, 2011 from http://www.nidcd.nih.gov/health/statistics/quick.htm

<sup>3</sup> Pleis JR, Lethbridge-Çejku M. Summary health statistics for U.S. adults: National Health Interview Survey, 2006. National Center for Health Statistics. Vital Health Stat 10(235). 2007. Retrieved October 12, 2010 from



# Part II: Getting Started

### **Include the Community**

Always include knowledgeable people with disabilities in an advisory capacity when purchasing equipment or providing accommodations for accessibility. Many states, counties, and cities have a commission, council, or service center that can advise an organization on the type of system that will work best in their venue and give referrals to vendors or technical resource centers. Other good resources include local or national chapters of organizations that provide services to individuals who are deaf or hard of hearing such as:

# Hearing Loss Association of America

(formerly Self Help for Hard of Hearing People, Inc.) 7910 Woodmont Avenue Suite 1200 Bethesda, MD 20814-7022 (301) 657-2248 Voice (301) 657-2249 TTY info@hearingloss.org www.hearingloss.org

### Association of Late-Deafened

Adults, Inc. (ALDA) 8038 MacIntosh Lane Suite 2 Rockford, IL 61107-5336 (866) 402-2532 Toll Free (815) 332-1515 Voice/TTY info@alda.org www.alda.org

# Alexander Graham Bell Association for the Deaf and Hard of Hearing

3417 Volta Place, N.W. Washington, DC 20007-2778 (202) 337-5220 Voice (202) 337-5221 TTY info@agbell.org www.agbell.org

### National Association of the Deaf

8630 Fenton Street, Suite 820 Silver Spring, MD 20910-3819 (301) 587-1788 Voice (301) 587-1789 TTY www.nad.org



### **Know Your Legal Obligations**

Many theaters and other performance venues are unaware of or confused by their legal obligations to provide effective communication for patrons who are deaf or hard of hearing. Effective communication includes, but is not limited to, such tools as assistive listening devices (ALDs).

Requirements for assistive listening devices were first addressed in the 1991 Americans with Disability Act Accessibility Standards. The 2010 Americans with Disabilities Act Standards for Accessible Design (2010 Standards) address when theaters and assembly areas are required to have ALDs, how many receivers must be available, and where signage must be posted.

This booklet addresses legal obligations as defined by the 2010 Standards.

### When are Assistive Listening Systems Required?

To determine whether your theater or assembly area is required to provide an assistive listening system under the 2010 Standards, answer the following questions:

- 1. Is audible communication integral to the use of the space? Yes or No
- 2. Is audio amplification provided? Yes or No

If the answer to both questions is "yes", the theater or assembly area is obligated to provide an assistive listening system.

### How Many Receivers are Required?

The chart on the following page shows the number of receivers that a theater or assembly area must have based upon seating capacity. Of the available receivers, 25%, but no fewer than two, must be hearing aid compatible. If the entire seating area is served by an induction loop system, hearing aid compatible receivers are not required. However the venue is still obligated to provide the minimum number of receivers as outlined on the opposite page.



### Number of Receivers Required Based on Seating Capacity

Capacity of Seating in Assembly Area	Minimum Number of Required Receivers	Minimum Number of Required Receivers Required to be Hearing Aid Compatible
50 or less	2	2
51 to 200	2, plus 1 per 25 seats over 50 seats <sup>1</sup>	2
201 to 500	2, plus 1 per 25 seats over 50 seats 1	1 per 4 receivers <sup>1</sup>
501 to 1000	20, plus 1 per 33 seats over 500 seats <sup>1</sup>	1 per 4 receivers <sup>1</sup>
1001 to 2000 2001 and over	35, plus 1 per 50 seats over 1000 seats <sup>1</sup> 55 plus 1 per 100 seats over 2000 seats <sup>1</sup>	1 per 4 receivers <sup>1</sup> 1 per 4 receivers <sup>1</sup>

<sup>1</sup> Or fraction thereof.

### What makes a receiver hearing aid compatible?

A receiver is considered to be hearing aid compatible when it can interface with a telecoil installed in an individual's personal device, such as a hearing aid or cochlear implant. Receivers are not hearing aid compatible if the type of earbud or earphone requires a patron to remove his or her own in-ear hearing aid or if the earbud or earphone interferes with the individual's personal device.

### Additional Technical Requirements for ALDs

The following specifications are outlined in the 2010 Standards:

- All receivers must have a built-in 1/8 inch (3.2 mm) standard mono jack.
- Systems must be capable of providing a sound pressure level of 110 dB minimum and 118 dB maximum with a dynamic range on the volume control of 50 dB.
- Signal-to-noise ratio for internally generated noise in assistive listening systems shall be 18 dB minimum.
- Peak clipping shall not exceed 18 dB of clipping relative to the peaks of speech.



### Signage

Theaters are required to post signs with the international symbol of access for hearing loss to notify patrons that ALDs are available. The signs must be posted at each assembly area or at each ticket office. For example, if a venue has three auditoriums in one building and one central box office with windows that serve all three auditoriums, a sign must be posted either at the entrance to each of the three theaters or at the central box office.



While not specifically required, it is advisable to place signs in prominent locations near the box office, at the entrance to or in the theater lobby, and at the location where the receivers are distributed. Information about the availability of ALDs should also be posted on your organization's website.

### **Resources**

For technical assistance, information on legal requirements, or to get the complete 2010 Americans with Disabilities Act Standards for Accessible Design contact:

### Access Board

1331 F Street, NW, Suite 1000 Washington, DC 20004-1111 (800) 872-2253 Voice (800) 993-2822 TTY info@access-board.gov www.access-board.gov

# Disability and Business Technical Assistance Centers (DBTAC)

To contact the DBTAC closest to you call (800) 949-4232 Voice/TTY or visit www.adata.org

### U.S. Department of Justice

Civil Rights Division Disability Rights Section - NYAV 950 Pennsylvania Avenue, NW Washington, D.C. 20530 (800) 514-0301 Voice (800) 514-0383 TTY www.ada.gov



# Part III: About the Technology

## How Assistive Listening Systems Work

There are many types of assistive listening systems but all function using the same basic principles:

- Step 1: Capture the sound. Use high-quality microphones to capture the sound as close to the source as possible.
- Step 2: Transmit the sound. The sound captured by the microphone is converted to a signal and broadcast to the covered area.
- Step 3: Receive the sound. The person using the system has a receiver that picks up the signal sent by the transmitter. The receiver may be one that is purchased as part of the system and distributed by the venue or it may be the patron's own hearing device if that device has a telecoil built into it. The receivers may or may not have built-in headphones, and there are several kinds of coupling devices, such as induction neckloops, earbuds and headphones.





## **Types of Assistive Listening Systems**

There are four types of assistive listening systems that use different signals:

### Hardwire System

The hardwire system is a closed system in which the sound is never broadcast outside of the cables. Seats in the assembly area are hardwired and listeners must plug receivers into a built-in jack. This is similar to the type of system used in airplanes where headphones are plugged directly into the jack in the armrest of the seat. This booklet does not address issues related to hardwired systems.

### Radio Frequency (RF) System

Radio frequency (RF) systems, sometimes called FM systems, operate like a small radio station. A transmitter broadcasts the sound on frequencies designated by the Federal Communications Commission (FCC) for use primarily by ALDs. The receiver is "tuned" to the frequency broadcast in the theater so the listener hears the correct program.

### Infrared (IR) System

Infrared (IR) systems use invisible light on the infrared spectrum to transmit the sound signal to the receiver via radiator panels. These systems are sometimes referred to as "line of sight" systems because the receiver must be in line of sight of the radiator panel as infrared waves will not go through solid objects.

### Induction Loop System

The induction loop system broadcasts electromagnetic current within an area encompassed by a cable antenna. To receive the signal, an individual must be within range of the magnetic field generated by the cable antenna, usually inside the looped area.



Radio Frequency Transmitter

## **Types of Receivers**

Receivers come in a variety of styles, shapes, and sizes. Regardless of the type of receiver, in order to accommodate the widest range of users with varying degrees of hearing loss and to be compatible with hearing aids and cochlear implants, the receiver must have a 1/8 inch (3.22mm) output jack. The jack allows the user to plug in a number of different coupling devices, including induction neckloops, to make the receiver compatible with the user's personal telecoil-equipped hearing aid or cochlear implant.



## **Types of Coupling Devices**

Different people prefer and benefit from different types of coupling devices. A variety of coupling devices should be available so that patrons may choose the combination of receiver and coupling device that ensures maximum benefit from the ALDs.

### **Monaural Earbuds**

A single earbud that provides mono (one channel) sound. The earbud covers or is inserted into one ear.

### **Binaural Earbuds**

Two earbuds that cover or are inserted into both ears. Binaural headphones can be mono (one channel) or stereo (two channels).



Binaural Earbud and Headset



### **Induction Neckloops and Silhouettes**

Induction neckloops or silhouettes are used only by a person whose hearing aid or cochlear implant speech processor has a built-in telecoil. When plugged into a receiver, these coupling devices generate a magnetic field that connects to the individual's hearing aid or speech processor via the telecoil. The neckloop is worn around the neck while the silhouette goes behind the person's ear, close to or touching the hearing aid or speech processor. In order to use the telecoil, most people will need to switch their hearing aid or speech processor from the microphone to the telecoil setting.

### Personal Audio Cables and Cochlear Patch Cords

Some cochlear implants require the use of a personal audio cable or a cochlear patch cord to connect the receiver to a patron's speech processor. This technology is not very common. Many cochlear implant users now have speech processors with a built-in telecoil and can utilize the induction neckloop. If a patron does bring his or her own personal audio cable, the cable should plug into a receiver via the 1/8 inch jack.

### **Personal Hearing Aids**

Personal hearing aids and cochlear implants may have a built-in telecoil which makes the hearing aid compatible with systems that use induction technology. The hearing aid with a telecoil acts as its own receiver where there is an induction loop system. The person wearing the hearing aid with a telecoil has a switch on his or her personal device to move between the aid's built-in microphone and the aid's telecoil. The user has the ability to adjust the volume on the personal hearing device. Once the personal device has been switched to the telecoil setting, the microphone is "off" and the user will only hear what is broadcast via the induction loop system.

### **Additional Resources:**

The Access Board has three excellent documents available on the Internet:

- ALS Bulletin for Consumers at www.access-board.gov/adaag/about/bulletins/als-a.htm
- ALS Bulletin for Installers at www.access-board.gov/adaag/about/bulletins/als-b.htm
- ALS Bulletin for Providers at www.access-board.gov/adaag/about/bulletins/als-c.htm



Induction silhouette





Hearing Aid with Telecoil Switch (t-switch)



# Part IV: What to Consider Before Purchasing Assistive Listening Devices

Each of the systems has its pros and cons. In order to determine which system will work best for a particular venue, consider the following questions:

- Does the space have many physical obstructions?
- How large is the assembly area?
- Will the system need to work outdoors?
- Are there other materials or technologies in the space that might interfere with the ALDs?
- How many performance spaces are in the venue and how close are they to one another?
- Does the system need to be portable?
- Will the system be used for anything in addition to assistive listening, such as audio description?

Before the final purchase of an assistive listening system, consider inviting the manufacturer to do a demonstration in your venue. Whenever possible, test the system during a live event and solicit feedback from people who use assistive listening services.

### Location of the Transmitters or Radiator Panels and Physical Obstructions

How the signal is directed and the number of objects that it has to pass through on its way to the receiver can make or break the usability of your assistive listening system. Obstructions such as support pillars, walls, deeply recessed boxes, or balcony overhangs can reduce the quality of the signal or block it entirely.

 Radio Frequency (RF) signals can travel in all directions and through physical obstructions but proper placement of the transmitter can enhance the quality of the sound. The more objects that the signal has to go through to reach the receiver, the more it can become distorted. (Think about how the radio reception in your car is affected when you go through a tunnel.) Placing the transmitter or the antenna for the transmitter at the front of the theater facing the audience will maximize reception. Placing additional transmitters or antennae around the space can also improve signal quality in places with large obstructions.



- Infrared (IR) radiator panels transmit the infrared light signal in one direction. IR signals will "bounce" off solid objects and walls but the strength of the signal will be diminished. Additional radiators will minimize areas of poor reception in irregularly shaped spaces or theaters with lots of obstructed areas. A sound technician/contractor experienced with infrared systems can maximize the coverage by a radiator and determine exactly how many will be needed to cover a specific area.
- Induction loop systems are hardwired and the user must be within the magnetic field generated by the physical cable looping the space. The signals can be directed and controlled, depending on the installation and strength of the system. Placement is important because the magnetic field is subject to interference from certain building materials. A professional technician/contractor experienced with induction loop systems should be able to make the loop work in most spaces.

### Size of the Assembly Area

Getting a system to fit the size of the theater or assembly area is extremely important:

- Small RF transmitters for use in classrooms and small meetings rooms are adequate if the receiver is never more than 25 to 30 feet from the transmitter. Large RF transmitters can cover anywhere from 200 to 500 feet and the signal strength can be increased with the use of a more powerful antenna.
- There are small and large IR radiator panels that cover different areas. A knowledgeable person is crucial to determining the size and quantity of radiators necessary to cover a performance space adequately.
- A single small room may be easily covered by a loop but larger spaces will require multiple or a phased array of loops in order to ensure adequate coverage. The installation of induction loop cables/wires can be very complex and must be done by a professional.

### **Possible Interference**

All three systems, RF, IR and induction loop, may experience interference from materials or objects built into or used in the space:

- RF systems can pick up other RF transmissions if the channels or frequencies are close to one another on the spectrum of potential channels and frequencies.
- IR systems are subject to interference from other devices that generate infrared signals and are less effective in environments that are brightly lit with natural or fluorescent light, although newer systems are being designed to overcome this problem.
- Induction loop signals experience interference from objects made of metal such as supports in reinforced concrete, mesh, metal frames or suspended ceilings, as well as the presence of other magnetic fields such as those found in electric motors, electric generators and transformers, electric musical instruments, sound boards, and tv/video cable.

## **Multiple Performance Spaces**

If you have multiple venues or performance spaces within the same building, consider the proximity of those spaces and the possibility of sound bleed:

- RF signals will go through walls and other obstructions so patrons could end up listening to the wrong program. That scenario can be avoided by using a multi-channel RF system where each space is assigned a different frequency or channel.
- IR signals will not go through walls so there will be no interference between adjacent spaces using the same system.
- Induction loop signals used in close proximity of one another in the same space or venue can overlap and bleed into one another causing the patron to hear multiple signals simultaneously. Proper installation can minimize sound bleed.

### **Portability**

Some systems are designed to move easily between spaces while others are designed for permanent installation. RF systems are the most portable and can be simple to move from space to space and easily carried by tour leaders or docents.

### Usage

Multi-channel systems allow one system to be used simultaneously for more than one purpose. If you offer services such as audio description or simultaneous translation, a multi-channel system could be a prudent investment. While these systems tend to be more expensive and require a receiver with a switch to select channels, a multi-channel system may be less expensive than having two completely separate systems. Both RF and IR systems are available as single- or multi-channel systems. Induction loops are single channel only.

### **Additional Information:**

"Demystifying Hearing Assistance Technology: A guide for service providers and consumers" (2007). By Cheryl D. Davis, Samuel R. Atcherson, and Marni L. Johnson. Published by PEPNet West, National Center on Deafness, California State University, Northridge, CA. A comprehensive booklet on the use of ALDs for service providers and consumers. Available on the Internet at the following Web site: http://resources.pepnet.org/files/205\_2009\_6\_9\_11\_37\_AM.pdf



## Part V: After You Have Purchased Your Assistive Listening Devices

Once the investment is made in an assistive listening system, organizations need to maintain quality and effectiveness by planning for maintenance, establishing an effective distribution system, and training staff. There is probably nothing more frustrating than looking forward to a delightful evening at the theater only to find that you cannot hear what is being said because the battery on your ALD is not charged, someone forgot to turn on the system, or the staff does not know where the equipment is kept.

### **Quality and Effectiveness**

ALDs work by reducing or eliminating ambient noise and negating the effect of distance. The way that the sound is fed into the system has a significant impact on the quality and effectiveness of the ALDs. The farther the microphone is from the sound source, the more distorted the sound becomes. Microphones pick up ambient noise like the sound of heating and cooling fans, audience members rustling, and lighting equipment humming – all of which can be transmitted to the ALDs. Investing in a top-quality directional microphone and/or getting the microphones on or as close to the performers as possible will greatly improve the sound produced through the ALDs.

### Maintenance

### **Cleaning the Equipment**

Keeping the earphones and earbuds (the parts that go in or over the ears) clean is important for health and safety. Many earbuds are made of hard plastic that can be carefully sanitized, or have disposable rubber or foam covers that can simply be replaced after each use. Contact the manufacturer for proper cleaning instructions. Some patrons may prefer to use their own earphones and earbuds which should work as long as the plug fits the receiver's output jack.

### Storage

Equipment should be kept in a dry, temperate, protected, and dust-free place. Be sure to store receivers and coupling devices in such a way that wires do not get twisted and mangled. Some ALDs can be purchased with a storage case.

# Ň

### **Maintaining Batteries**

Batteries, the power supply for all receivers and some small portable ALD transmitters, are a commonly ignored but essential component of a well-functioning assistive listening system. Understanding how the batteries work will keep the system functioning smoothly.

### Non-Rechargeable Batteries

This type of battery, an alkaline battery, is usually found in household items like flashlights and toys. These batteries are normally not rechargeable and are useless once discharged and must be thrown out. The advantage of non-rechargeable batteries is that they are readily available. However, not all ALDs can use non-rechargeable batteries.

### Rechargeable Batteries

A common rechargeable battery used to power receivers and small portable ALD transmitters are nickel-cadmium batteries (NiCad or Ni-Cd.). These batteries cost more than alkaline batteries and require specialized recharging units but do not need to be replaced as frequently.

To get the most out of a receiver or transmitter that is powered by this type of battery, follow the battery manufacturer's guidelines on storage and recharging practices.

### **Developing a Distribution System**

A simple but effective distribution system is another essential element to providing ALDs to patrons who are deaf or hard of hearing:

### Decide where the ALDs will be kept and who will distribute them.

Is it the staff at the box office window? Volunteers at a designated table or counter in the lobby? Ushers or house managers inside the theater? Choose a location that is convenient for the patron and clearly designated with signage.

# Consider developing a system to track the devices, such as placing discrete numbered labels or some other identifying marker on each receiver.

Labels will enable staff to identify which receiver is given to which patron. This will greatly simplify the process of locating equipment should it go missing and can also serve as a means to track technical problems, maintenance, and repairs. Be sure to designate a staff person who will be responsible for tracking the equipment.



# Decide whether to collect identification or some other collateral from patrons when handing out receivers.

Theaters may never charge deaf or hard of hearing patrons to use the receivers but, if desired, they can collect some form of collateral in an effort to ensure that equipment is returned. Many theaters require patrons to leave some form of valid identification (such as a credit card, driver's license, or other ID with the patron's name on it) in exchange for the receiver. If IDs or other collateral are collected, every precaution should be taken to ensure that these are secured and not vulnerable to theft.

Some theaters do not want the responsibility of holding IDs and instead collect the patron's name, seat location, and home or business phone number. In the event that the patron does not return the receiver, the theater can contact the patron.

### Determine specific steps for distributing equipment

Figure out step by step how the equipment is to be distributed. Write up simple instructions and troubleshooting tips for the ushers, staff, and/or volunteers who are responsible for distributing the equipment. The process should include the following:

### 1. Turn the system on.

Make sure the assistive listening system is turned on in the theater.

### 2. Set up the receivers.

Insert batteries and, if necessary, plug a headphone or earbud into the receiver. If using a multichannel system, check that each receiver is set to the appropriate channel.

### 3. Test the receivers.

Always make sure each receiver is working before it is given to a patron! There are several ways to test the equipment:

- Play a recording in the theater over the assistive listening system. Bring the receivers into the theater and listen to each to be sure that they are working properly.
- Purchase a small induction loop system, IR radiator panel, or RF transmitter on the same frequency as the radiators and transmitter in the theater and connect it to a radio or other audio feed where the receivers are distributed. This is useful if the distribution site is at a distance from the actual theater because it enables the patrons to test the receiver before going to their seats.



### Troubleshooting:

If the receiver is not working, check the following:

- Make sure the coupling device is plugged firmly into the receiver by pushing the jack in until it clicks.
- Turn up the volume on the receiver.
- Make sure the battery is firmly in place.
- Replace the battery.
- Replace the coupling device (headphone, earbud, neckloop) or receiver.

If the device still is not functioning after all of the above or none of the receivers seem to work, confirm that the system has been turned on in the theater.

### 4. Distribute the receivers.

Hand the receivers out to the patrons, collecting collateral or taking down information as determined by your tracking system. Ask each patron what kind of headphone or coupling device is preferred.

### 5. Explain how to use the receiver.

Go over everything the patron needs to know, including what should not be touched or changed.

- The headphone, earbud or neckloop must be firmly plugged into the receiver.
- The receiver must be turned on and the volume adjusted to the level the patron finds comfortable. If an induction loop system is in place and the patron is using his or her own personal hearing device with a telecoil as the receiver, the patron must control the volume using his or her personal hearing device.
- If it is a multichannel receiver and the patron has access to the channel switch, instruct the patron not to change the channel and inform them of the correct setting should the channel be changed inadvertently.
- Give the patrons tips on how to maintain the best reception:
  - For RF receivers, the wire leading from the receiver to the earpiece acts as the antenna. The straighter and less tangled this is, the better the reception.
  - For IR receivers, the glass "eye" must be facing the stage; not turned around towards the patron's chest, or blocked by clothing, hair, hands or printed materials, such as programs.
  - For Induction loop adjustments may be possible on the individual's personal hearing device.
- Ask the patron to be careful with the equipment. The receivers can be temperamental. Jiggling, squeezing, and/or dropping them can cause the connections to become loose and distort reception.
- Inform the patron who s/he can talk to in the event of problems and how to return the equipment at the end of the performance.





### 6. Be available to provide assistance during intermission.

At intermission, staff should be available at the distribution area in the event that patrons have had problems with their receivers during the performance. Exchange any faulty receivers for ones that have been carefully checked. Make a note and tell appropriate staff what was reported to be wrong with the receiver.

# 7. Collect equipment, take inventory and follow up on missing or malfunctioning equipment.

At the end of the performance, staff should return to the distribution area to collect the receivers and headphones or other coupling device. In the event that receivers are not returned, provide a means for the distributor to inform the staff person responsible for tracking down wayward ALD equipment. Providing forms to make a full report on faulty and/or missing receivers is very useful.

As patrons hand in receivers, ask if there were any problems. If there were, note the specific problem and be sure this information gets to the appropriate staff. Tracking this information will help the staff identify whether there is a problem with the individual receiver or with the system. Staff will then know to check, repair or replace the receiver or check, realign or repair the system's radiator panels, cables or transmitters. If complaints are reported routinely from the same seats or area of the venue, there may be a problem with the transmitters in the system. For example, an IR radiator panel may be knocked out of focus, the RF signal may be blocked or the induction loop cable may be disconnected.

### **Staff Training**

Now that you have devised a plan, train staff to follow the procedures. This is an absolutely essential part of offering ALDs. Training should include all staff and volunteers who work with the assistive listening system or answer questions from the general public.

### **Technical Staff**

Technical staff need to understand how the system works in the theater, including how to turn the system on, how to feed the sound into the system, how to mix the sound appropriately, and where the transmitter, cable or radiators are located. When using a multichannel system for different purposes simultaneously, such as assistive listening and audio description, technical staff must know how to operate the system so that the correct audio feed is broadcast on the correct channel.



### Front-of-House Staff

All front-of-house staff, volunteers and other staff who deal directly with the public should receive training. Everyone needs to know enough to answer a few basic questions, including the fact that the theater does have ALDs, what type of system (RF, IR, or Induction loop) is installed, where patrons can pick up a receiver, and which staff member(s) can answer more specific questions.

### Staff or Volunteers Distributing the Equipment

Staff or volunteers responsible for distributing the receivers to the patrons need more intensive training so they can directly assist patrons. They need to know how the system works, what receivers and coupling devices will work best given a patron's personal hearing device, how to explain the equipment to the patron, and the procedures for distributing and maintaining the equipment. If using a multichannel system, staff must know which channel is used for assistive listening and which is used for other programs as well as when those other programs are offered. Staff should also receive training on basic courtesy and disability etiquette.

### Tips for Interacting with Patrons who are Deaf or Hard of Hearing\*:

- Get the person's attention before speaking by waving your hand, tapping his or her shoulder, or flashing the lights.
- Speak clearly in a comfortable tone of voice. Don't exaggerate or shout.
- Keep sentences short and be flexible with language. If the person is having difficulty understanding you, rephrase your sentence or write it down.
- Provide a clear view of your face and keep the light source on it. Don't hide your mouth with your hands, turn your head away or down, or turn your back to the person.
- Be a lively speaker. Use facial expressions that match your tone of voice, and use gestures and body movement to communicate.
- \* This list is compiled from several sources.



## Part VI: Directory of Manufacturers

The following is a list of manufacturers who make assistive listening systems that are used in facilities and venues like classrooms, museums, or theaters.

Call the manufacturer to find a vendor in your area who can sell, install, and help maintain the equipment. Always get a knowledgeable sound engineer or someone familiar with ALDs to consult or help install the equipment. Poor or improper installation of the equipment can render it useless.

Disclaimer: This is not a comprehensive list nor does inclusion on this list imply any kind of endorsement of the company or product.

### Audex (IR)

710 Standard Street Longview, TX 75604 (800) 237-0716 www.audex.com

### Comtek (RF)

357 West 2700 South Salt Lake City, UT 84115 (800) 496-3463 sales@comtek.com www.comtek.com

# Listen Technologies Corporation (RF and IR)

14912 Heritagecrest Way Bluffdale, UT 84070 (800) 330-0891 info@listentech.com www.listentech.com

### **Oval Window Audio (IL)**

33 Wildflower Court Nederland, CO 80466 (303) 447-3607 Voice/TTY info@ovalwindowaudio.com www.ovalwindowaudio.com

### Sennheiser Electronic Corp. (RF and IR)

1 Enterprise Drive Old Lyme, CT 06371 (877) 736-6434 www.sennheiserusa.com

### Telex Communications, Inc. (RF)

12000 Portland Avenue South Burnsville, MN 55337 (800) 392-3497 www.telex.com

### USL, Inc. (IR)

181 Bonetti Drive San Luis Obispo, CA 93401 (805) 549-0161 usl@uslinc.com www.uslinc.com

### Williams Sound Corp. (RF and IR)

10300 Valley View Road Eden Prairie, MN 55344 (800) 328-6190 info@williamssound.com www.williamssound.com





David M. Rubenstein, Chairman Michael M. Kaiser, President Darrell M. Ayers, Vice President, Education

Originally written by Betty Siegel, Director, VSA and Accessibility, The John F. Kennedy Center for the Performing Arts

Revision by Jessica Swanson, Manager, Accessibility, The John F. Kennedy Center for the Performing Arts

With research by Darcalyn Darling

### The Kennedy Center would like to thank the following reviewers of this publication:

Ruth Feldman, Director of Education and Accessibility Services, Yale Repertory Theatre

Lise Hamlin, Director of Public Policy, Hearing Loss Association of America

Melissa Janssen, Legal Administrator, Zoological Society of San Diego

Beth Ziebarth, Director, Smithsonian Institution Accessibility Program

The Kennedy Center welcomes your comments, questions, and feedback. Please contact the Accessibility Program at:

> Accessibility Program The John F. Kennedy Center for the Performing Arts 2700 F Street, NW Washington, DC 20566-0001 (202) 416-8727 (voice) (202) 416-8728 (TTY) access@kennedy-center.org www.kennedy-center.org

You are welcome to copy and distribute this publication with the following credit: Produced by The John F. Kennedy Center for the Performing Arts, ©2012



## The Kennedy Center Welcomes Patrons with Disabilities



David M. Rubenstein, Chairman Michael M. Kaiser, President Darrell M. Ayers, Vice President, Education