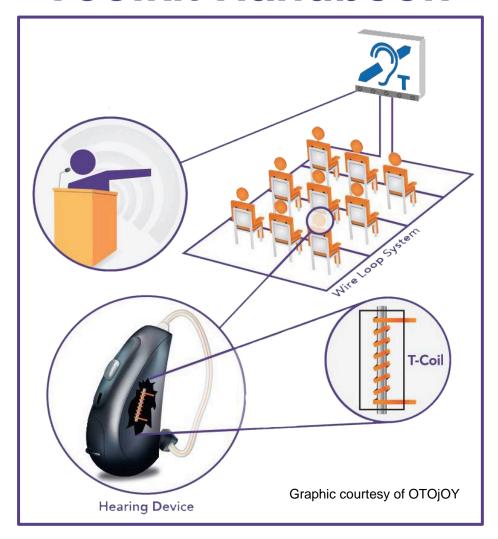


# Get in the Hearing Loop Toolkit Handbook



# **Advocate for Hearing Loops!**

Hearing Loss Association of America

PART 1

# Get in the Hearing Loop Toolkit Handbook

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#### About the Authors

Ann Thomas has hearing loss and wears two cochlear implants. She is an award-winning advocate and consultant for people with hearing loss, a member of the Hearing Loss Association of America (HLAA), a member of the HLAA Get in the Hearing Loop Program Committee, HLAA Brand Ambassador, President of the Hearing Loss Association of America-Diablo Valley Chapter, and a Hearing Assistive Technology Specialist.

Cheri Perazzoli has lived with progressive hearing loss since childhood and wears bilateral hearing aids. She is a committed advocate for people with hearing loss, serving on the Board of Directors for the Hearing Loss Association of America (HLAA), HLAA Get in the Hearing Loop Program Committee Chair, President of the HLAA Washington State Association, and Founder of Let's Loop Washington.

# Updates to the Handbook

The information contained in this Handbook is for informational purposes only. Significant effort has been made to present information that is comprehensive and accurate. Changes can occur during the lifetime of an edition.

Please send any suggestions to: GITHLinfo@hearingloss.org



# **Dedication**

This guide is dedicated to Richard McKinley for his untiring efforts promoting hearing loops in North America, motivated by helping those with hearing loss **HEAR** and **UNDERSTAND**.

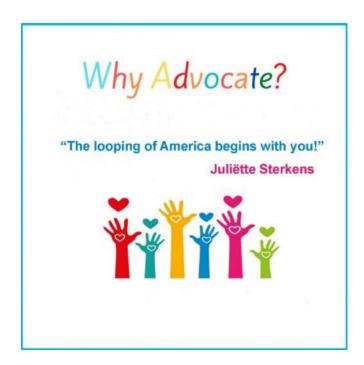
# **Acknowledgments**

Special thanks to the David and Carol Myers Foundation for their ongoing and enthusiastic support of the Hearing Loss Association of America Get in the Hearing Loop (HLAA GITHL) program and their steadfast advocacy for people with hearing loss.

The HLAA GITHL committee would like to thank Barbara Kelley, executive director; Lise Hamlin, director of public policy; Brenda Battat, former executive director; and previous members of the GITHL committee Anne Pope, former chair; Jerry Bergman; Richard Einhorn; Peggy Ellertsen; Stephen Frazier; Carol Lomicky; Ed Ogiba; JoAnne DeVries; and Heather Patrick for her patience, wisdom, expertise, and guidance in helping us produce this handbook.

We would also like to thank the many hearing loop advocates who have worked tirelessly for communication access via hearing loops for people with hearing loss in the United States.

# **Get in the Hearing Loop!**



**Create hearing friendly communities** 

# Welcome

The Hearing Loss Association of America (HLAA) opens the world of communication to people with hearing loss through information, education, support, and advocacy. *Get in the Hearing Loop* is an HLAA communication access program that advocates and educates people about hearing loops.

Hearing loss can lead to isolation, depression, anxiety, and other health risks. Many people are unaware of hearing loops or other technologies to improve their lives. If people know they can go into their communities and enjoy meetings, concerts, or worship services and understand what they listen to, they will stay engaged. Everyone benefits—people with hearing loss, their families, friends, and the places that provide this vital access. Even people with mild hearing loss who need a minor hearing enhancement can use hearing loops to improve the quality of the listening environment.

I always delight in seeing the reaction when someone first hears and understands the sound coming to them via a hearing loop. They are always awed by how much better they can hear.

This Handbook provides the support you need to make a positive and lasting change for people with hearing loss. Making your community more hearing-friendly creates a ripple effect that improves lives, raises awareness, and strengthens communities.

I cannot stress enough that advocating for yourself goes a long way. It is your right to have accommodation in public places, but you must ask for it, use it, thank the facility, and spread the word. If there is not a hearing loop or other assistive technology, have the confidence to advocate for yourself and on behalf of others who will benefit. This Handbook will help.

Thanks to the Get in the Hearing Loop Committee members, many of whom are volunteers, and to the David and Carol Myers Foundation for funding this HLAA program. Together, we are all committed to access through hearing loops.

Barbara Kelley Executive Director

Barbara Kelley

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# **Foreword**

I was sitting in Scotland's Iona Abbey in 1999, unable to decipher the spoken word reverberating off those ancient stone walls. For those with the invisible disability of hearing loss, the boredom of sitting through inaccessible events is commonplace. But then my wife, noticing a hearing assistance sign with a "T," nudged me to activate the telecoils in my new hearing aids.

Voila! With the discreet push of a button, my hearing aids became in-the-ear-speakers delivering clear sound customized for my ears. I was on the verge of tears and then was further delighted to experience this "hearing loop" technology in more and more British auditoriums, worship places, and even taxis.

So why not bring this simple accessibility, which was spreading in the UK and Scandinavia, to the US? When launching a 2001 initiative to bring hearing loops to West Michigan and creating hearingloop.org, I hardly dared dream that 20 years later, hearing loops would be spreading across America. Thanks to volunteer hearing advocates, local Get in the Hearing Loop initiatives, and the Hearing Loss Association of America's national Get in the Hearing Loop program, thousands of hearing loops are now available.

From New York City taxis and subway booths to home TV rooms to lecture halls to arenas and airports, hearing loops now offer user-friendly hearing accessibility to countless thousands. Thanks to the proliferation of trained installers and telecoils in most hearing aids and cochlear implants, we are transforming how America provides hearing accessibility.

And now, to guide the growing Get in the Hearing Loop movement, we are blessed with this new Handbook. I tip my hat to Ann Thomas, Cheri Perazzoli, and our compatriots for assembling these state-of-the-art resources, which can inform and empower people with hearing loss and those who support us. Onward! ... with many miles to go before we sleep.

David Myers Professor of Psychology, Hope College www.davidmyers.org http://www.hearingloop.org/

# **Preface**

In this Handbook is everything — literally everything! — you will need to advocate effectively for hearing loops and better hearing assistance. Compiled by the passionate Hearing Loss Association of America (HLAA), Get in the Hearing Loop (GITHL) advocacy committee, you will find numerous documents and brochures that explain what hearing loops (technically called induction loops) are, why they are so crucial to people with hearing loss, sample requests for proposals, technical documents on loop installation, best practices, sample slide presentations on loops, a summary of disability rights laws, and much, much more.

With this Handbook, you can confidently and knowledgeably approach venues in your community and provide them with accurate and easily readable information on hearing loops. You can be a highly effective advocate for this incredible technology that helps many hearing loss people enjoy theater, movies, lectures, and worship services. Presently, no other assistive listening technology is as easy to use or delivers such clear sound.

HLAA's mission is to open the world of communication to people with hearing loss. We advocate, both on the local and national levels, for more affordable hearing assistance technology, more hearing health services, and more public access to hearing assistance. As you can see in the Timeline, the Get in the Hearing Loop campaign is one of HLAA's most successful and popular programs. And as a former HLAA board chair, I am simply thrilled by the exceptional efforts the GITHL committee has expended on this excellent handbook.

With the GITHL Handbook, you now have at your fingertips all the tools you need to be an effective loop advocate. So now it is up to you: Get in the Hearing Loop!

Richard Einhorn Composer, musician, hearing loss advocate

# Introduction

We are grateful you are reading this document. Something has drawn you to be a change agent, to advocate for communication access, and specifically for hearing loops. Maybe you need a hearing loop to easily attend your place of worship or local theater; perhaps you are advocating for a loved one, friend, or colleague. Whatever has brought you here, know that with every public loop you help get installed, you are helping all people with hearing loss by making your community more hearing-friendly and inclusive. This is change with a lasting impact.

The idea for the GITHL toolkit, this Handbook, and the companion document, How to Successfully Advocate for Hearing Loops, A Step-by-Step Guide, was born when we realized that advocating for hearing loops is not as easy as simply asking. As we began advocating in our communities, it became clear that we needed to educate decision-makers about hearing loss, the benefits of communication access, telecoils, hearing loops, and the laws that require assistive listening systems in public places. We needed tools in our toolbox to support our requests and overcome obstacles. We also realized that these tools could help anyone advocate for hearing loops.

This Handbook provides consistent, vetted, HLAA-branded tools that we believe will help you get venues to install hearing loops for their customers, patrons, staff, and volunteers with hearing loss. The materials were developed to support every step in the advocacy journey, enabling you to effectively speak to the who, what, where, why, when, and how of hearing loops. As example:

- Why is hearing loss such a serious problem? Show them the Hearing Loss Facts and Statistics.
- What are hearing loops, and how do they work? Read, A Guide to Understanding Hearing Loops and How Does a Hearing Loop Work?
- Where does the Americans with Disabilities Act (ADA) mandate assistive listening systems? Turn to ADA Assistive Listening Systems and ADA Scoping Requirements.
- How do you educate venues about hearing assistance? You might start by having them fill out the handy Assistive Listening Checklist.

By bringing access to our communities, we can help ourselves and our neighbors with hearing loss participate fully in all aspects of life, everywhere we go. Our vision is to change public spaces—and lives—one hearing loop at a time. Thank you for helping to make this aspiration a reality.

Onwards!

The Get in the Hearing Loop Committee

# How to use the GITHL Toolkit Handbook

You have heard the GITHL message loud and clear and have decided to advocate for hearing loops. How do you start?

You would not start an epic journey without a map and a plan. The same logic applies to getting hearing loops installed in your community. Because it is usually not as simple as asking a venue to install a hearing loop, the GITHL Toolkit Handbook is your roadmap to success. Think of all the different elements as GPS, signposts, and rest stops.

We suggest spending time getting familiar with the content in the Handbook. You will find everything from GITHL logos, brochures, posters and presentation materials to sample letters and postcards. There is information about how hearing loops work and laws that will back up your requests for hearing accommodations. Most importantly, there are answers to your questions and inspiration to keep going toward your goal.

Whether your goal is one hearing loop or as many as you can get installed throughout your community, spend some time with our companion document.

"How to Successfully Advocate for Hearing Loops — A Step-by-Step Guide."

This user-friendly, standalone document walks you through the entire process, helping you to think strategically, prepare for presentations, answer questions, and support venues in successfully installing and promoting their new hearing loop. There is even a section on evaluating lessons learned and celebrating success.

For a quick advocacy overview, look at the Advocacy Cheat Sheet in the Step-by Step Guide.

#### Viewing, Downloading and Printing GITHL Toolkit Documents

The tools in the Get in The Hearing Loop Toolkit can be viewed in this Handbook and are available on the Hearing Loss Association of America website at GITHL Toolkit. You are welcome to download toolkit files to help with your advocacy. For your convenience, we have also included links to the individual documents throughout the Handbook.

All the downable digital files can be printed from your home computer or at local print shops like COSTCO, Office Depot, Staples and FedEx/Kinkos. Note: for the GITHL poster and educational poster, we recommend that you not do not select "enhance color" if printing from COSTCO.

Direction on ordering The Hearing Loss Facts and Statistics, Are You Hearing Everything You Could, and A Guide to Understanding Hearing Loops documents can be found at the end of the Handbook.

This GITHL Toolkit Handbook was meant to be used as a reference guide.

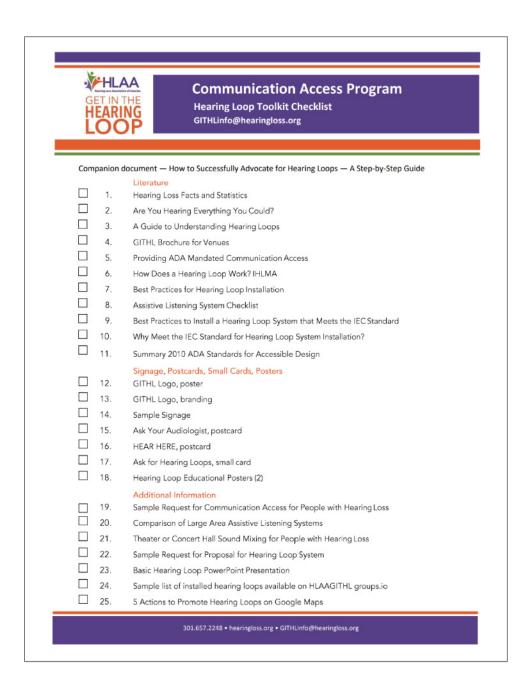
Bon voyage and good luck!

# **GITHL Toolkit Literature**

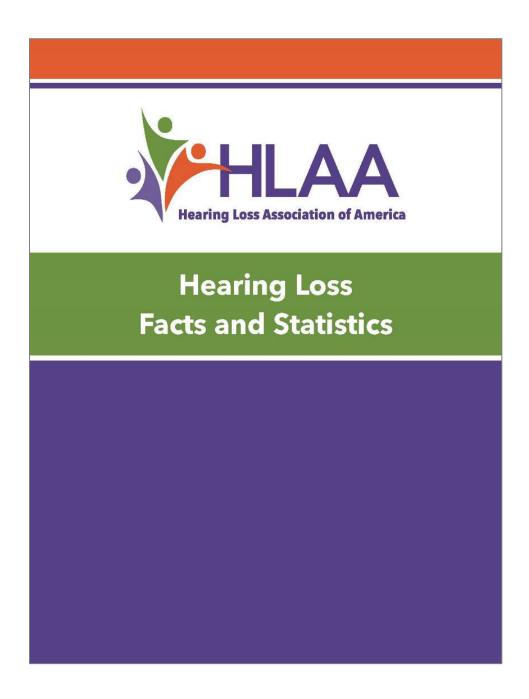
#### **GITHL Toolkit Checklist**

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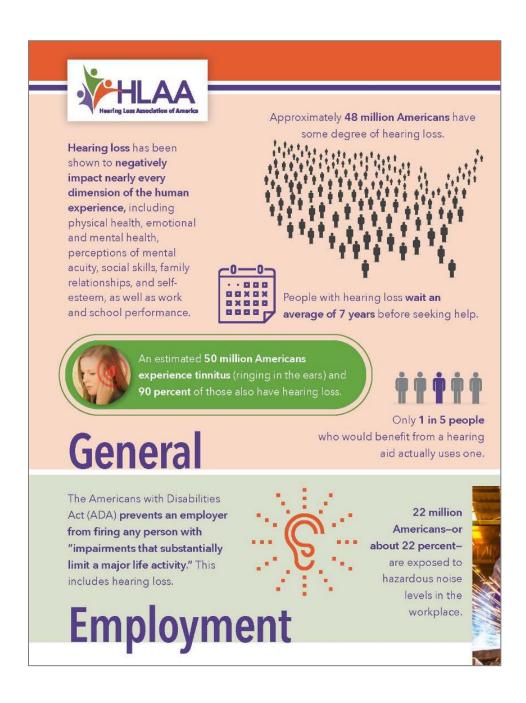
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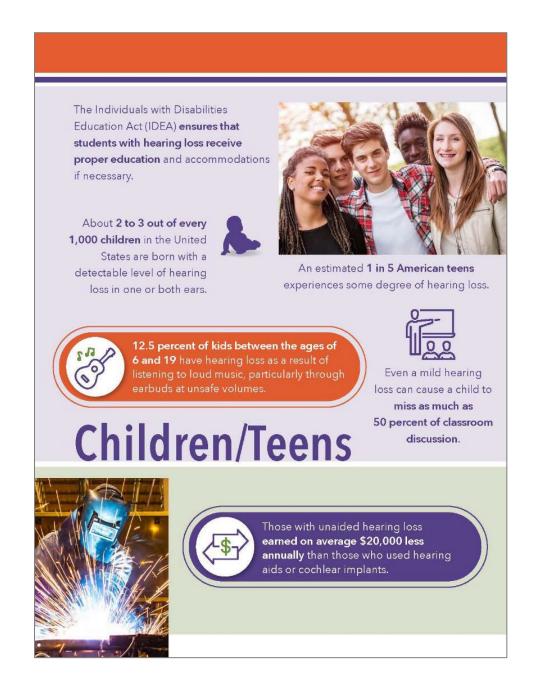
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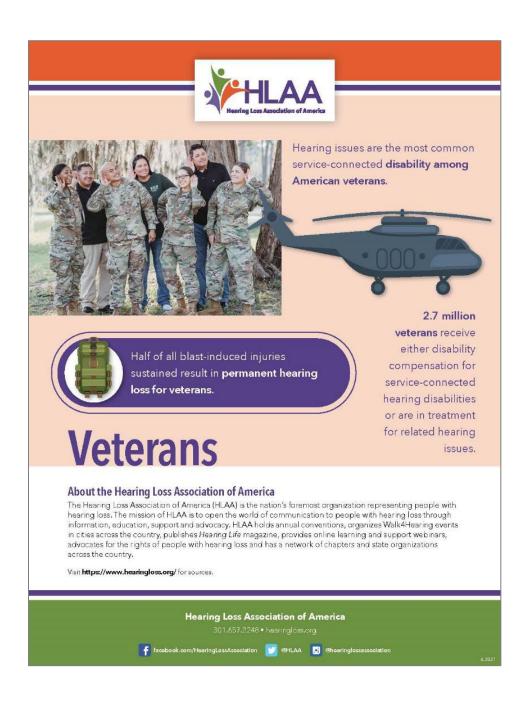
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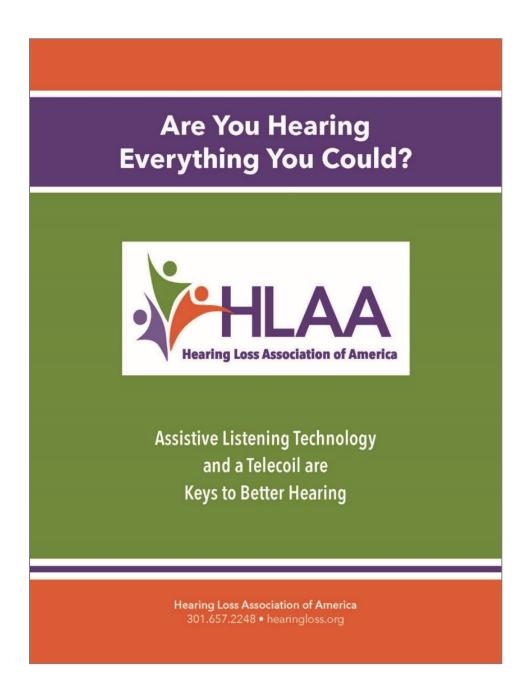


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An assistive listening system (ALS) or assistive listening device (ALD) bridges the gap between you and the sound source by eliminating the effects of distance, background noise and reverberation. They can bypass challenging acoustics by sending sound directly to the person's hearing instrument.

#### Hear Better in Public Places

Assistive listening systems and devices bridge the gap between you and the sound source by eliminating the effects of distance, background noise and reverberation. An ALS is the gateway through which people with hearing loss access sound from a public address system. But in order to easily connect to a sound source or ALS, it is imperative that your instruments (hearing aid, cochlear implant, bone conductive device) be equipped with a telecoil.

#### Ask Your Hearing Health Care Provider About Telecoils

Telecoils expand the usefulness of hearing instruments, especially in environments where it is typically challenging to hear clearly. A telecoil (or t-coil), is a small copper wire that is available on most hearing aids, most cochlear implant processors, and some audio streamers. T-coils are an essential component for anyone wishing to easily and directly access an assistive listening system or an ALD. (Note: An assistive listening system usually is for many people whereas an assistive listening device is for one-to-one.)

Hearing instruments with a telecoil can have a dramatic impact on your ability to hear clearly on the telephone, in meetings, when attending a lecture, in a place of worship, at the theater, in a noisy restaurant, while navigating airports, bus and train stations and other challenging environments. When telecoils are used together with assistive listening systems and devices they can make a noticeable difference in your life. They allow sound to be transmitted directly from the source to your hearing instrument, eliminating most of the background noise.

If you struggle to hear or don't yet have a hearing instrument, an assistive listening system can still help. Telecoils are available in most hearing aid models an estimated 70%—and most oochlear implants. However, make sure to ask your hearing care provider to confirm that the hearing instrument you are purchasing has a telecoil and that it is programmed and activated.

#### No Hearing Aid or Telecoil? No Problem!

Most people who do not wear hearing aids or whose hearing aids do not have a telecoil can still use assistive listening systems with a receiver and headphones. You can also use a telecoil-equipped personal amplifier or special telecoil-equipped earbuds with a smartphone.

The Americans with Disabilities Act (ADA) requires employers, state and local governments, businesses and nonprofit organizations to provide equally effective communication access for people with communication disabilities as those without a disability. All assistive listening systems are required to be accessible by people who use hearing instruments, hearing instruments but no telecoil, or without hearing instruments. Hearing loops, Frequency Modulation (FM) and Infrared (IR) systems all are capable of meeting this mandate



WilliamsAV Pocketalker (above) and OTOjOY's LoopBuds (below) are examples of assistive listening devices that can help reduce background noise in louder environments.



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#### **Assistive Listening Systems**

Hearing Loops, or induction loops, consist of a copper wire placed around a room which is connected to a public address or sound system. An electromagnetic field is created that connects to a telecoil in hearing instruments and cochlear implants or a telecoil-enabled device such as a streamer or LoopBuds.

Hearing loops are the most user-friendly of the assistive listening options and the first choice for many users. Hearing

loops are simple, discreet and effective. By simply activating the hearing instrument telecoil program the user receives sound directly to their hearing instrument.

lets you know there is a

aring loop installed

People who do not have hearing instruments or who do not have access to telecoils in their hearing instrument or streamer need to use a hearing loop receiver and headphones to connect to the system.

Infrared (IR) systems work like a TV remote control. A transmitter sends speech or music from a public address or sound system to an IR receiver using invisible infrared light waves. This technology is line-of-sight and cannot be used outdoors during the daytime due to being affected by light. Because IR signals are sent and received in a straight line, users are encouraged to sit as centrally as possible; those sitting in balconies or other areas with a poor line of sight might experience interference or receive no sound signal at all.

Anyone who uses an IR system needs a receive and either headphones or a neckloop. For those who have telecoils in their hearing instruments, neckloops eliminate the need for headphones

FM or RF (radio frequency) assistive listening systems use a low-power FM frequency radio signal to wirelessly transmit sound to a receiver. An advantage of this system over an infrared system is that it is not affected by direct sunlight. FM systems are frequently

used by students with hearing loss in the classroom. Everyone using the FM system needs a receiver and either headphones or neckloop. For those who have telecoil-equipped hearing instruments, neckloops eliminate the need for headphones

#### What Is an Assistive Listening Device?

Assistive listening devices include any device, except hearing instruments, that help a person with hearing loss communicate more effectively through direct sound amplification. ALDs that provide audio amplification are usually used one-to-one and can be wired or wireless They consist of a microphone, transmitter, and receiver People can connect directly via their hearing instrument or use a receiver with headphones or a neckloop.

#### Using Bluetooth with Your Hearing Device

Today, Bluetooth is frequently used to connect one device to another, like a cellphone to a hearing instrument. A new version of Bluetooth technology called LE Audio will soon be available. Bluetooth LE Audio has several new features, including the ability to broadcast audio to multiple devices at the same time. When this Bluetooth version becomes integrated into hearing instruments, it should provide for more seamless access to

audio on any device or in any venue that implements it. The availability and use of Bluetooth LE Audio in venues, in consumer devices like computers and cellphones, and in hearing aids and cochlear implants will happen gradually over the next several years. The eventual goal is for Bluetooth LE Audio and its broadcast capability to be used everywhere, including internationally. However, it could be years before some people up-grade their hearing instruments, a necessary step before they can connect to the new Bluetooth LE Audio technology. Bluetooth LE Audio is expected to coexist with traditional assistive listening technology, that is, hearing loops, FM and IR, for the forceable future.

#### What Can I Do to Hear Better in Noise?

People with hearing loss typically find it challenging to hear when they are in environments where there is background noise and they are more than a few feet away from the speaker. Examples of when you might use an ALD are communicating with a child at a large family gathering or in a restaurant or car. One of the simplest ways to hear better in these situations is to use an ALD like a personal amplifier or a remote micropho

A personal amplifier is a wireline, handheld device. One speaks into the microphone and the listener hears

the speakers voice using a neckloop or headphones. Hearing loop, FM, and IR technologies can also be scaled for personal or home use. Some examples are connecting a TV to a home hearing loop, using a wireless FM personal listening device for large family dinners, or connecting IR headphones to a TV.

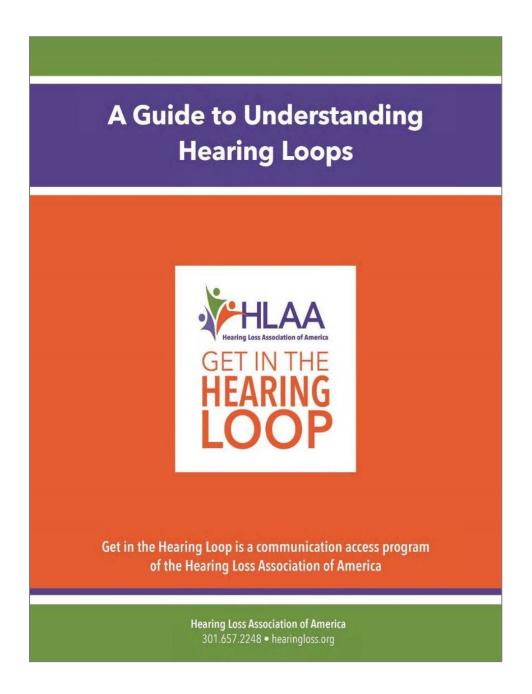
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We dream of a world where people with hearing loss can thrive each day with communication access, full inclusion, and equal participation in all aspects of life everywhere they go.

Through education, advocacy, and consultation services, the Get in the Hearing Loop (GITHL) program has laid the groundwork for a national movement of loop enthusiasts who are promoting communication access and compliance with the Americans with Disabilities Act (ADA) one loop at a time.

#### **How Do Hearing Loops Work?**

Hearing loops, or induction loops, are a type of assistive listening system (ALS) that transmits sound directly to a listener's telecoil-enabled hearing aid, cochlear implant or bone conductive device—hearing instrument—for improved clarity and understanding. Hearing loops deliver intelligible, distortion-free speech in environments where distance, ambient noise

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and challenging acoustics otherwise make listening and understanding with hearing instruments virtually impossible.

Any hearing device with a manually accessible telecoil becomes a wireless receiver in the hearing loop. Hearing loops work in any size venue

or location, from a large auditorium to a taxi or an elevator.

#### The Telecoil Imperative

Telecoils are to hearing loops what ramps are for people who use wheelchairs. Telecoils provide communication access and are the essential component needed to wirelessly connect to hearing loops. Telecoils can also connect to FM or Infrared assistive listening systems via a receiver and a neckloop.

Most hearing aid models — an estimated 70% — come either with a telecoil or as an option — most cochlear implant processors made today have them. When buying a hearing aid, the consumer should always ask that a telecoil be included. When being fitted with the hearing aid, the consumer should ask the audiologist or the hearing instrument specialist to activate the telecoil and demonstrate how to turn on the telecoil program.

#### Hearing Loop Access for People Without a Hearing Aid or Telecoil

Hearing loop systems serve most people with hearing loss who wish to improve their ability to understand speech and sounds. As with FM and IR systems, hearing loops also offer accessibility via portable receivers and headphones.

#### Hearing Loops are Used Worldwide for Hearing Access

Hearing loops are the most user-friendly of the assistive listening options and the first choice for many people, offering benefits for individuals and venues alike.

For individuals with a telecoil in their hearing instrument, hearing loops provide:

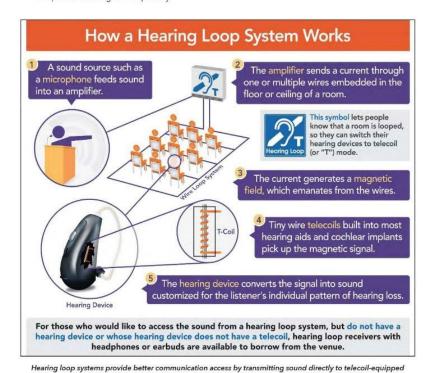
- easy, immediate and discreet communication access
- universal hearing aid compatibility
- opportunities for greater participation and inclusion in the community

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#### Hearing Loops Also Offer Significant Advantages for Venues

- Cost Effective: Compared with other systems, a hearing loop will save money for a venue through reduced staff time, maintenance and equipment costs.
- ADA Compliant: Hearing loops meet the ADA requirement for an assistive listening system that provides hearing aid compatiblity.
- Instant Access: Only a hearing loop will allow an unlimited number of people who have hearing instruments with telecoils access to a low latency signal without the need to borrow and return venue-provided equipment.
- Universally Accessible: Hearing loops are used nationally and internationally for hearing access.



hearing aids, cochlear implants or other assistive listening devices. (Graphic courtesy of OTOjOY)

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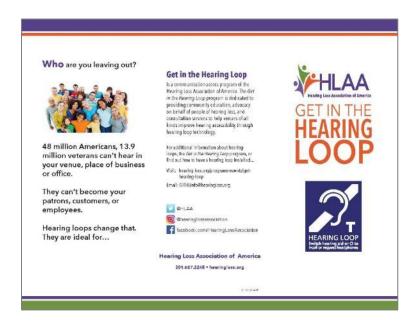
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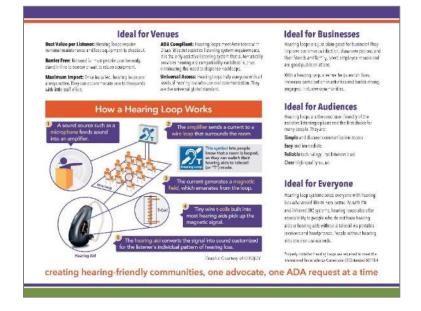


# **GITHL Hearing Loop Brochure for Venues**

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# **Providing ADA Mandated Communication Access**

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#### Providing ADA Mandated Communication Access

#### Assistive Listening Systems

hearing loop • FM • infrared

All assistive listening systems are required to be accessible for people without hearing aids, hearing aids with a telecoil, or hearing aids with no telecoil.

Hearing Loops, also known as Induction Loops or Audio Frequency Induction Loop Systems (AFILS), consist of a copper wire placed within a room, theater, or counter which is connected via a special loop "driver" to a public address or sound system. An electromagnetic field is created that connects to a telecoil in hearing aids, cochlear implants, or telecoil receivers.

#### Hearing Loops are:

- the most user-friendly of assistive listening options; simple, discreet, and effective.
   Users simply switch their devices to the telecoil program and automatically receive clear, customized sound directly to their ears. No additional equipment required.
- are accessible by everyone and potentially can serve more people because fewer receivers are required. People who do not have hearing aids or who do not have access to telecoils in their hearing aids or streamer need to use a hearing loop receiver and headphone to connect to the system.

FM Systems, or Radio Frequency Assistive Listening Systems, transmit wireless, low power FM frequency radio transmission from a sound system to FM receivers. An advantage of this system over an infrared system: FM is not affected by direct sunlight. Everyone using the system needs a receiver and either a headphone or a neckloop. For those who have telecoil equipped hearing aids and cochlear implants, neckloops eliminate the need for headphones.

Infrared Systems (IR), use invisible infrared light waves to transmit speech or music from a public address or sound system to an IR receiver. This technology is line-of-sight and cannot be used outdoors during daytime due to being affected by light. Because IR signals are sent and received in a straight line, users are encouraged to sit as centrally as possible; those sitting in balconies or other areas with poor sight lines might experience interference or receive no sound signal at all. Everyone using an IR system needs a receiver and either a headphone or a neckloop. For those who have telecoil-equipped hearing aids and cochlear implants, neckloops eliminate the need for headphones.

Additional resources—Hearing Loss Association of America website: hearingloss.org

Know Your Rights-Program & Events tab

Hearing Loop Technology and Get in the Hearing Loop Toolkit—Program & Events tab 11.1 2021ART

301.657.2248 • hearingloss.org • GITHLinfo@hearingloss.org

# How Does a Hearing Loop Work? IHLM

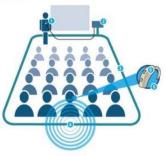
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#### **How Does a Hearing Loop Work?**

A hearing loop system transmits an audio signal directly into hearing devices via a magnetic field, greatly reducing background noise.



- Audio Inputs—either from an existing audio source such as a PA system or from a dedicated microphone(s).
- 2. Induction Loop Amplifier—audio inputs feed into the hearing loop amplifier.
- 3. Hearing Loop—the amplifier drives a current into a loop or series of loop wires.
- 4. Magnetic Field—as the current flows through the loop wire it creates a magnetic field in the required area—careful loop and amplifier design ensures that the vertical component of the field is even, free of dropouts and dead zones wherever the user might be.
- Telecoil—a small copper coil known as a telecoil, built in most hearing aids, all
  cochlear implants, and some bone conductive devices and wireless hearing aid
  accessories, picks up the magnetic field signal.
- 6. Hearing Device—worn by a person with hearing loss, converts the magnetic signal into a high-quality audio signal programmed for the user's own hearing loss and delivers it directly to the ear of the hearing device user.

**Note:** hearing loop receivers and headphones are available for people without hearing devices or hearing devices without a telecoil.

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#### **Best Practices for Hearing Loop Installation**

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#### **Best Practices for Hearing Loop Installation**

#### Hire a Knowledgeable and Committed Hearing Loop Installer

It is recommended you choose an installer who has been trained and certified in International Electrotechnical Commission (IEC) standard verification, has technical support from the supplier and is legally allowed to carry out the installation in your geographic area. Some states require additional licensing. Committed hearing loop installers have information on their websites about hearing loops and the IEC standard.

#### Qualifications

- · hire a trained and certified hearing loop installer
- · ask for references
- · verify experience installing hearing loop systems in similar types of buildings
- · require on-site measurement for an accurate estimate of installation costs
- · require hearing loop systems to meet the IEC 60118-4 hearing loop standard
- · require a certificate of conformity to the IEC 60118-4 hearing loop standard
- ensure headphones and receivers are provided according to ADA Standards section 219.3
- verify loop performance with a hearing aid user familiar with hearing loops
- ensure proper integration with existing or new audio video
- provide signage
- · arrange staff training
- perform periodic maintenance

Two companies offer hearing loop training and certification: Contacta, Inc., and Williams Sound.

#### Hearing Loop On-Site Testing

Hearing loop systems are venue-specific and usually require an on-site visit to provide an accurate estimate of your installation cost. Although some designs can be modeled on a computer, computer simulation cannot determine if magnetic background noise is present. While a computer design can be a starting point, the loop should never be installed purely based on the simulation. Your installer should be able to explain the on-site test results and what type of loop (e.g., perimeter, figure 8, or phased array) will be needed in your facility to meet the IEC standard and what is involved to aesthetically hide the loop wire.

Buildings present many variables with regard to design and installation due to metal in floors and ceilings. Occasionally a building might have electrical interference. Magnetic background noise should always be investigated by a licensed electrician. This background noise will affect all assistive listening systems including FM and infrared systems because they are

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# **Best Practices for Hearing Loop Installation**

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https://www.hearingloss.org/wp-content/uploads/best-practices-for-hearing-loop-installation.pdf

required to have neckloops which will pick up the interference.

Commissioning the Hearing Loop

The IEC standard requires, as the final test, that a hearing aid user familiar with hearing loops verifies, while the hearing loop installer is still on the premises, that the loop signal is even, sounds clear, experiences minimal magnetic background noise, and that the subjective results are consistent with the IEC standard.

Note: While you or someone from your staff can verify that a hearing loop is actively working, you will not have the same listening experience as a person with a cochlear implant or telecoilenabled hearing aid.

Microphone Usage Influences Hearing Loop Performance

- If possible, use earset microphones, which optimize sound transmission.
- Handheld microphones need to be held close to the mouth to properly activate the system, including when a person turns their head.

Announce the Availability of a Hearing Loop Prior to Every Event

Make an announcement at the beginning of every presentation, service, or meeting that there is a hearing loop installed and that additional receivers with headphones are available if needed. If your venue has only specific areas that are looped, be sure to let people in the audience know.

Hearing Loop Dedication

Develop a marketing/PR strategy to announce the inauguration of a hearing loop. This can include news releases, bulletin inserts and social media. Broaden your reach by coordinating with local audiologists, hearing care providers, and members of the hearing loss community.

#### Additional Resources

Hearing Loss Association of America website—hearingloss.org

Know Your Rights—Program & Events tab

 ${\color{red}\textbf{Get in the Hearing Loop}} {\color{red}\textbf{Program \& Events tab}}$ 

Hearing Loop Technology—Hearing Help tab



Juliëtte Sterkens, AuD, HLAA Hearing Loop Advocate jsterkens@hearingloss.org

GITHLinfo@hearingloss.org



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H	Assistive Listening System Checklist
	SSISTIVE LISTENING SYSTEM you have a working assistive listening system?
	Yes No Unsure
W	nich assistive listening system do you have?
	Hearing loop FM Infrared
No	the hearing loop, FM, and infrared systems have headphones?  Ite: at least 25 percent, but no fewer than 2 receivers must be hearing aid compatible. Earbuds, for ample, are not hearing aid compatible.
	Yes If yes, how many? No Unsure
	the FM and infrared systems have neckloops?  te: hearing loops don't need neckloops
	Yes If yes, how many? No
Are	e the receivers charged, sanitized, and working correctly?
	Yes No
	JBLIC ADDRESS SYSTEMS
	you have a working PA system? Yes No
Ha o \	
	here at least one microphone for Q & A? Yes No

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MICROPHONE USE
Correct microphone use with assistive listening systems is crucial. The microphone needs to be held closer to the mouth than if one were using a PA alone. A rule of thumb: at chin level, but not blocking the view of the lips.
Have presenters been instructed on how to use a microphone?  Pes  No
Do you have a handout to distribute to presenters about microphone usage? ☐ Yes ☐ No
Do staff, presenters, and performers use the microphone every time?  Yes  No
BATTERIES  Were the batteries for the wireless microphones checked before the event?  Yes  No
Were the batteries for the receivers checked before the event? □ Yes □ No
SIGNAGE  Do you have signage that announces the assistive listening system?  Yes  No Is the signage easy to find and read?  Yes  No
Is it clearly visible by doorways, kiosks, and information desks?  Yes  No
ADVERTISING  Do you advertise your hearing accessibility? On marketing materials?  Yes  No  flyers  playbills  invitations  newsletters  house of worship bulletin
2

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On your website?  Yes  No
On social media?  Yes  No
Do you provide event or venue alternative telephone contact information, email? ☐ Yes ☐ No
If you offer ticketing by phone, do your operators know how to handle communication access inquiries?  Yes  No
ANNOUNCEMENTS  Do you regularly announce your hearing accessibility at the beginning of events and explain how to use it?  Yes  No
STAFF TRAINING Are staff trained about: Type of equipment?  Yes  No
Where to find it? ☐ Yes ☐ No
How to use it? ☐ Yes ☐ No
Knowledgeable about neckloops and telecoils? □ Yes □ No
Able to demonstrate and test equipment? ☐ Yes ☐ No
How to check out equipment? ☐ Yes ☐ No
How to maintain equipment? ☐ Yes ☐ No
3

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Can they troubleshoot problems? ☐ Yes ☐ No	
MAINTENANCE  Is there a protocol for managing equipment the repairing, sanitizing?  ☐ Yes ☐ No	at's checked out—charging, replacing batteries, testing,
Do you test your assistive listening system regu	ularly?
Do staff know whom to ca <b>ll</b> for repairs? ☐ Yes ☐ No	
ASSISTIVE LISTENING SYSTEM A neck loop or headphone available on request  HEARING LOOP Switch hearing aid or CI to tool or request headphones	This is the International Symbol of Access for Hearing Loss. The image with a T signifies a hearing loop. Post this symbol on your website, email marketing and advertising materials, along with a sentence about the type of hearing access you offer.
Contact for additional information: GITHLinfo@hearingloss.org	
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# Best Practices to Install a Hearing Loop System that Meets the IEC Standard

Link to printable version **HERE** 

https://www.hearingloss.org/wp-content/uploads/best-practices-to-install-a-hearing-loop-system-that-meets-the-iec-standard.pdf



# Best Practices to Install a Hearing Loop System that Meets the IEC Standard

Do not be led to believe a hearing loop system meets the IEC standard in all seats even if the audio from the hearing loop sounds good in one seat. Here are a few telltale signs that a loop does not meet the IEC standard and how you might be led to believe otherwise.

#### Problem #1: The signal is not uniform.

Misleading approach to testing the loop: Some installers use old bar graph meters and measure signal strength at very few points, generally right next to the loop wires, or in a pretested location showing the facility manager that the readings are uniform, when they are not.

Best practice according to the IEC standard: The signal strength should be measured while walking throughout the whole looped area. This includes measuring the signal at the farthest point from a hearing loop wire, often the center of the loop. A properly designed and installed loop will maintain a uniform signal level in every seat.

#### Problem #2: Poor frequency response.

Misleading approach to testing the loop: A manufacturer's representative took a meter and measured the 1000Hz level in the center of each loop in the room and showed the facility manager/owner that the readings were *close enough* to meet the frequency response portion of the IEC standard.

Best practice according to the IEC standard: The frequency response should be measured in a fixed location in the center of a hearing loop. In this scenario (for example) when the frequency response was measured accurately, it revealed the frequency response was more than 10 dB out of specification when the frequency response should be -/+ 3dB. Hearing loop installers should not be measuring the frequency response within a foot of a hearing loop wire. This will give artificial meter readings to meet the IEC standard.

#### Problem #3: The sound is not quite loud enough and unclear.

Misleading approach to testing the loop: Most of the time in a poorly designed hearing loop, you will find peak levels in the -10 to -15dB range, often due to the installation of a perimeter loop or hearing loop widths that are too far apart. The assumption is that if the level is correct for one person seated within a hearing loop in one location, it is correct for all.

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# Best Practices to Install a Hearing Loop System that Meets the IEC Standard

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Best practice according to the IEC standard: Peak levels should reach 0dB+-3dB in the center of the hearing loop wires. Sadly, in most cases, a more powerful hearing loop amplifier will not solve this issue, but a new loop configuration with smaller loop widths would correct the issue.

Problem #4: Too much background noise or electromagnetic interference (EMI). Misleading approach to verifying the loop: Don't be misled by the following comments from manufacturers and/or installers:

- "A loop is only for the hearing aid wearers; that noise will go away with time."
- "If we make the audio from the hearing loop louder you will not notice the background noise."

"It is fine. I checked it with my own hearing aids."

Best practice according to the IEC standard: According to the IEC standard, background noise level should be below -32dB. This is one area where I differ from the IEC standard and recommend that background noise level be below -40dB. In addition, I feel a non-hearing aid wearer, using the loop receiver should perform a listening check of the hearing loop, before the hearing loop system is proposed. Recently in the UK, I heard the following statement, "Loop systems are only for hearing aid users and no one uses the loop receivers therefore background noise levels of -32dB are fine." I disagree with this statement in that here in the U.S. hearing loops are used as an assistive listening device (ALD) system and therefore need to work well for individuals who use hearing loop receivers with headphones. Hearing loop installers and manufacturers should realize that the person paying for the hearing loop might not wear hearing aids and will use a loop receiver to check it. My suggestion is to properly assess EMI as part of a site visit and resolve EMI issues prior to moving forward with a hearing loop system installation. You don't want to find yourself in a position where payment for a completed installation is withheld until you resolve EMI issues.

In summary, if our goal is truly to sell and install a system that meets the IEC standard so that all users with properly programmed t-coils or a loop receiver can benefit from the hearing loop system. We need to empower the purchaser and provide them accurate information and/or knowledge before purchasing a loop or have an independently trained and qualified group that certifies hearing loop systems. I believe that since the manufacturer of the product conducts trainings, certifies their installers, helps with the designs and sells the product, they should be liable for a good working loop and regularly send a team out to test and certify their contractor's installations. The manufacturer should also be available to solve all loop-related issues along with their contractor.

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Richal McKily

Managing Director, Contacta Inc. Email: richard@contactainc.com

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# Why Meet the IEC Standard for Hearing Loop Installation?

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https://www.hearingloss.org/wp-content/uploads/best-practices-to-install-a-hearing-loop-system-that-meets-the-iec-standard.pdf



# Why Meet the IEC Standard for Hearing Loop System Installation?

Over the years, I've have heard many comments about loop systems such as, "Our loop is good enough; Elsie loves it. Many others have tried it, but Elsie is the only one with really bad hearing." A comment like this, regarding loop systems, is unfortunate because it implies that many have attempted to use the loop system, but received very little benefit from it. As a result, individuals who do not benefit from a "great" loop system rely on their hearing device in a difficult listening environment and are luck y if they comprehend 25 percent of what is being said.

Another example of a problematic loop system is in a synagogue in Baltimore where a Rabbi had to give the following instructions to congregants regarding the loop system, "For those who wear hearing aids you need to sit in the outside seat of each row and if you wish to use the loop receiver with headphones you can sit toward the middle of the room." This is an unacceptable scenario where congregants could sit only in select areas to benefit from the loop system that was installed. Sadly, the Rabbi was told this system met all applicable standards.

When loop systems do not meet the IEC standard, the users receive insufficient benefit and criticize the loop in the following ways:

- Those who have used the loop system say they can hear better with their hearing device.
  - Cause: Poor frequency response, low signal level or too much background noise.
- Those who have tried the loop system say that the volume is too low.Cause: The loop system's magnetic field is uneven resulting in low signal and/or varying strength throughout the seating area. In addition, the loop wires are placed too far apart.
- My seating options are very limited.
   Cause: The loop signal is adequate only in a couple of seats due to lack of uniformity or unevenness of the signal level and improper system design.
- The loop system interferes with our video system or audio monitors.
   Cause: The hearing loop wires are too far apart and too much current is needed to create the magnetic field.

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# Why Meet the IEC Standard for Hearing Loop Installation?

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- The hum heard through the telecoil in my hearing device is too loud.
   Cause: The presence of background noise was not properly tested and resolved before the loop system was installed.
- The sound in the loop has an echo or is unclear.
   Cause: The audio feed to the loop system amplifier has too many open microphones or an ambient feed.
- 7. When I lean forward to pray, the sound goes completely away.
  Cause: Prior to the loop system installation, little thought was given to the functions that take place within the seating area. The signal loss when leaning forward suggests a perimeter loop was installed when a phased array would have been the most appropriate loop system.

In my travels, throughout the United States and Europe, the above are the most common complaints I hear from those who have tried to utilize a loop system that does not meet the IEC standard. It is my goal that we can all learn from each other's mistakes to install the best functioning loop systems.

The functionality of one loop system, in many cases, builds the reputation for all loops. If users have a bad experience at one location with a hearing loop, they could foresee all loop system performing the same way. Please reference the newly updated literature to ensure proper functioning of each loop system you install.

- IEC Standard 60118-4—LOOP FIELD CERTIFICATION,
- PRE-PROPOSAL—LOOP FIELD TEST, and
- ADJUSTING A PHASED ARRAY SYSTEM, SLS UNITS
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#### **Summary 2010 ADA Standards**

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# Summary 2010 ADA Standards for Accessible Design Assistive Listening Systems

The Department of Justice oversees regulations implementing the Americans with Disabilities Act (ADA), These regulations are called the ADA Standards for Accessible Design. This document contains abridged references to the 2010 ADA Standards for Assistive Listening Systems and an Effective Communication 2014 bulletin.

#### Why Are Assistive Listening Systems Needed?

People with hearing loss have trouble understanding speech when there is background noise, reverberation, and they are more than six feet away from the sound source. Assistive listening systems improve auditory comprehension in three ways: they filter out background noise, override poor acoustics and reduce the distance from the sound source.

#### Resources

#### 2010 American with Disabilities Act Standards

https://www.ada.gov/regs2010/2010ADAStandards/2010ADAstandards.htm - c1

#### Effective Communication, 2014 bulletin

This publication provides guidance on the Department of Justice's regulations relating to communicating effectively with people with vision, hearing, or speech disabilities. https://www.ada.gov/effective-comm.htm

#### 2010 American with Disabilities Act (ADA) Standards

The 2010 Standards apply to new construction and alterations on or after March 15, 2012.

#### **CHAPTER 1: APPLICATION AND ADMINISTRATION**

#### 106.5 Defined Terms.

Assembly Area. A building or facility, or portion thereof, used for the purpose of entertainment, educational or civic gatherings, or similar purposes. For the purposes of these requirements, assembly areas include, but are not limited to, classrooms, lecture halls, courtrooms, public meeting rooms, public hearing rooms, legislative chambers, motion picture houses, auditoria, theaters, playhouses, dinner theaters, concert halls, centers for the performing arts, amphitheaters, arenas, stadiums, grandstands, or convention centers.

Assistive Listening System (ALS). 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.

#### **CHAPTER 2: SCOPING REQUIREMENTS**

#### 216. Signs

216.1 General. Signs shall be provided in accordance with 216 and shall comply with 703

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## **Summary 2010 ADA Standards**

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216.10 Assistive Listening Systems. Each assembly area required by 219 to provide assistive listening systems shall provide signs informing patrons of the availability of the assistive listening system. Assistive listening signs shall comply with 703.5 and shall include the International Symbol of Access for Hearing Loss complying with 703.7.2.4.

#### See the ADA Standards for Exception

216.10 Exception, ticket office or windows

#### 219 Assistive Listening Systems

219.1 General. Assistive listening systems shall be provided in accordance with 219 and shall comply with 706.

219.2 Required Systems. 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.

219.3 Receivers. Receivers complying with 706.2 shall be provided for assistive listening systems in each assembly area in accordance with Table 219.3. Twenty-five percent minimum of receivers provided, but no fewer than two, shall be hearing-aid compatible in accordance with 706.3.

#### Exceptions

- Where a building contains more than one assembly area and the assembly areas required
  to provide assistive listening systems are under one management, the total number of
  required receivers shall be permitted to be calculated according to the total number of
  seats in the assembly areas in the building provided that all receivers are usable with all
  systems.
- Where all seats in an assembly area are served by an induction loop assistive listening system, the minimum number of receivers required by Table 219.3 to be hearing-aid compatible shall not be required to be provided.

See ADA Standards for Table 219.3 Receivers for Assistive Listening Systems

#### **CHAPTER 7: COMMUNICATION ELEMENTS AND FEATURES**

#### 703 Signs

See the ADA Standards for additional signage specifications

703.2 Raised Characters

703.3 Braille

703.4 Installation Height and Location

703.5 Visual Characters

703.6 Pictograms

703.6.1 Pictogram Field. Pictograms shall have a field height of 6 inches (150 mm) minimum. Characters and braille shall not be located in the pictogram field.

## **Summary 2010 ADA Standards**

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Figure 703.6.1 Pictogram Field

**703.6.3 Text Descriptors.** Pictograms shall have text descriptors located directly below the pictogram field. Text descriptors shall comply with 703.2, 703.3 and 703.4.

See the ADA Standards for additional signage specifications

703.7 Symbols of Accessibility

703.7.1 Finish and Contrast

703.7.2.4 Assistive Listening Systems. Assistive listening systems shall be identified by the International Symbol of Access for Hearing Loss complying with Figure 703.7.2.4.



Figure 703.7.2.4 International Symbol of Access for Hearing Loss

#### 706 Assistive Listening Systems

Advisory 706.1 General. Assistive listening systems are generally categorized by their mode of transmission. There are hard-wired systems and three types of wireless systems: induction loop, infrared, and FM radio transmission. Each has different advantages and disadvantages that can help determine which system is best for a given application. For example, an FM system may be better than an infrared system in some open-air assemblies since infrared signals are less effective in sunlight. On the other hand, an infrared system is typically a better choice than an FM system where confidential transmission is important because it will be contained within a given space.

The technical standards for assistive listening systems describe minimum performance levels for volume, interference, and distortion. Sound pressure levels (SPL), expressed in decibels, measure output sound volume. Signal to noise ratio (SNR of S/N), also expressed in decibels, represents the relationship between the loudness of a desired sound (signal) and the background noise in a space or piece of equipment. The higher the SNR, the more intelligible the signal. The peak clipping level limits the distortion in signal output produced when high-volume sound waves are manipulated to server assistive listening devices.

## **Summary 2010 ADA Standards**

### Link to printable version **HERE**

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Selecting or specifying an effective assistive listening system of a large or complex venue requires assistance from a professional sound engineer. The Access Board has published technical assistance on assistive listening devices and systems.

**706.2 Receiver Jacks.** Receivers required for use with an assistive listening system shall include a 1/8 inch (3.2 mm) standard mono jack.

**706.3 Receiver Hearing-Aid Compatibility.** Receivers required to be hearing-aid compatible shall interface with telecoils in hearing aids through the provision of neckloops.

Advisory 706.3 Receiver Hearing-Aid Compatibility. Neckloops and headsets that can be worn as neckloops are compatible with hearing aids. Receivers that are not compatible include earbuds, which may require removal of hearing aids, earphones, and headsets that must be worn over the ear, which can create disruptive interference in the transmission and can be uncomfortable for people wearing hearing aids.

#### **CHAPTER 9: BUILT-IN ELEMENTS**

#### 904 Check-out Aisles and Sales and Service Counters

904.6 Security Glazing. Where counters or teller windows have security glazing to separate personnel from the public, a method to facilitate voice communication shall be provided. Telephone handset devices, if provided, shall comply with 704.3.

#### See the ADA Standards Advisory

**904.6 Advisory Security Glazing.** Assistive listening devices complying with 706 can facilitate voice communication...

#### HLAA Addendum

Sample Assistive Listening System Signage with Text





HLAA Note: It is common practice for the Access for Hearing Loss symbol to be modified with the addition of a T to indicate the assistive listening system is a hearing loop.

HLAA Note 904.6: hearing loop systems have been used effectively with security glazing.







## Logo, Signage, Postcards, Small Cards, Posters

## **GITHL** Logo, poster

Link to printable version **HERE** 

https://www.hearingloss.org/wp-content/uploads/GITHL\_Logo\_Poster.pdf?pdf=GITHLlogo



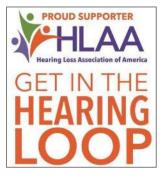
## **GITHL** Logo, branding

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https://www.hearingloss.org/wp-content/uploads/githl-logo-branding.pdf



HLAA GITHL Program Logo



Supporter GITHL Logo



State GITHL Logo



Chapter GITHL Logo

## Sample Signage

Link to printable version **HERE** 

https://www.hearingloss.org/wp-content/uploads/sample-signage.pdf



## Ask Your Audiologist, postcards

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#### For Audiologists and Hearing Aid Providers

Please advise me if my hearing device(s) has a telecoil(s) (T-coil). If they do, please activate and program them for use in a hearing loop. Also, please write instructions for their use on the back of this card. If I don't have a T-coil(s), can it be retrofitted or is there an accessory remote control/streamer telecoil option?

#### **Program Recommendations**

For open RIC fittings: manual T only program
For closed/occluded fittings: manual M + T program in social settings
For closed/occluded fittings: manual T only program for high noise
environments like airports or train stations.

Verify mic and telecoil responses match in gain, output and frequency response in user programmed mode (use ANSI-SPLIV test procedure).

Programming questions?

Contact: Juliëtte Sterkens, AuD, jsterkens@hearingloss.org

I would like to use my T-coil(s) in a hearing loop or with a neckloop and an assistive listening device or system.

Please write clear instructions on how to use my manually accessible telecoil program.

For example: the numbered position of the program, number of beeps or voice prompt, and location of the switch to activate the T-coil.



Audiologist or hearing aid provider name and contact information

## **HEAR HERE, postcard**

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# **HEAR HERE**

This symbol indicates that a **HEARING LOOP** is available.

Activate the telecoil (t-coil) in your hearing device to hear sound with less background noise — directly into your device.

If you do not have a t-coil enabled device, request a receiver + headphones.

For questions about hearing loops and hearing loss contact or visit the Hearing Loss Association of America:

GITHLinfo@hearingloss.org www.hearingloss.org



### A LIFE-CHANGING SOLUTION FOR PEOPLE WITH HEARING LOSS

#### **HEARING LOOPS**

- Simple hearing loops reduce background noise and send sound from a microphone directly to t-coil enabled devices
- Discreet there is no need to ask for additional equipment
- Effortless most hearing devices have an external toggle switch to enable the t-coil

Talk to your audiologist about t-coil equipped hearing devices. If you already have one of these devices, ask if it is t-coil enabled and learn how to activate the t-coil program.



## Ask for Hearing Loops, small card

Side 1, Link to printable version **HERE** 

https://www.hearingloss.org/wp-content/uploads/GITHL\_Ask\_Hearing\_Loops\_smallcard.pdf



I'm one of 48 million Americans with some degree of hearing loss and had considerable difficulty hearing in your facility today.

May I recommend you consider installing a HEARING LOOP that would make your venue more accessible to those with hearing loss?

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## Ask for Hearing Loops, small card,

Side 2, Link to printable version **HERE** 

https://www.hearingloss.org/wp-content/uploads/GITHL\_Ask\_Hearing\_Loops\_smallcard.pdf

#### **Hearing Loops**

- transmit sound from public address systems wirelessly, much like Wi-Fi, to any hearing aid or cochlear implant with a telecoil
- deliver sound customized for one's own hearing loss pattern
- do not require those with hearing devices to seek, wear and return special equipment and are, for this reason, user-preferred
- · are cost-effective and inconspicuous to use
- accommodate one or hundreds of users at the same time
- can also work with portable receivers for those who do not use a hearing device or LoopBuds with a smartphone.

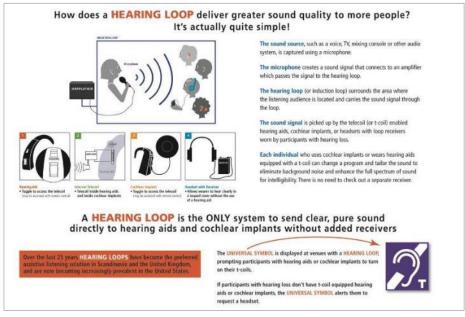
#### For more information:

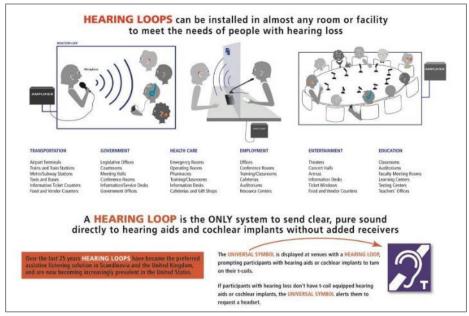
hearingloss.org/hearing-help/technology/hat/hearing-loop-technology/

## **Hearing Loop Educational Poster**

Link to printable version **HERE** 

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## **Additional Information**

## Sample Request for Communication Access for People with Hearing Loss.

Link to printable version **HERE** 

https://www.hearingloss.org/wp-content/uploads/sample-request-for-communication-access-for-people-with-hearing-loss.pdf



## **Comparison of Large Area Assistive Listening Systems**

Link to printable version, 8 pages HERE

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## Comparison of Large Area Assistive Listening Systems

#### Why Use an Assistive Listening System?

Distance from the sound source, background noise, and reverberation combine to degrade signal intelligibility, making it difficult for people to hear and understand speech in large rooms. For people with hearing loss, the challenge becomes even greater. Even the best public address systems, combined with the best hearing aid and/or cochlear implant, cannot solve the intelligibility problems faced by people with hearing loss. This situation prevents people with hearing loss from participating on equal terms with hearing people in large assembly areas. To provide people with equal access in these and other venues, requirements for making assistive listening systems available in places of public accommodation were included in the Americans with Disabilities Act (ADA) signed into law in July 1990.

#### What is the Concept Behind an Assistive Listening System?

#### catch • carry • couple

I like to think of assistive listening systems as "Binoculars for the Ears." Just as binoculars take a faraway, hard-to-see image and brings it close to your eyes so it's easier to see; placing a microphone close to the talker's mouth catches the desired speech and sends it directly to the listener's ears before it travels across the room, loses energy, and becomes degraded by noise and reverberation. Assistive listening systems work via a concept we can call "the three Cs"—catch, carry, and couple. The desired sound—for example, a person giving a presentation in the front of a room—is first **captured** at its source, using a microphone placed near the talker's mouth. The microphone changes the acoustic signal of the talker's voice into an electrical signal and is sent to a wireless transmitter. The transmitter broadcasts or **carries** the desired signal across the room wirelessly, using radio waves. A receiver worn by the listener is **coupled** to the listener using earphones or special connections to the listener's hearing aid or cochlear implant. By employing this wireless technology, the desired sound is sent directly to the listener, bypassing the deleterious effects of distance, background noise, and reverberation.

#### Wireless Technologies, How They Work, Advantages and Disadvantages

#### hearing loop • FM • infrared

Today there are three basic wireless technologies available that are used in public areas such as government agencies, community centers, lecture halls, movie theaters, live theater, concerts, etc. Each of these systems uses a different method of sound transmission:

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## Theater or Concert Hall Sound Mixing for People with Hearing Loss

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A sound mix tailored specifically for people with hearing loss can easily be implemented on many modern mixing consoles, especially those in large venues like theaters and concert halls. Such a mix would be close to a standard sound mix for, say, a Broadway show or an orchestral concert with a few simple, but important changes.

Here are a few of the considerations that should go into the creation of a sound mix for a wireless assistive listening system in a theater or concert hall:

- 1. An assistive listening sound mix (AL mix) should avail itself of the full frequency response of the sound system. Even though modern-day hearing aids provide nowhere close to the full frequency response of modern audio equipment, I believe the sound going into the assistive listening system should be as accurate as possible. Therefore, the sound mix that is distributed to peoples' assistive listening devices—including hearing aids via neckloops or phased array room loop systems—should comprise the same frequency response as the standard house mix and not be cut off at some arbitrary low frequency below that.
- 2. Those of us with hearing loss are extremely sensitive to any kind of distortion due to issues like hyperacusis and recruitment. We need both a loud and a clean signal which, unfortunately, is often not the case. A good rule of thumb is that if the AL mix sounds distorted to the house engineer, it will sound far more distorted for someone with hearing loss and will possibly be unlistenable.
- 3. An AL mix should be compressed and limited in its dynamic range, and likely somewhat more so than a standard house mix. People with hearing loss have a restricted dynamic range and cannot hear soft sounds without amplification. What is less well known is that people with hearing loss can also be overwhelmed when the sound is too loud. Therefore, the sound we receive should have no sudden peaks and no passages that are very soft. To achieve this properly, thresholds, attack and release times for compressors need to be set carefully to minimize pumping effects, which I have heard quite often over assistive listening systems and which can easily be avoided by the use of modern hardware and plug-ins. There should be a set of compressor presets for typical situations, e.g., orchestra concert, play, musical, jazz or rock concert which are simply switched on as needed. Also, since sound levels are invariably quite high for people with hearing loss, it is important that a brick wall limiter be placed just before the final output to the wireless system to prevent sudden, dangerous transient peaks.

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- An AL mix should be available in mono as well as stereo. For example, Ihave only
  one working ear after my sudden sensorineural hearing loss and can't wear
  headphones because of recruitment and hyperacusis in my bad ear.
- 5. An AL mix should probably feature somewhat more prominent voices in vocal music mixes say for operas and musicals and should be a bit brighter than a typical house mix, especially on the vocals. Please note that a small emphasis is all that is necessary. If the vocals are severely over-emphasized and the instruments too soft which I have experienced at a major Broadway musical in New York City you lose all the pleasure of the music, and it is very unpleasant. Likewise, too much brightness creates a harsh, displeasing sound even for people with a serious high frequency loss. Probably only a bit of vocal rebalancing (3-6 dB louder vocals vs. the standard house mix) and high frequency emphasis again, only a few dB is desirable.

**Richard Einhorn** is a composer, music producer, and hearing loss consultant. A summa cum laude graduate of Columbia University, Richard's oratorio with silent film, *Voices of Light*, has been called a "great masterpiece of modern music" and been performed by the National Symphony, Baltimore Symphony, and at such venues as Disney Hall, Avery Fisher Hall, the National Cathedral of Washington, and the Sydney Opera House. Richard's production of Yo-Yo Ma's Bach Cello Suites was awarded a Grammy for Best Instrumental Performance. Richard's advocacy for better hearing technology has been featured numerous times in *The New York Times, Washington Post*, and on NPR.

After losing much of his hearing to a virus in June 2010, Richard has become a nationally known advocate for better hearing assistance. He has consulted on the design of hearing apps for smartphones, product development for hearing products, written articles on hearing loops and improved hearing technology for audiology and medical magazines, and given numerous public presentations in the United States and England on hearing loss. Elected to the Board of the Hearing Loss Association of America, (HLAA) Richard delivered the Keynote Address at HLAA's annual convention in June 2014. In the spring of 2015, he presented his views on hearing loss technology to the Institute of Medicine in Washington, DC, and also to the President's Council of Advisors on Science and Technology.

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## Sample Request for Proposal for Hearing Loop System

Link to printable version, 4 pages HERE

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## Sample Request for Proposal for Hearing Loop System

Quality hearing loop installations need to meet the International Electrotechnical Commission (IEC) standard 60118-4. Following installation, it is recommended the installer provide a written certificate of compliance to the IEC standard.

#### Scope

(CLIENT) is requesting a proposal for an Audio Frequency Induction Loop System (AFILS), or systems commonly known as a hearing loop system, to be installed according to the current IEC 60118-4 standard in (VENUE). The awarded contractor will furnish all materials and equipment and install a fully functioning system. A mandatory pre-quote conference and site visit (UNLESS NEW CONSTRUCTION AND FACILTY NO BUILT YET) is scheduled for (DATE and time) at (LOCATION) and is expected to last approximately (TIME LENGTH).

It is requested that hearing loop systems be proposed in the following rooms/areas:

LIST ROOMS, if divisible rooms are desired, list as rooms A, B, C, etc.

When multiple hearing loop systems are installed in adjacent rooms/areas, they shall not interfere with each other. To limit interference, the level of overspill shall be less than –32dBrms (-40dB preferred) at 3 feet into the adjacent room. Prior to installation a demonstration must be performed for the client demonstrating the levels utilizing speech in each of the adjacent rooms.

Additionally, the signal from the hearing loop system might need to either be limited or designed so they can be turned on and off.

• LIST ROOMS/AREAS, such as a stage that uses guitars, other rooms/areas where a hearing loop system is in use, or other rooms/areas that use neckloops. (REMOVE SECTION IF NONE)

The awarded contractor agrees to the following requirements:

 The awarded contractor must be properly licensed for installation of low voltage equipment and wiring in the state of (STATE) on the date the proposal is submitted. (IF APPLICABLE IN STATE)

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## **Sample Basic Hearing Loop Presentation**

The PowerPoint presentation can be accessed **HERE** 

https://www.hearingloss.org/wp-content/uploads/HLAA-basic-hearing-loop-presentation.pdf

## Information About: Effective Communications Access Presentation Prepared by: the HLAA Get in the Hearing Loop Committee

**Purpose**: Enable HLAA Chapter leaders and members to present consistent and branded HLAA messaging to local decision-makers responsible for ensuring communication access.

**Audience**: Organizations who are required or want to provide communication access. For example, State and local government organizations and departments responsible for ensuring communications access, e.g. city councils, hospitals, public-funded venues, museums, funeral homes, theaters and other organizations etc.

#### **Presentation Guidelines:**

- Suggested talking points are provided for each slide; these can and should be personalized for a more impactful presentation
- Depending on the meeting size and venue, work with staff prior to the meeting, to ensure projection capability from your laptop or tablet
- If possible, use a venue with a hearing loop installed or use a mobile loop system
- Launch the presentation on slide 2, the title slide.
- A pointer would be helpful to use with slide 13
- The materials to support this presentation can be found in the Get in the Hearing Loop Toolkit, available on the HLAA website and also HLAALoopers@groups.io. You can select materials to include in presentation information packets.

#### Use:

- When giving a presentation with this PowerPoint hide slide 1. From the Slide Show tab select hide slide.
- The yellow highlighted areas of slides 2, 4, 6, 21 and 24 may be altered without permission. All other slide content cannot be altered without permission. To request permission or for any other questions, email: GITHLinfo@hearingloss.org

The GITHL committee created a presentation titled *Effective Communication for People with Hearing Loss* to use when advocating for hearing loops.

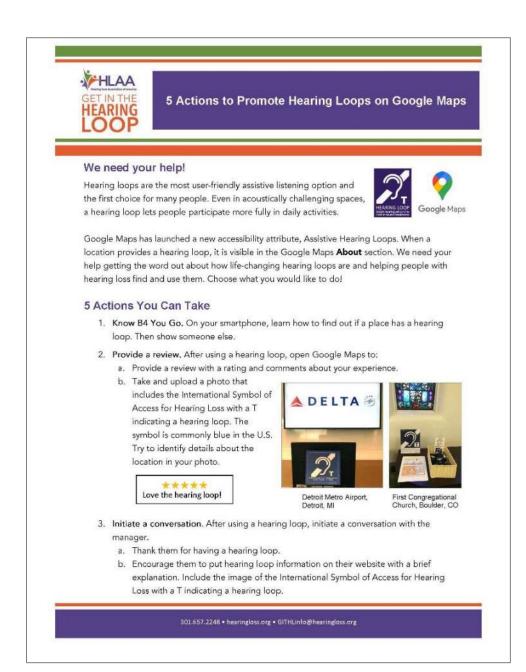
## Sample List of Hearing Loop Installations

Available on the HLAA GITHL groups.io. It can be accessed **HERE** https://hlaagroups.hearingloss.org/g/HLAAGITHL/table?id=28838

## **Promote Hearing Loops on Google Maps**

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## **Promote Hearing Loops on Google Maps**

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- Are you aware of a hearing loop that isn't listed in Google Maps? Please let us and Google Maps know!
  - Submit hearing loop location information using our online form, hearingloss.org/HearingLoopLocations.
  - b. In Google Maps, click on Update this Place.
- Spread the word. Share your positive personal experience story about using Google
  Maps in your community to help others understand the importance of knowing before
  you go.



The Hearing Loss Association of America (HLAA) is the nation's foremost organization representing people with hearing loss. The mission of HLAA is to open the world of communication to people with hearing loss through information, education, support, and advocacy. For more information about HLAA's Get in the Hearing Loop Program, including a free toolk't, visit hearingloss.org/GITHL.

Photos courtesy of Juliëtte Sterkens and Wynne Whyman.

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