Looping America
Presented by: Scott Peyton

2nd International Loop Conference, June 19-20th Washington, DC

Wireless Hearing Solutions
...enhancing the hearing aid experience
Looping Initiatives
New Mexico, Wisconsin, Colorado, NY....
HEARING LOSS - THE INVISIBLE HANDICAP
Hearing loss population (1989-2004) in millions with projections through the year 2050 based on MarkeTrak incidence of hearing loss by age group applied to US Bureau of Census age population projections.
Reverberation and echos reduce speech intelligibility in large open spaces.
Speaker is fifteen feet from the hearing aid with cocktail noise in the background.

Sound is processed through the hearing aid and artificial ear.
Hearing Aid Using Microphone Input

The speaker is located in an acoustically prepared class room.

Sound track is taken directly from the hearing aid through an artificial ear.
HEARING AID USING TELECOIL
Assistive devices help eliminate the echo and distortion caused by the environment and acoustics.
Hear It the First Time with our modified ear trumpets! $9.95
Want an exceptional TV listening experience?
INFRARED SYSTEMS

- Relatively low current consumption in the receiver.
- Receiver is relatively expensive/complicated
- Compatibility problem with hearing aid systems.
- Works in all countries.
- No overspill
FM (RADIO) SYSTEMS

“TV Ears Saved Our Marriage!”
—Darlene and Jack B., CA
Different modulations - FM is the most common

- High current consumption.
- Receiver is relatively expensive/complicated
- Receiver is relative large
- Compatibility problem with hearing aid systems.
- Not acceptable in all countries.
- Overspill leakage
NFMI used in neckloops and streamer like devices creates a static bubble under six feet in diameter.

ADVANTAGES
• High Quality of Service
• Secure, small transmission signal.

DISADVANTAGES
• Requires an extra piece of equipment that needs batteries or charging.
• Not available on all hearing aids, especially the less expensive models.
• Will not work in large venues.
BLUETOOTH'S LIMITATIONS

- BT-chipset is large.
- High current consumption (35-50mA)
- No large venue applications due to signal speed.
- Frequency regulations
THE $25 T-COIL
LOOPS vs INFRARED or RADIO

1) Require fewer portable receiving units (and batteries)
2) Operate on a universal frequency (radio and FM systems operate on differing frequencies, requiring receivers for each venue)
3) Are inconspicuous: No need to visually announce “I am HOH!”—an invisible solution to an invisible problem
4) Work in transient situations (can serve the HOH at ticket counters, teller windows, drive-through stations, airports, etc.)
5) Entail no hygienic concerns regarding ear buds
6) Are hearing aid compatible: Do not require putting ALD on/off (e.g., church sermon/singing)
7) Flexible use: Can allow either direct listening (M=mic) or loop broadcast (T=telecoil) modes, or both
8) Deliver personalized in-the-ear sound... customized by one’s own hearing aids to address one’s own hearing loss.
LOOPS ARE AN ACCESSORY TO THE HEARING AID THAT MAKE IT MUCH MORE EFFECTIVE

- Works in individual or large venue applications.
- Very user friendly = integrated in the Hearing Aid
- Good sound quality
- Current consumption is zero
- Compatible world wide without modification
10 years ago only 37% of new hearing aid wearers could use loop systems because they did not have a T-Coil in their hearing aid ……. BUT

- Today T-Coils are in 70% of new hearing aids.
- Those most needing assistance are the most likely to have telecoils
- With portable receivers, loop systems can serve everyone without T-coils (same as FM, infrared)
- If we build it, they will come (the first TV stations had few viewers)
- Which comes first – a looped church or parishioners with telecoil equipped hearing aids?
Induction loop is a term historically used to describe an electromagnetic communication system, which exploits a phenomenon that was (according to anecdote) first noticed accidentally, on a battlefield during World War I. A telegraph linesman was running tests on a field telephone cable loop, when a radio operator, within the loop, noticed sounds in a headphone that had a faulty, short-circuited, jack-plug.

T-Coils were originally used to improve hearing on the telephone. This allowed the electronic signal to go directly from the speaker magnet to the T-Coil in the hearing aid. This eliminated feedback by ignoring the sound waves.
The average American watches more than 4 hours of TV each day.  

Men and women over 60 spent nearly 50 hours a week watching TV.
PATIENT SATISFACTION WITH TELEVISION

Results show percentages from 71 patients

- Very Poor
- Poor
- Average
- Good
- Very Good

“NORMAL” and “LOOPED” categories are compared.
PATIENT SATISFACTION WITH HEARING AID

Results show percentages from 71 patients

- **NORMAL**
- **LOOPED**

<table>
<thead>
<tr>
<th>Category</th>
<th>Very Poor</th>
<th>Poor</th>
<th>Average</th>
<th>Good</th>
<th>Very Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>0%</td>
<td>10%</td>
<td>40%</td>
<td>15%</td>
<td>20%</td>
</tr>
<tr>
<td>Loop</td>
<td>5%</td>
<td>20%</td>
<td>30%</td>
<td>35%</td>
<td>30%</td>
</tr>
</tbody>
</table>
STEP 1 Loop your office
STEP 2  Train your staff
STEP 3

Find an installer
Reduced returns - most hearing center's never get a returned hearing aid on a sale that includes a loop.

Referrals - your patient may never tell anyone about their hearing aid; they’ll tell everyone about their loop.

Differentiate your business - give your reputation a boost in the eyes of the community.

**IF YOU GIVE YOUR PATIENT A HOME LOOP, IT’S AN INVESTMENT IN YOUR REPUTATION AND THE MOST EFFECTIVE MARKETING MONEY YOU CAN SPEND!**
TV AND COMMERCIAL LOOPS GO HAND IN HAND

SYNERGY

Your patients with home loops are so happy they can hear TV they tell their church, theater and bank how well they can hear at home. They become your sales force for commercial loops in the community.

Every commercial loop you sponsor or install becomes a free service oriented advertisement. Every hard of hearing person that walks in that facility is a potential new client.
RESIDENTIAL

• Residential homes

SERNIOR FACILITY COMMON AREAS

• Senior facility common areas

• Bank and pharmacy windows

• Churches

MOVIE THEATRES

• Movie theatres

• Concert halls

• Auditoriums

• Vehicles

COMMERCIAL LOOPS

• Kommersielle rom

• Churches

• Movie theatres

• Concert halls

• Auditoriums

• Vehicles
## RADIO WAVE SPECTRUM

<table>
<thead>
<tr>
<th>Band name</th>
<th>ITU Band</th>
<th>Frequency</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely low frequency</td>
<td>ELF 1</td>
<td>3-30 Hz</td>
<td>Submarine communications</td>
</tr>
<tr>
<td>Super low frequency</td>
<td>SLF 2</td>
<td>30-300 Hz</td>
<td>Submarine communications</td>
</tr>
<tr>
<td>Ultra low frequency</td>
<td>ULF 3</td>
<td>300-3,000 Hz</td>
<td>Communications within mines</td>
</tr>
<tr>
<td>Very low frequency</td>
<td>VLF 4</td>
<td>3-30 kHz</td>
<td>Avalanche beacons</td>
</tr>
<tr>
<td>Low frequency</td>
<td>LF 5</td>
<td>30-300 kHz</td>
<td>Navigation, time signals, AM longwave broadcast</td>
</tr>
<tr>
<td>Medium frequency</td>
<td>MF 6</td>
<td>300-3,000 kHz</td>
<td>AM mediumwave broadcasting</td>
</tr>
<tr>
<td>High frequency</td>
<td>HF 7</td>
<td>3-30 MHz</td>
<td>Shortwave radio, over-the-horizon communications</td>
</tr>
<tr>
<td>Very high frequency</td>
<td>VHF 8</td>
<td>30-300 MHz</td>
<td>FM, TV and line-of-sight airline communication</td>
</tr>
<tr>
<td>Ultra high frequency</td>
<td>UHF 9</td>
<td>300-3,000 MHz</td>
<td>TV, microwave ovens, cell phones, LAN, Bluetooth</td>
</tr>
<tr>
<td>Super high frequency</td>
<td>SHF 10</td>
<td>3-30 GHz</td>
<td>Microwave devices, radar</td>
</tr>
<tr>
<td>Extremely high frequency</td>
<td>EHF 11</td>
<td>30-300 GHz</td>
<td>Radio astronomy, high-speed microwave relay</td>
</tr>
</tbody>
</table>

Loop Signals run between 100Hz and 5kHz
• Induction Loops - 100 mA/m (average) = 0.126 μTesla

• Magnetic field earth = 100 μTesla

• Loudspeaker magnet = 10 mTesla

• Neutron star = 10^8 Tesla

• The magnetic field strength from Earth is approximately 1000 times stronger.

(Static but induce current in moving objects)
DESIGN CONSIDERATIONS

- EMI
- Metal Loss
- Signal
- Aesthetics
The loop wire must completely encompass the listening area
The angle of the field directly over the wire is at an opposite angle of the direction of the coil in the hearing aid. The signal at this angle does not connect to the coil and as a result does not register in the hearing aid, creating a silent area over the wire.
Disconnect the loop driver from main power supply. Set the meter to A-filter, -30 dB position. The measured level should be less than -32 dB(A) in the whole coverage area, -48 dB(A) is preferred. -22 dB(A) is acceptable for short message systems. If the noise level is around or more than -32 dB(A), switch the FSM to FLAT and check the difference between the two settings. If the difference is 20dB or more the noise is low frequency hum and should not be noticeable to hearing aid users.
PUTTING THE JOB TOGETHER

REVIEW

1. Site visit - Use the FSM to measure background noise
2. Engineering the field, plan review
3. Determine sq. footage & choose appropriate equipment
4. Plan wire type, placement, and pattern
4. Test the loop to evaluate the influence of metal. Plan accordingly to results
5. Factor all costs
6. Show all costs; even if you are “donating” any portion
A critical component in the success of an installation is the quality of the users hearing instruments and their adjustment. The system will be perceived better if all users are checked by you or your staff. Other than their value as new patients, they will be more satisfied with the loop system.

Signs like the one to the right can help steer new patients your way and advertise your practice.

HEARING LOOP INSTALLED

PLEASE SWITCH YOUR LISTENING DEVICE OR HEARING AID TO “T”
T-COIL OR TELEPHONE

FOR FURTHER ASSISTANCE PLEASE CONTACT:

6653 Grand Haven Road, Spring Lake (231) 798-2323
My name is ______________________

I use hearing aids to hear and to communicate.

Like most persons with hearing loss who use hearing instruments I have difficulty hearing in large gathering spaces even if a Mic and a PA System are used.

On ______________________ (date)

I experienced significant difficulty hearing what was said at your facility

If you would like to discuss further:

__________________________ (phone/Email)

May I recommend that your facility Get an **Induction Hearing Loop?**

**Hearing Loops:**
- Connect seamlessly & wirelessly with personal hearing aids that have a built in T-Coils
- Turn my hearing aids in direct receivers of PA sound
- Reduce the need to purchase, maintain, recharge, repair, sanitize, or issue and retrieve multiple assistive listen device (ALD) receivers
- Eliminate the hygienic concerns of ALD users
- Are cost effective and inconspicuous (& I like that!)
- Accommodate one or 100+ persons at the same time
- **Give persons with hearing loss equal access** (ADA)

For more information visit:
- [www.hearingloop.org](http://www.hearingloop.org)
- [www.foxvalleyhearingloop.com](http://www.foxvalleyhearingloop.com)
By Mark Melnicoe - mmelnicoe@sacbee.com

Plugged In: Wireless hearing-aid systems urged for Sacramento-area venues

It seems simple enough: Give people who wear hearing aids a Wi-Fi-style boost that allows them to hear their TV sets without blasting other people out of the room.

The technology – an induction loop system – is in wide use in northern Europe but has barely made a blip in the United States, where 31 million people have impaired hearing.

Now a Sacramento audiologist is working on changing that. Julia Tanner, who practices in the Campus Commons area, says her patients love the system she has pushed for more than a year.

"Even with a mild hearing loss, which is getting more and more common as we age, hearing something that's across the room clearly is difficult," Tanner said. "As soon as we start introducing other things into the room – an air conditioner or fan noise – that's competing with the TV. ... Anything over eight to 10 feet away, the hearing aid doesn't really pick up." 

Virginia Petrocchi, who is 82, has had her TV room "looped" for the past eight months.

"It's the greatest thing that's ever happened," said the Sacramento resident. "We're both (he and Faye, his wife of 68 years) hard of hearing, and it just works wonderfully." 

The system employs technology that's long been used in telephones for the hard of hearing. For a TV or stereo system, a small transmitter (about twice the size of a deck of cards) plugs into the audio-out jack.

From the transmitter, a thin wire is run in a circle around the room, usually under rugs or along baseboards. 

This creates an electromagnetic field that sends the audio signal directly to the hearing aid when it is set to T, or telecoil. The telecoil acts as the receiver.

Tanner uses a system from Michigan-based Wireless Hearing Solutions that costs $185 and is easy to install. For those who want a professional to set it up, it's another $100.

The system is one of many that are coming of age just in time to help out the 44 million Americans who are hard of hearing, said Tanner, who is on the board of the Better Hearing Institute.

With the induction loop system, Tanner has her sights set on a bigger stage: She wants loop systems installed in the Mondavi Center, Music Circus, other local arena and movie theaters.

"You'll see when you go to the theater that little ear in the box office or corner that says "assisted listening device available,"" she said. "They often aren't working or other people have worn them or you feel a little self-conscious that you're drawing attention to yourself. If you had a telecoil, all you'd do is simply switch your hearing aid to that program."

She said it would require a more powerful system but that even a full-size theater could install one for about $1,000. For those without hearing aids, a Walkman-like device could pick up the signal.

The system works so well that Great Britain has installed them at ticket windows in the London Underground and in London taxis. They are also becoming more ubiquitous in Scandinavian countries, where more people wear hearing aids because the national health systems pick up the cost, unlike in the United States.
USE ONLINE RESOURCES

Make use of online resources like:

americanloops.com

inloop.com

Hearingloop.org
A Champion for the Hard of Hearing

Janice Schacter, 44
New York City

A MOTHER'S VIEW. A software lawyer, Schacter felt her heart sink when daughter Ashley, diagnosed with hearing loss at age two, was rejected from preschools that couldn’t accommodate her needs. After years of fighting for better hearing access with relevant technology—such as the已达iverse Loop—a coalition around a new that works together to make better hearing accessible to people with hearing loss. In 2001, she co-founded an organization, New York Advocates for a Better Hearing Experience, to advocate for better hearing access in education and workplace. Schacter believes that every child has a right to equal education and that every workplace should be accessible. Her efforts have gained recognition, including an award for her dedication to the hearing community.

By Richard Isen

ALDs: providing positive connections

Assistive technology can increase patient satisfaction and bring enhanced community integration.

By Jennifer Doe, ALD

In a recent study involving a large group of individuals, the use of assistive listening devices (ALDs) was found to significantly improve patient satisfaction with hearing aid use. The study, conducted among 100 participants, revealed that ALDs provide a positive impact on the daily lives of those with hearing loss, offering better communication and reduced isolation.

by Jennifer Doe 2023

www.alldirectory.org
TELL THE STORY