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Helping People Hear Anywhere with Telecoils and Auracast

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Recently, we received an enthusiastic email from an audiologist whose hearing aid supplier told her that Auracast™ is ready to take over from telecoils and hearing loops. The audiologist, having been the catalyst for some hundred consumer-preferred hearing loops[1] in her community, was prepared to start installing Auracast™ streamed assistive listening* systems. She sought advice on gearing up for Auracast advocacy, even while her patients currently use and benefit from hearing loops. As advocates for people with hearing loss, this is a fun email to get. Here's a provider who understands that Auracast system installations won't be adopted without professionals taking an active role in their communities.

*The full technical name is "Auracast™ Broadcast Audio used as part of an Assistive Listening System (ALS)" and is simply identified as Auracast streamed assistive listening (AL) in this article.

Auracast has certainly been in the news lately, making it seem ready to deliver. What provider doesn't want to help clients hear with emerging technology in the very places where hearing aids alone frequently do not deliver[2]? Is now the time to start "Auracasting"[†], much like many professionals have supported looping that improved hearing access in their communities one hearing loop at a time?[3,4] The short answer to our friend was no. Keep waiting and continue doing what you've been doing.

[†]"Auracasting" is all about fostering Auracast streamed assistive listening systems to improve hearing access in one's community for one's patients — it is NOT about fitting clients with hearing aids that are Auracast compatible so that they can connect to a TV streamer or new smartphone.

Providers need to:

1. Gradually encourage additions of Auracast streamed assistive listening ONLY WHEN their patients' hearing instruments can connect flawlessly using Auracast connectivity in their hearing device (not today).
2. Continue supporting installations of proven assistive listening systems (hearing loops, FM/RF, and infrared) until Auracast streamed assistive listening works well for people with hearing loss.
3. Fit instruments with Telecoils and Auracast in the instrument themselves.

Assistive Listening Systems Quick Guide

	Hearing Loop	FM	Infrared (IR)	Wi-Fi	Auracast as ALS*
Easy to use	✓				In development
Needs no equipment check-out †	✓				In development
Used at service counters / help points	✓				In development
Used in public transport	✓				In development
Used outdoors	✓	✓		✓	In development
Low overspill	with phased array design		✓		In development
Meets ADA standard	✓	✓	✓		In development
Does not need a smartphone or app	✓	✓	✓		In development
Susceptible to electromagnetic interference (EMI)	✓	✓ ††	✓ ††	✓ ††	In development
Minimal latency (sound delay)	✓	✓	✓		In development
Available now	✓	✓	✓	✓	In development

* The full technical name is "Auracast™ Broadcast Audio used as part of an Assistive Listening System (ALS)" and is simply identified as Auracast streamed ALS in this document.
† For telecoil-enabled hearing instruments (hearing aids, cochlear implants, and bone conductive devices).
†† When used with a neckloop.

Figure 1. Assistive listening systems quick guide.

What is Auracast?

Bluetooth® 5.2, a 2.4 GHz wireless technology standard, was released in 2020. LE Audio is a new audio technology within the Bluetooth 5.2 standard. It will improve the battery life of connected devices and can potentially improve sound quality. It uses a new high-speed, low-latency codec, which still requires pairing. Auracast builds on the Bluetooth LE Audio standard and addresses the one-on-one broadcasting limitation, allowing audio to be simultaneously broadcast to many devices *without* the need for traditional pairing. Not all BT 5.2 devices support LE Audio and Auracast. Auracast is just a means of wirelessly transmitting a digital audio signal; it is NOT a complete Assistive Listening System (ALS) solution.

In many articles and on social media, Auracast is purported to already be here and widely available. But which Auracast application? Understanding that Auracast can be used in two very different ways that should not be conflated is vital. While **Auracast broadcast for Audio Sharing** will soon be here, **Auracast audio streaming, used as part of an Assistive Listening System (ALS),** to be deployed in facilities as a replacement or add-on option for existing assistive listening systems is not ready. To date, there have been no permanent Auracast-streamed ALS installations. The latter technology is still in its infancy and will likely not be widely available in facilities for years.

1. **Auracast broadcast for Audio Sharing** is for situations with no live sound, such as TVs at a sports bar or fitness club, or where people want to transmit audio, like a podcast or a playlist

from their cellphone to several other wireless earbuds and, hopefully soon, hearing aids. Auracast technology will likely make life easier for audiologists, allowing them to focus more on fine-tuning hearing aid settings and patient counseling rather than managing complex and time-consuming connectivity issues due to brand-specific (paired) Bluetooth protocols. With the appropriate hardware upgrades, patients should also be able to stream audio from laptops and TVs with less fuss. Patients (and professionals) may no longer be held hostage to expensive proprietary accessories such as remote table-top and handheld microphones.

- **Auracast Streamed Assistive Listening** is for installations or temporary systems in locations where live sound from a PA system mixer is provided or where there are dedicated ALS microphones. Auracast broadcast audio has the potential to be used as part of an assistive listening system, but in itself, it is not a complete assistive listening system, a limitation that seems not to be widely understood. The requirements for when Auracast is used for assistive listening are still to be written. They will eventually appear in IEC 60118-17: "Assistive listening system for hearing aid users based on 2.4 GHz audio streaming" www.iec.ch/ords This standard will outline the key performance metrics for Auracast broadcast audio used as part of an ALS, including latency limits, connectivity, and sound quality requirements. Its finalization is slated for November 2027. Without this standard, site and user equipment may be incompatible, may not fully work, users may need to use equipment differently, and other unforeseen problems may present themselves during this time.

The requirements standard for Assistive Listening Systems in general, to which IEC 60118-17 will refer, is also under development by the IEC and is scheduled to be released early in 2026.

While it is generally expected that there will be a dedicated Assistive Listening stream within the Auracast requirements, it is unknown how hearing aids and devices will connect to this stream. Ideally, there would be a simple (pushbutton) control on the hearing aid, as there is for connection to a hearing loop or neckloop. However, the indications are that an intermediary 'assistant' device, such as a smartphone and an app, will be required to select the ALS stream.[5] Therefore, Auracast streamed assistive listening is unlikely to be as easy to use as a traditional hearing loop.

Latency, not an issue generally associated with traditional assistive listening systems, will also require careful consideration as the anticipated 30–40+ ms delay of an Auracast transmission is additive to other small delays and latencies already occurring within an ALS. This could increase the total end-to-end delay, making it very noticeable to the patient, especially when their hearing device is set to a mix of Microphone + Auracast reception. This M+A setting is similar to how, currently, hearing aids can be set to M+T (Microphone + Telecoil), an important setting for patients with more occluding earmolds to hear and monitor the loudness of their voice and talk with the person next to them.

It is also unknown whether the Auracast transmitter will be required to include automatic gain control (AGC) when used as part of an ALS. AGC can help match the correct audio level from a microphone system or PA / AV system output, reducing the need for volume control on hearing aids or continual volume adjustment to obtain a comfortable listening level. But – a good thing – those companies that manufacture hearing loop drivers today know this, as AGC is currently required in the 60118-4 hearing loop standard. (AGC is why telecoil users rave about hearing every

word, even those whispered, in all hearing loops and some FM/RF and infrared systems.) If some manufacturers of public Auracast-based ALS transmitters do and others don't include AGC, there will likely be a significant difference in our patients' experience when listening to different Auracast transmissions.

Multiple transmitters may be required to achieve necessary coverage in large and oddly shaped spaces to ensure the receiving devices (wireless earbuds, hearing aids, and cochlear implants) can 'see' the 2.4 GHz transmission. The ability to seamlessly link multiple Auracast-based ALS transmitters has not yet been developed, let alone field-tested. Remember those dropped cellphone calls between cellphone towers?

The hearing industry has promised an easy connection to Auracast audio streams without an app or smartphone. However, the only demonstrations of Auracast so far have involved using a handshake device—an experience much like joining a Wi-Fi network. Intermediary devices add complexity for individuals with limited dexterity, limited cognitive abilities, or limited tech savviness.[6]

Amid Change, Some Expectations and Considerations

As of the time of writing (January 2025), 99.9% of users do not have hearing instruments with Auracast capability. Of course, more devices are expected to be released later this year, and most new hearing devices with Auracast capabilities might be seen sometime in 2026 or 2027. Patients' lifecycle for their hearing instruments is typically 4–7 years. Therefore, we must focus on what works today and what helps most users hear today rather than what may work in the future.

Early Auracast-streamed ALS will function like infrared or FM/RF systems rather than hearing loops since so few users will have Auracast-compatible hearing instruments. Those without hearing aids or telecoils will use the Auracast streamed ALS with receivers and headphones, and those with telecoil-equipped devices will use receivers and neckloops. This means that today's hearing loop users will not immediately be happy campers, as there is plenty of evidence that patients prefer hearing loops and telecoils in their hearing aids, because hearing loops provide direct connectivity. In comparison, locating an Auracast receiver with a neckloop is a hassle and "outs" the disability many patients try to hide. If the telecoil is in an accessory, it's even more complicated for the average user to connect. That is why, at this time, many assistive listening professionals, as well as equipment manufacturers, still recommend the installation of hearing loops: hearing loops deliver sound customized by one's hearing aids and have the added benefit of being easy to use.

An Auracast streamed ALS is anticipated to work quite satisfactorily alongside an existing hearing loop, an FM/RF, or infrared-based ALS. Initially, Auracast streamed assistive listening can and will be used to augment an existing ALS rather than replace it until a full transition is ready. Even then, it must be realized that an adequate and separate means of picking up and conditioning the wanted sound still has to be provided as this is not directly part of the Auracast technology.

Telecoils and Auracast in Hearing Instruments

Since 2009, national and international consumer groups have written declarations[7] about the criticality of including BOTH telecoils and Bluetooth/Auracast in hearing devices, and the Center for Hearing Access just released "ADA Access Ready Hearing Instruments: Auracast™ and

Telecoils." All declarations stress that

NEITHER technology should be optional: patients shouldn't be forced to choose between them.

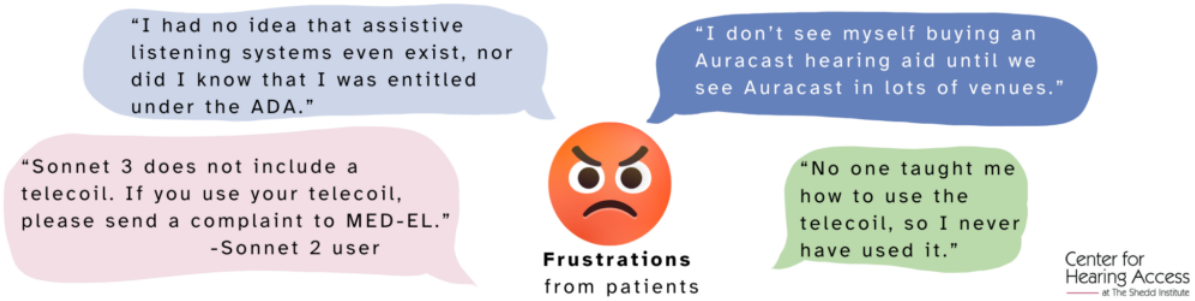

Figure 2. Frustrations from patients.

We've heard from consumers who are disappointed when they find out their instruments do not include telecoils, telecoils were in an accessory and not in the device, or that the telecoil in their device was not activated (see Figure 2) as well as from professionals who are frustrated about the lack of products provided by hearing aid manufacturers (see Figure 3).

Patients need both Telecoils and Auracast in hearing instruments

1. Telecoils to directly connect hearing instruments to existing hearing loops - no receiver needed.
2. Telecoils to connect to FM/RF and infrared ALS - via a receiver with a neckloop.
3. Telecoils to connect to early Auracast streamed ALS - via a receiver with a neckloop.
4. Auracast in their hearing instruments to be ready for **Auracast broadcast for Audio Sharing**, which will be useful when personal consumer electronics (smartphones, TVs, laptops, and tablets) are replaced.
5. Auracast in their hearing instruments to be ready for future direct **Auracast streamed assistive listening** – no receiver needed.

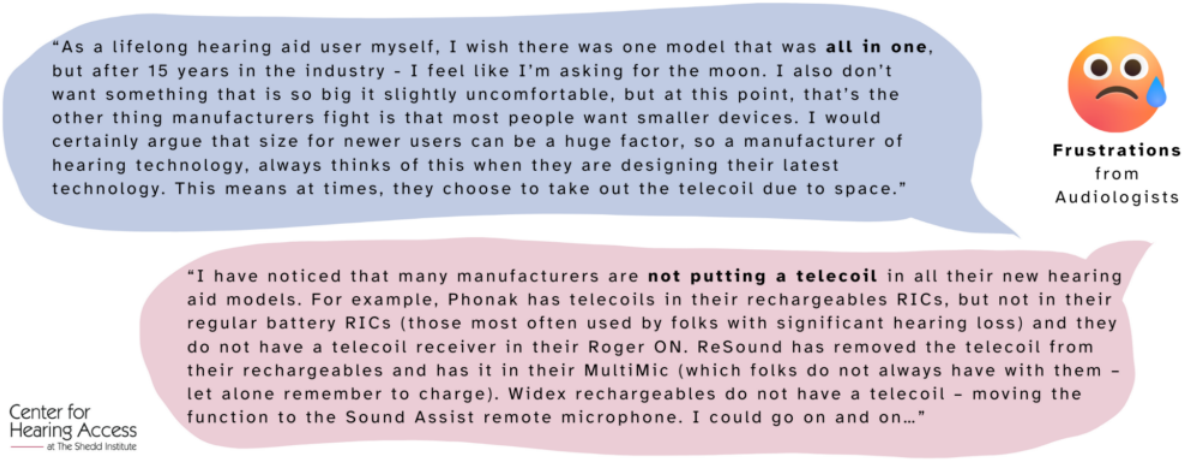

Figure 3. Frustrations from audiologists.

Key Points

1. **The future will, therefore, bring the coexistence of FM/RF, infrared, hearing loops, *and* Auracast streamed ALS.** Both Ampetronic[8]/ListenTech (ALS manufacturers) as well as the Bluetooth Special Interest Group,[9] have stressed in lectures and web-based articles to hearing care, AV, and ALS professionals that the hearing loop and telecoils will remain the only widespread, real-time, direct-to-hearing aid option for the foreseeable future, and their inclusion and enabling in hearing aids is vital for the best possible hearing clarity.

- **The audiology community plays a key role in helping clients hear in as many places as possible.** Audiologists and hearing instrument providers are essential in providing devices that permit users to hear in as many places as possible by activating built-in telecoils, demonstrating the benefits of all connectivity features (not only connectivity to cellphones but benefits of telecoils as well, including hearing on landline and business telephones via inductive coupling[10]), and insisting that hearing instrument manufacturers develop multiple models with built-in telecoils AND Auracast compatibility for the next decade.

Where Do We Go from Here, In The Next 5–10 years?

We wish it were easier. Having been involved with hearing loop and assistive listening advocacy,[11,12] consumer surveys,[13,14] telecoil research,[15,16] and looping, we have learned that doing advocacy and hearing loop installations right is challenging but also professionally energizing as lives are improved. Getting Auracast streamed ALS technology installed will take a lot of work initially, too. There will be hurdles, malfunctioning equipment, and devices' non-compatibility; making this happen internationally will require every audiologist’s involvement. Of course, marketing folks in the hearing industry want us to believe the new Auracast tech will work great right out of the box, there are already Auracast streamed ALS installations around the world, and, therefore, one should only fit Auracast-compatible devices and forget about telecoils.

Both personally and professionally, we are excited about what an Auracast future will bring for people with hearing loss, giving connectivity that hasn’t been possible previously, the opportunity for new innovations, and broader exposure to all ALS technologies. We are ready to test this transition process with professionals who have been involved with looping their practices and communities. Thanks to them, thousands of hearing loops have been installed and continue to be installed daily across the US and Canada,[17] and FM/RF and infrared systems with neckloops are being rediscovered. Assistive listening systems (hearing loops and neckloop systems) can be found at conference centers, courthouses, funeral homes, government meetings, healthcare facilities, hotels, libraries, museums, performing arts venues, retail service counters, stadiums, tours, trains, etc., in North America, the EU, the UK, and 30+ other countries.

For patients to continue to use this ALS infrastructure, patients need telecoils to hear today. Over time, these patients will benefit from built-in Auracast in those same hearing devices as these stand-alone 2.4 GHz transmitters become more commonplace. Where assistive listening systems are frequently used today, adding Auracast streaming transmitters will happen naturally and

potentially improve patient satisfaction, terrific practice PR, and renewed excitement in the hearing aid industry. Hearing loops, FM/RF, IR, and telecoils will extend the capabilities of hearing instruments for years to come.[18,19] The time to *only* focus on "Auracasting" has not yet arrived.

Essential reading materials (Center for Hearing Access)

- What is needed for Auracast streamed ALS to be available and usable? (2 pages).
- Assistive Listening Systems Quick Guide (1 page). Compare five assistive listening systems.

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