Appendix 3: Market overview

Auracast: The next global assistive listening solution?

Byron Palavikas; Manisha Dunuarachchi; Erik van Vulpen; Prof. Ani Desai.6-057IEP: Accelerating the adoption of Auracast: everyone should hear what matters.

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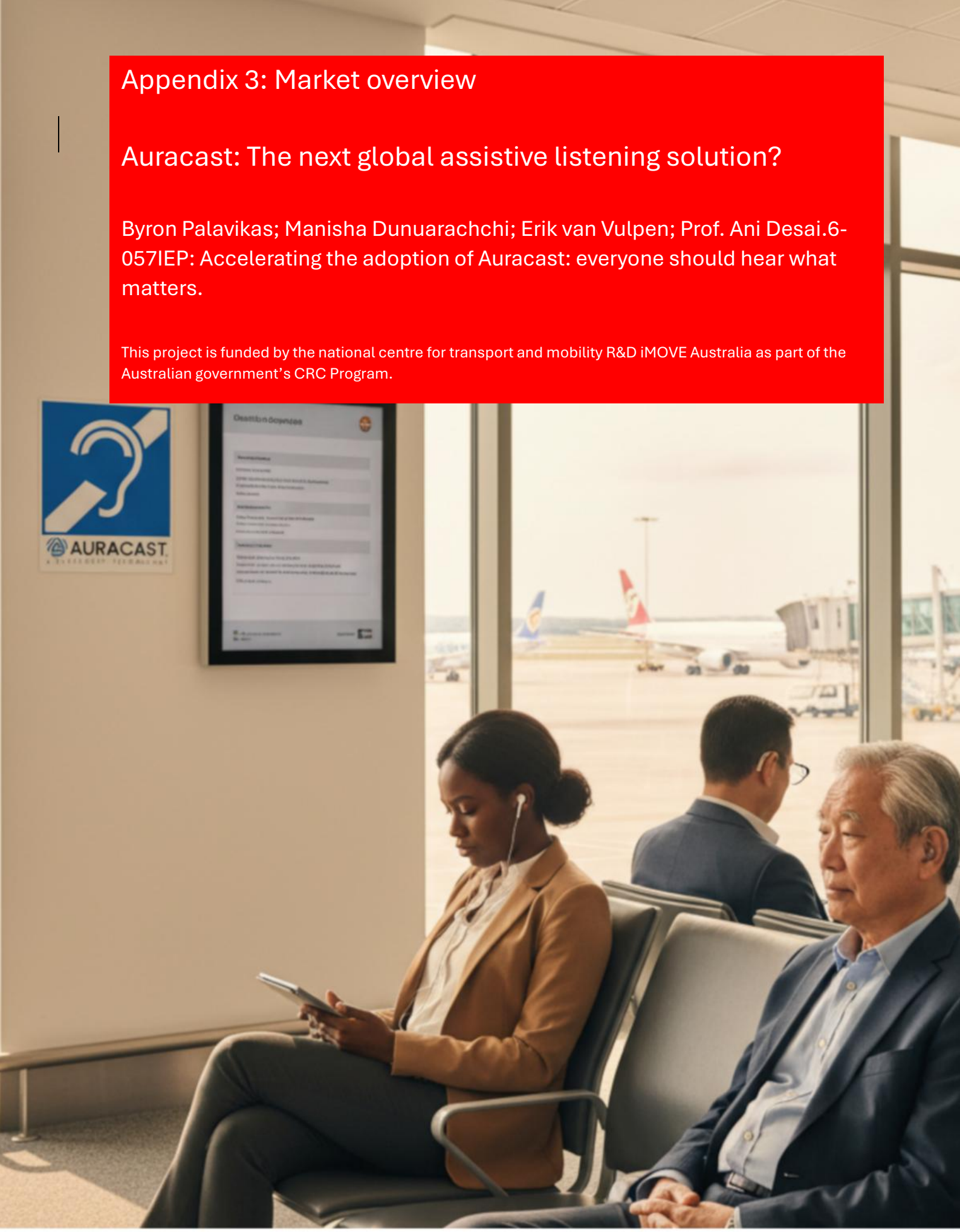

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Appendix C. Auracast Market Review and Status Overview

This appendix provides a market review of Auracast™ and its current stage of industry development. The objective is to provide readers with an overview of the status of the Auracast ecosystem, including technology maturity, manufacturer adoption, transmission equipment availability, early deployments, and emerging implementation trends. It is intended to inform future planning by summarising the current market landscape and identifying factors that may influence adoption over the coming years. The market is moving fast, and it this report has been written mid 2026.

The review draws on information gathered through industry engagement, discussions with manufacturers and technology providers, published market information, and examples of real-world deployments. It focuses on the practical readiness of Auracast as an assistive listening solution and examines the extent to which the technology is transitioning from specification and pilot activity into operational use.

The appendix does not assess the detailed accessibility benefits or user outcomes associated with Auracast. Instead, it provides a snapshot of market maturity across four key areas:

- Hearing aid and receiver availability;
- Auracast transmission equipment and infrastructure;
- Early venue deployments and adoption activity;
- Emerging trends that are likely to influence future uptake.

Together, these factors provide an indication of the current readiness of the Auracast ecosystem and its potential role in the future evolution of assistive listening systems.

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Summary – Auracast market status review

Assistive listening systems are entering a transitional period. While traditional technologies, such as hearing loops and receiver-based systems, have enabled access to amplified sound for decades, changes in public environments, communication complexity, and advancements in personal audio technology are reshaping what is required of modern assistive listening. Auracast, defined within the Bluetooth LE Audio specification, is increasingly presented as a next-generation assistive listening system capable of meeting these emerging needs.

Rather than replacing assistive listening, Auracast represents an evolution in how assistive audio can be delivered. Shifting from fixed, infrastructure-bound systems to a broadcast-based, device-centric solution that can integrate with both personal assistive listening devices and mass-market audio devices. This section provides an overview of the report on the future of assistive listening.

The future of Assistive Listening Systems

The future of assistive listening systems is shaped by increasing demands for flexibility, scalability, and personalisation. Public communication now occurs across larger, noisier, and more complex environments, including transport hubs, cultural venues, workplaces, and public spaces with dynamic information needs. At the same time, personal audio devices such as hearing aids, earbuds, headphones, and smartphones have become more ubiquitous and increasingly capable.

Traditional assistive listening systems were designed around fixed spaces and a single audio source. In contrast, future systems can look to provide users not only with shared listening experiences but also have the potential to provide simultaneous content across multiple audio streams, with seamless access, minus a complex setup.

Bluetooth has already established itself as a global personal audio protocol, and the introduction of Auracast extends its capabilities beyond one-to-one connections to one-to-many broadcast audio. This shift enables assistive listening to operate not only as an accessibility accommodation but as part of a broader audio ecosystem used by many people in parallel.

Defining the requirements of a modern Assistive Listening System

Based on current accessibility obligations and emerging use cases, a modern assistive listening system must meet a set of functional and performance requirements that extend beyond earlier technologies.

Key requirements include:

- Wide and consistent coverage in large and acoustically challenging environments, without reliance on complex physical wiring embedded in building structures.

- Low and predictable latency, suitable for speech intelligibility, lip-reading, and safety-critical announcements, in line with existing standards such as AS 1428.5.
- Support for multiple simultaneous audio streams, enabling language selection, differentiated content, or prioritised messages within the same space.
- Compatibility with personal devices, including hearing aids, cochlear implants, and consumer earbuds or headphones, reducing reliance on venue-provided receivers.
- Ease of deployment and maintenance, allowing systems to be installed, monitored, and scaled without specialised infrastructure or testing equipment.
- Interoperability and futureproofing, ensuring alignment with global technology ecosystems rather than isolated, proprietary solutions.

These requirements reflect a shift toward assistive listening systems that are digital, broadcast-based, and integrated into everyday audio use, while still fulfilling accessibility and compliance expectations and coincide with current regulations.

Alignment of Auracast with the modern Assistive Listening System requirements

Auracast aligns closely with these modern requirements. As a broadcast-audio capability within Bluetooth LE Audio, Auracast enables a single transmitter to send synchronised audio streams to an unlimited number of receivers without the need for traditional pairing. This architecture supports shared listening experiences and removes constraints associated with one-to-one Bluetooth connections.

Auracast supports multiple broadcast streams from a single transmitter, allowing users to select the audio content most relevant to them, such as different languages or content types within the same environment. Discovery and connection are achieved through broadcast advertising and assistant devices, enabling receivers to synchronise to a stream without establishing a persistent paired connection.

From a performance perspective, Auracast uses fixed isochronous intervals and the LC3 codec to deliver predictable latency and efficient audio transmission. Testing and early deployments indicate that latency can fall within the limits specified for assistive listening systems, while digital transmission reduces susceptibility to many forms of interference that affect legacy technologies.

Crucially, Auracast builds on a globally adopted personal audio ecosystem. Hearing aids have incorporated Bluetooth Low Energy for some time, and extending this capability to Auracast represents an incremental evolution rather than a wholesale change in device architecture.

Ensuring continuity and equity during transition

While Auracast aligns with the future direction of assistive listening, existing systems remain critical to equitable access. Hearing loops and telecoils are widely deployed, regulated, and familiar to many users, and they continue to provide a passive, reliable listening experience with minimal user interaction.

Transitioning to Auracast, therefore, requires careful management to avoid excluding users who rely on current technologies or who are unable or unwilling to use smartphones or new interfaces.

Hybrid deployment, where Auracast operates alongside existing assistive listening systems, supports continuity while enabling gradual adoption. Transitional devices, such as Auracast receivers and neckloops, further reduce barriers by bridging digital broadcasts to telecoil-based hearing aids. This approach allows assistive listening to evolve without undermining trust, usability, or equity.

1. The Role of Assistive Listening in Accessibility

Assistive listening systems address a fundamental accessibility gap in public communication. Spoken information remains a primary method for conveying essential messages in public life, yet for a significant proportion of the population, this information is not reliably accessible without additional support. This section outlines why assistive listening technologies are necessary, the limitations of hearing aids alone, and the role of assistive listening technologies as essential accessibility infrastructure.

1.1 Hearing loss and the public communication needs

Hearing loss is widespread and directly affects access to public communication. In Australia, at least one in six people experience some level of hearing loss, with 14.2% of adults reporting hearing impairment (AustraliaTrak 2021 - Anovum, 2021). Prevalence increases significantly with age, with more than two-thirds of people aged 70 and over affected (Hearing Care Industry Association, 2023). While 44.7% of Australians with self-reported hearing loss own hearing aids, which amounts to approximately 1.1 M hearing aid users (AustraliaTrak 2021 - Anovum, 2021). This is considered a relatively high adoption rate compared to many other countries.

Public environments rely heavily on spoken information to convey essential and immediate messages. Announcements in transport hubs, emergency information, service counters, courtrooms, lecture theatres, and cultural venues are commonly delivered via public address systems. Without effective accessibility measures, people with hearing loss may miss safety-critical information, service changes, instructions, or spoken content that others receive automatically.

Consultations and submissions to accessibility reviews consistently show that people who are Deaf or hard of hearing face ongoing barriers in accessing timely and reliable information, particularly during service disruptions or emergencies. Audio-only announcements, inconsistent visual alternatives, and poor acoustic environments compound these challenges. Hearing loss, therefore, represents not only a health issue but a communication access issue that directly affects participation, safety, and equity in public life.

figure 1 shows that there are many situations where people with hearing loss wish they could hear better, including many situations where Auracast can potentially help.

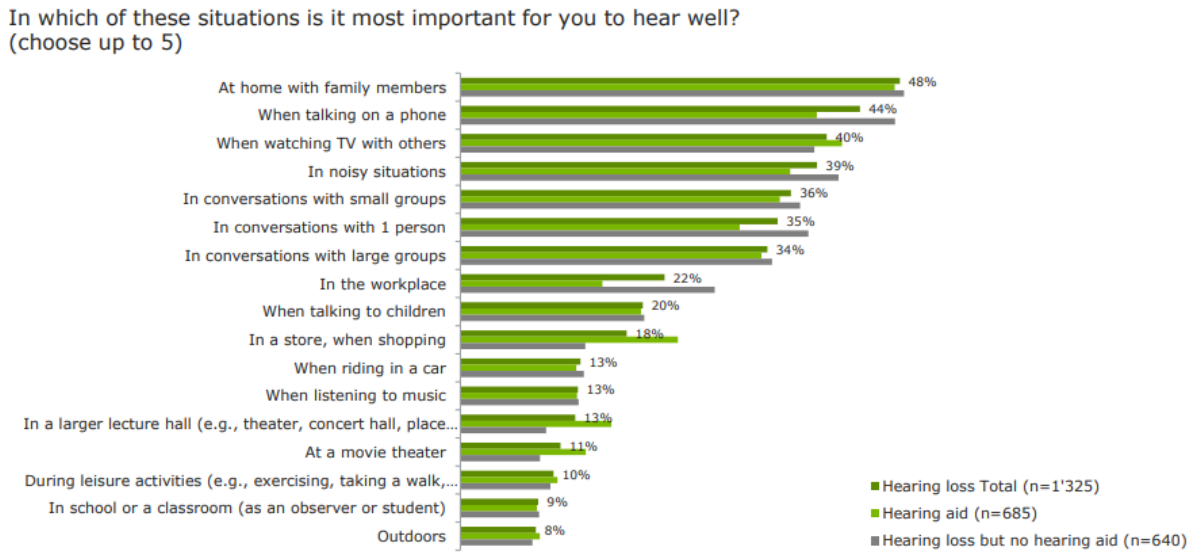

FIGURE 1: SITUATION WHERE PEOPLE WISH THEY COULD HEAR BETTER. SOURCE: (AUSTRALIATRAK 2021 - ANOVUM, 2021)

1.2 Limitations of hearing aids in complex listening environments

Hearing aids are the primary listening solution for many people with hearing loss, but they are not designed to address all communication challenges on their own. In complex listening environments, such as large rooms, reverberant spaces, or areas with significant background noise, hearing aids often struggle to deliver sufficient speech clarity. This was a common complaint mentioned by participants in the focus groups.

Factors such as distance from the sound source, competing noise, echo, and poor sound system design reduce intelligibility even for advanced hearing aid users. While modern hearing aids incorporate features such as directional microphones and noise reduction, these features cannot fully overcome the acoustic limitations inherent in many public spaces.

As a result, hearing aid users frequently report difficulty understanding announcements in transport settings, lectures in large rooms, or dialogue in performance venues. When hearing aids do not provide adequate clarity, assistive listening systems are required to bridge the gap by delivering a cleaner audio signal directly to the listener, bypassing many of the environmental factors that degrade speech understanding.

1.3 Assistive listening as essential accessibility infrastructure

The World Health Organization (WHO) defines assistive devices broadly as any product, equipment, or technology that helps people with disabilities or functional limitations maintain or improve their functioning, independence, and well-being, with assistive listening systems being specific tools that overcome hearing challenges (noise, distance) by delivering clear audio directly to the listener, filtering background noise, and promoting inclusion in daily life, education, and work.

Assistive listening systems are a core component of accessibility infrastructure, not an optional enhancement. Their purpose is to ensure that people who are Deaf or hard of hearing receive spoken information in an equivalent manner to those without hearing impairment.

In Australia, assistive listening is embedded in accessibility law and building regulation. The Disability Discrimination Act 1992, the Premises Standards, and the National Construction Code mandate the provision of hearing augmentation in defined circumstances. These requirements reflect the principle that access to spoken information is fundamental to equal participation in education, employment, civic life, and public services.

Assistive listening systems function as shared infrastructure. They support not only hearing aid users but also people without hearing aids who experience difficulty understanding speech in challenging environments. This broader utility reinforces their role as universal accessibility tools rather than niche disability technologies.

As public spaces become more complex and information-rich, the role of assistive listening systems becomes increasingly critical. They provide the foundation against which existing and emerging solutions can be evaluated while maintaining continuity with established accessibility principles.

1.4 Common hearing augmentation technologies

Assistive listening systems share a common purpose: improving speech intelligibility by delivering audio directly to the listener and reducing the effects of noise, distance, and reverberation. However, different technologies achieve this in different ways and create different operational and user experience trade-offs. The main hearing augmentation technologies used in public environments are compared below.

A good and simple overview of the options (except for Auracast) can be found here: Link: Hearing enhancement

1.4.1 Induction loop systems

Induction loop systems (hearing loops) transmit audio by driving current through a copper loop installed in a defined space, producing an audio-frequency magnetic field that can be picked up by telecoil-enabled hearing aids or cochlear implants. The loop signal is not heard by others in the room; it is received only by compatible devices.

Hearing loops have historically become the dominant regulated solution because they provide passive access: once a hearing aid is set to the telecoil (T) program, users can receive audio without pairing, apps, or device selection. They also avoid the need for venues to distribute receivers for many users.

1.4.2 FM Radio-based systems

FM systems transmit audio using radio frequencies to portable receivers. Users typically collect a venue-provided receiver and use headphones or a neck loop attachment.

FM systems can provide good sound quality when properly configured, but they create operational overhead: venues must procure, maintain, and distribute receivers. In multi-room environments, frequency management becomes a challenge. These practical burdens are a major reason FM system have not achieved widespread adoption compared with induction loops.

Additional challenges arise from the use of venue-provided headphones, which are required in most cases. Headphones must be regularly cleaned, inspected, and replaced to meet hygiene expectations, particularly in high-traffic public venues. Many users are reluctant to use shared headphones due to hygiene concerns or uncertainty about maintenance practices, and the visibility of borrowed equipment can also create stigma. These factors further reduce uptake and undermine the effectiveness of FM-based assistive listening systems.

1.4.3 Infrared systems

Infrared (IR) systems transmit audio using infrared light (invisible to users) and require receivers that decode the IR signal into audio. Like FM, IR systems require venues to manage and distribute receivers.

A core limitation is that IR generally requires line-of-sight and is therefore best suited to indoor environments. Physical occlusion and emitter positioning can affect coverage. These constraints, combined with the receiver logistics burden, have limited long-term scalability and reduced adoption compared with hearing loops.

The same challenges and issues are dealt with when it comes to headphones, as mentioned with the FM systems.

1.4.4 WiFi and app-based streaming

Wi-Fi streaming systems deliver audio via a venue network to a user's smartphone application (and then potentially onward to hearing aids). In principle, this can avoid venue-owned receiver fleets, but in practice, it introduces usability barriers.

Wi-Fi/app solutions depend on robust network infrastructure, require users to download and configure applications, and involve multiple steps that can reduce accessibility, particularly for users with low digital confidence or where time-critical access is required. These usability and operational constraints have prevented Wi-Fi streaming from becoming a mainstream assistive listening solution in public venues.

2. The Established Standard: Hearing Loops and Telecoils

For several decades, hearing loops and telecoils have formed the foundation of assistive listening provision in public spaces worldwide. Their widespread adoption has been driven by simplicity, reliability, and strong integration with hearing devices and accessibility regulations. This section outlines why hearing loops became the global standard, how telecoils enabled universal device compatibility, the regulatory frameworks that reinforced their use, and the environments in which hearing loops continue to perform effectively.

2.1 Why hearing loops became the global standard

Hearing loops combined with telecoils are considered the world's most successful assistive technology, which became the global standard for assistive listening because they provide a simple, reliable, and universally compatible method of delivering audio directly to people with hearing aids. The technology is conceptually straightforward: an audio signal is converted into a magnetic field within a defined area, which can then be received by compatible hearing devices without the need for additional equipment or user intervention.

In addition to Australia, and the UK where they are mandated, hearing loops are installed in 30+ countries, and prolific in some countries: Canada, Croatia, Czech Republic, Denmark, Finland, France, Germany, Gibraltar, Hong Kong, Hungary, India, Ireland, Japan, Malta, Netherlands, New Zealand, Norway, Oman, Poland, Qatar, Russia, Scotland, Singapore, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, United Arab Emirates and the United States.

One of the primary reasons for widespread adoption is the passive nature of hearing loop systems. Once installed and functioning correctly, the system requires no pairing, configuration, or user decision-making beyond selecting the telecoil setting on the hearing aid. This ease of use has proven particularly valuable in public environments where users may be unfamiliar with the space, under time pressure, or managing multiple accessibility needs.

Hearing loops also gained global traction because they scale well across different environments. They can be installed in large venues such as theatres, cinemas, lecture halls, transport hubs, and places of worship, as well as smaller spaces like service counters and meeting rooms. Their ability to operate invisibly without producing audible sound in the room means they do not interfere with other users' experiences.

Over time, hearing loops became embedded in accessibility standards and regulations worldwide. This regulatory recognition reinforced their position as the default assistive listening solution and drove consistent deployment across public infrastructure.

2.2 Telecoils and device compatibility

Telecoils are the receiver component that enables hearing aids and cochlear implants to access hearing loop systems. A telecoil is a small coil of wire embedded within the hearing device that detects the magnetic field generated by the loop and converts it back into an audio signal.

The telecoil originated as a solution for improving telephone use with hearing aids, detecting electromagnetic fields from landline handsets. This same principle was later applied to assistive listening systems, allowing hearing aids to receive audio directly from hearing loops without microphones or ambient sound interference.

Telecoils are widely supported across hearing aid and cochlear implant manufacturers and have been a standard feature for decades. This widespread compatibility has been critical to the success of hearing loops, as users can access assistive listening simply by switching their device to the telecoil setting, regardless of venue-specific equipment.

Because telecoils are integrated into personal hearing devices, hearing loop systems do not require venues to provide receivers for hearing aid users. This eliminates hygiene concerns, device availability issues, and the stigma sometimes associated with borrowing assistive equipment in public spaces.

2.3 Regulatory and standards

Hearing loops remain strongly supported by international and national standards and continue to represent the most established compliance pathway for assistive listening. Technically, induction loop systems are governed by IEC 60118-4, which defines performance requirements for magnetic field strength, frequency response, background noise(Ampetronic Ltd, 2025), and system testing. These specifications provide an internationally recognised framework to ensure consistent audio quality and intelligibility when systems are correctly designed, installed, and maintained.

In Australia, hearing augmentation requirements are embedded within the Disability Discrimination Act 1992, the Disability (Access to Premises – Buildings) Standards 2010, and the National Construction Code. Australian Standard AS 1428.5 establishes requirements for hearing augmentation systems in buildings, including coverage expectations, performance criteria, signage, and commissioning and testing obligations (Ampetronic Ltd, 2023). While AS 1428.5 is technology neutral, hearing loops have historically been the predominant solution used to demonstrate compliance because of their long-established standards framework, widespread telecoil compatibility, and recognised performance characteristics.

Public transport accessibility requirements under the Disability Standards for Accessible Public Transport (DSAPT) also recognise hearing loops as a compliant hearing augmentation solution. However, transport requirements remain less prescriptive than those applied to buildings (Department of Transport and Main Roads, 2002), with lower minimum coverage expectations and greater reliance on achieving equivalent access outcomes. As a result, hearing loop performance and user experience can vary significantly across transport environments.

While hearing loops currently benefit from mature regulatory support, assistive listening standards are beginning to evolve in response to digital broadcast technologies such as Auracast. Bluetooth LE Audio specifications, including the Public Broadcast Profile (PBP) that underpins Auracast, are currently functioning as the de facto technical framework for

interoperability between manufacturers. At the same time, the International Electrotechnical Commission is developing IEC 60118-17, a dedicated international standard for 2.4 GHz streaming-based assistive listening systems. Publication is expected in the 2026–2027 timeframe and is anticipated to provide performance benchmarks for audio quality, latency, reliability, coverage, and usability comparable to those currently provided for hearing loops under IEC 60118-4.

Until these new standards are adopted into national accessibility frameworks, Auracast deployments are generally assessed under existing provisions for receiver-based assistive listening systems. Consequently, hearing loops continue to provide the most certain compliance pathway for building owners, designers, and operators. Nevertheless, the development of IEC 60118-17 and growing international adoption of Auracast indicate that accessibility regulation is likely to broaden beyond induction loops over the coming years.

This regulatory certainty has contributed significantly to the long-standing dominance of hearing loops. Designers, engineers, accessibility consultants, and venue operators have relied on well-established technical guidance, predictable compliance pathways, and decades of implementation experience. However, the emergence of Bluetooth LE Audio standards and dedicated assistive listening specifications signals the beginning of a transition toward a more diverse assistive listening ecosystem, where hearing loops and digital broadcast technologies may increasingly operate alongside one another.

2.4 Where hearing loops perform well

Hearing loops perform particularly well in environments where simplicity, reliability, and immediacy are critical. They are highly effective in fixed spaces such as theatres, cinemas, lecture halls, courtrooms, and places of worship, where a single audio source serves a defined audience area.

They are also well-suited to service counters and customer interaction points, where counter loops can deliver clear, private communication without requiring additional devices or setup. In these contexts, the passive nature of the system ensures that users can access audio instantly and discreetly.

Hearing loops are especially valuable for users who do not own smartphones, are not comfortable with digital interfaces, or rely on long-established listening habits. For many older users, the familiarity and predictability of telecoil-based listening remain a significant advantage.

When correctly designed, installed, and maintained, hearing loop systems provide low-latency, high-intelligibility audio that meets accessibility requirements and user expectations. Their proven performance over decades explains why they remain the benchmark against which newer assistive listening technologies, including Auracast, are now being compared.

*Figure **2*** shows that in the UK, train stations and airports are important locations to improve hearing. These public transport situations rank fourth and fifth, at approximately 25% (EURO TRAK UK 2025 - Anovum, 2025). The same study indicates that people with t-coil are also relatively satisfied with the experience (EURO TRAK UK 2025 - Anovum, 2025). In the Euro Trak UK study (2025), the majority of participants reported being somewhat satisfied or satisfied with

their use of the T-coil technology (EURO TRAK UK 2025 - Anovum, 2025). However, this finding contrasts with the results from focus groups and professional interviews conducted by GSA and La Trobe University, which identified lower satisfaction and technical effectiveness with T-coils in real-world settings.

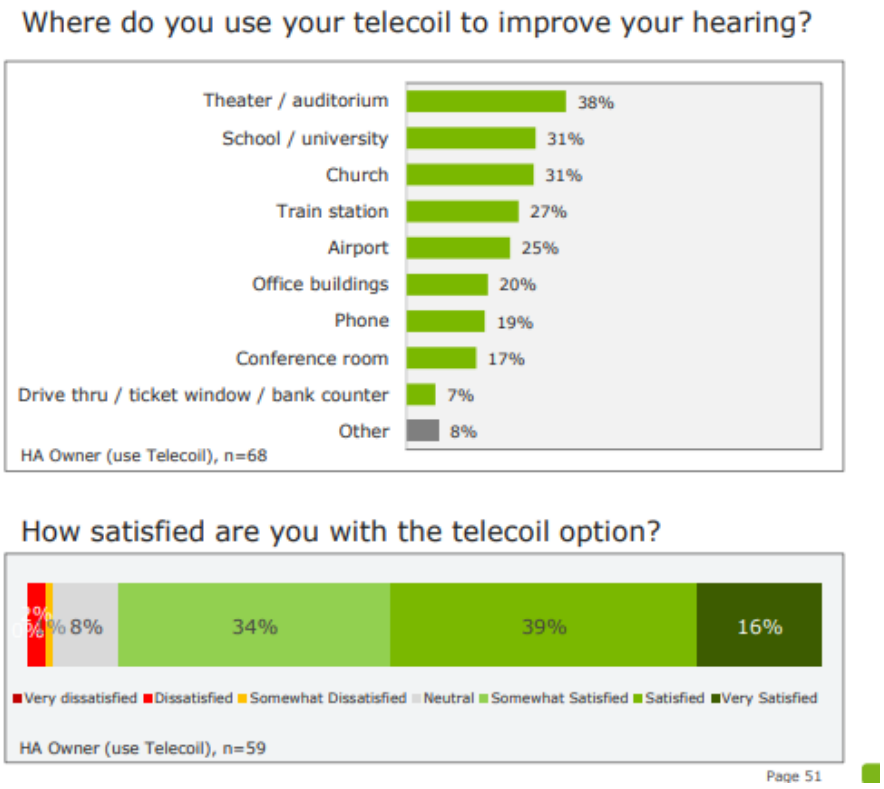

FIGURE 2: HEARING SITUATIONS AND HEARING LOOP SATISFACTION. SOURCE: (EURO TRAK UK 2025 - ANOVUM, 2025)

2.5 Structural limitations of the current Assistive Listening System model

While hearing loops have served as the backbone of assistive listening for decades, their dominance reflects historical suitability rather than ongoing optimality. Changes in building environments, public infrastructure, user expectations, and technology have exposed structural limitations in the current assistive listening model. These limitations are not theoretical; they are observed repeatedly in compliance audits, user feedback, and clinical practice. This section examines where the existing model breaks down in practice, despite strong regulatory foundations.

2.5.1 Compliance, maintenance, and reliability challenges

Hearing loop performance is highly dependent on correct design, installation, and ongoing maintenance. In practice, many installations fail to consistently meet required performance standards over time.

Compliance with IEC 60118-4 and AS 1428.5 requires careful loop layout, appropriate amplifier selection, control of electromagnetic interference, and post-installation testing. Small deviations in design or changes to the physical environment can significantly degrade system performance. Renovations, flooring replacements, new metal structures, or the introduction of electrical infrastructure can alter magnetic field characteristics without any visible indication that the system has been compromised.

Ongoing maintenance presents a major challenge. Testing hearing loops requires specialised field strength meters and trained personnel, which are not routinely available to venue operators. As a result, faults often remain undetected for extended periods. In many cases, people with hearing loss are the first to identify failures, placing the burden of system verification on those most affected by inaccessibility.

Common failures and issues include insufficient signal strength, poor audio clarity, missing connections to announcement systems, and absent or incorrect signage, and audio bleed between two adjacent loops.

Modern infrastructure further complicates reliability. Hearing loops are susceptible to electromagnetic interference from electric vehicles, charging systems, fluorescent lighting, and other electrical equipment. Large metal structures and reinforced concrete can distort magnetic fields, creating uneven coverage and dead zones. From an operational standpoint, loop wiring is also physically fragile. Damage during routine building works may not be immediately apparent, leading to prolonged system failure and reduced user confidence.

2.5.2 User experience and clinical practice gaps

Despite their regulatory status, hearing loops do not consistently deliver a reliable or intuitive user experience. Many users report uncertainty about whether a loop is present, whether it is functioning, or how to access it. Signage is frequently missing, unclear, or incorrectly applied, reducing awareness and effective use.

User experience is also influenced by hearing aid configuration and clinical practice. Telecoils are not always enabled by default, and some users are unaware of the telecoil function or how to activate it. If audiologists do not enable telecoils or provide appropriate education, users may be unable to benefit from hearing loops even when systems are correctly installed.

Clinical feedback highlights a broader disconnect between infrastructure provision and user readiness. Many patients have limited opportunities to experience assistive listening systems in real-world environments. Without demonstrations or hands-on exposure, users may not understand how or when to use these systems, reducing uptake and perceived value.

While hearing loops minimise stigma by leveraging personal devices, the overall assistive listening landscape still suffers from usability challenges. Alternative systems that rely on venue-provided receivers often face low adoption due to visibility, hygiene concerns, or inconvenience, reinforcing reliance on a single ageing technology.

Collectively, these issues reveal a structural weakness in the current assistive listening model. Compliance alone does not guarantee accessibility. Without reliable maintenance, clear

communication, clinical engagement, and user confidence, assistive listening risks becoming a symbolic requirement rather than a functional accessibility outcome.

Comments from interviews from focus groups and audiologists paint a dire picture of the user experience with the hearing loop.

"My first hearing aid didn't have t-coil, but after a year I upgraded. Now two years in, I am actually not using it. It doesn't work most of the time, so I gave up". (Person with Hearing Challenge, Project team interview)

"I will ring ahead to ask the venue if they have a hearing loop, which I am told they do, but when I get to the venue, it is not working or not on, and no staff know how to operate or turn on the hearing loop". (Person with Hearing Challenge, Project team interview)

An audiologist told us:
"T-Coil requires maintenance, it is easy to deteriorate, and the problems with the limited range are also substantial. I don't really recommend it anymore". (Project team interview)

Our interviews with Audiologists confirm that other priorities drive choice for a hearing aid with or without a telecoil:

"We take them through a questionnaire, but especially for first time users, there is a lot to comprehend, so we focus on the most important things. First, people want to hear their immediate partners or people in and around the house. Then they want to hear the telephone and television and thirdly they want to be able to go to social events". (Audiologist, *Project team interview*)

The form factor is important:

"Sometimes people can choose between a smaller form factor and having a telecoil, and they choose the smaller form factor". (*Audiologist, Project team interview*)

3. About Auracast

Auracast is a broadcast audio capability defined within the Bluetooth LE Audio specification. It introduces a fundamentally different assistive listening architecture, shifting from fixed, space-bound infrastructure (such as induction loops) to flexible, device-centric digital audio distribution. Rather than transmitting a magnetic field within a defined area, Auracast broadcasts digital audio streams that any compatible receiver can join without pairing, enabling scalable, multi-user access to shared audio in public and private environments.

3.1 System architecture: Transmitters, Receivers, and Assistants

Auracast operates through a three-part system architecture: transmitters, receivers, and assistants *

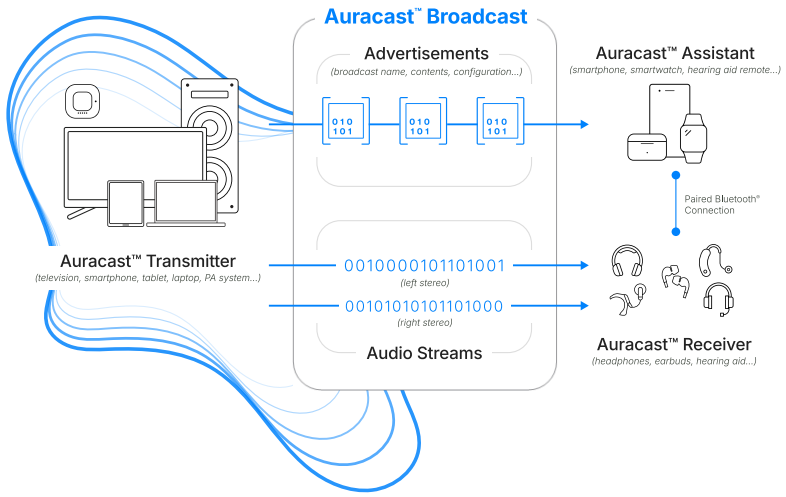

FIGURE 3: AURACAST: HOW IT WORKS. SOURCE: BLUETOOTH SPECIAL INTEREST GROUP (2019A)

Transmitters generate and broadcast Auracast audio streams. These devices range from professional, network-connected units designed for large venues (such as transport hubs, theatres, and stadiums) to compact consumer devices used in homes, clinics, or small venues. Professional transmitters typically integrate with existing PA systems, support digital audio networking, and can be linked together to provide coordinated coverage across large or complex spaces. Smaller transmitters may connect directly to televisions or microphones and can be deployed with minimal installation.

Receivers are the devices that synchronise to an Auracast stream and present audio to the user. These include Auracast-enabled hearing aids and cochlear implant processors, consumer earbuds and headphones, smartphones, tablets, Bluetooth speakers, and dedicated assistive listening receivers provided by venues. Importantly, receivers do not require a one-to-one pairing relationship with the transmitter. Once synchronisation information is obtained, any number of receivers can join the broadcast simultaneously.

Assistants play a critical enabling role, particularly for receivers that lack a user interface. An Auracast assistant, typically a smartphone app or dedicated control device, handles discovery

and stream selection. The assistant scans for available broadcasts, presents stream metadata (such as name or language), and passes synchronisation parameters to the receiver. The assistant does not relay audio and is not part of the audio path; once the receiver has joined the stream, the assistant is no longer required.

This separation of roles allows Auracast systems to scale efficiently while supporting a wide range of devices and user capabilities.

3.2 Broadcast and multi-stream audio capabilities

A defining feature of Auracast is one-to-many broadcast audio. A single transmitter can deliver the same audio stream to an unlimited number of receivers within range, without bandwidth degradation or additional pairing overhead. This removes the connection limits inherent in legacy Bluetooth audio and enables shared listening experiences in public spaces.

This operation is analogous to a radio broadcast. A radio station transmits a single signal that can be received simultaneously by any number of radios within coverage, provided they are tuned to the correct frequency. The broadcaster does not establish individual connections with listeners; receivers independently tune in to the same transmission.

Auracast extends this broadcast model by supporting multiple simultaneous audio streams from a single transmitter. Each stream may carry different content, such as alternate languages, commentary tracks, or priority information channels. Users independently select the stream that meets their needs, while remaining within the same physical space.

In radio terms, these streams can be thought of as separate stations originating from the same broadcast site. Listeners choose which station to receive, but all stations coexist within the same coverage area. This allows personalised listening without fragmenting the shared environment.

This capability represents a significant functional advance over hearing loops, which can carry only a single audio source within a looped area. In environments such as transport hubs, museums, courts, or international venues, multi-stream broadcasting enables language selection, role-specific audio (for example, staff versus public), or separation of routine announcements from urgent alerts, while preserving a common infrastructure.

3.3 Reliability, coverage, and performance in public environments

Auracast uses Bluetooth LE Audio with the LC3 codec and fixed isochronous intervals, providing predictable latency and synchronised playback across all receivers. Typical system latency measurements in professional installations fall within or below the 40 ms threshold specified in AS 1428.5, supporting lip-sync and intelligibility requirements for assistive listening.

From a radio perspective, Auracast benefits from Bluetooth LE features such as adaptive frequency hopping, cyclic redundancy checking, and optional forward error correction. These mechanisms improve resilience in crowded 2.4 GHz environments. Real-world deployments have demonstrated that interference can occur in highly congested spaces, particularly near

dense Wi-Fi infrastructure, but appropriate network planning and power management can mitigate these effects.

Unlike hearing loops, Auracast coverage is not constrained by building materials, metal structures, or electromagnetic noise sources such as electric vehicles or charging systems. Coverage can be extended or reshaped by adding transmitters rather than rewiring physical infrastructure, making Auracast particularly suited to large, open, or changing environments such as transport networks.

Performance, however, remains dependent on transmitter-receiver interoperability. Early evaluations show that latency and reception quality can vary significantly between device combinations, reinforcing the importance of ongoing testing, firmware updates, and emerging standards.

3.4 Security, privacy, and access control

Auracast supports both unencrypted and encrypted broadcasts, allowing system designers to balance ease of access with privacy requirements.

Unencrypted streams are intended for public use cases where frictionless access is essential, such as public announcements, live captions, or shared TV audio. Any compatible receiver that obtains synchronisation information can join these streams without authorisation.

Encrypted streams require a password. This can be embedded in the QR code, or the user is required to enter the password on the assistant device to then access the stream. The password is never transmitted over the air. Receivers without the correct password cannot decrypt the audio, making this mode suitable for sensitive environments such as healthcare consultations, legal proceedings, or private meetings.

A current challenge is authenticity and trust. At present, any Auracast transmitter can broadcast a stream and assign it a name, creating the risk of spoofed, proxy or misleading streams in public environments. Establishing mechanisms for stream verification and trusted identification without undermining open accessibility remains an unresolved issue and a key focus of ongoing standardisation efforts.

3.5 Bluetooth SIG specifications

The technical foundation for Auracast is provided by the specifications is still being developed by the Bluetooth SIG working group. Auracast is defined within the Bluetooth LE Audio framework and relies on standardised profiles, codecs, and discovery mechanisms to ensure interoperability across manufacturers.

Key elements include the use of the LC3 codec for efficient, low-latency audio delivery and the Public Broadcast Profile (PBP), which enables one-to-many audio transmission without device pairing. These specifications were developed with input from hearing aid manufacturers and the assistive listening industry, ensuring compatibility with hearing instruments as well as consumer audio devices.

While Bluetooth SIG specifications are not regulatory standards, they function as a global technical baseline. Compliance with these specifications ensures that Auracast devices interoperate across brands and regions, reducing fragmentation and enabling international alignment. In practice, these specifications currently act as the de facto standard for Auracast deployment. A formal international standard for Auracast-based assistive listening is in development through the International Electrotechnical Commission (IEC). IEC 60118-17, titled *Assistive listening systems for hearing aid users based on 2.4 GHz audio streaming*, is expected to be published in the 2026–2027 timeframe (AuD, 2025). This standard is intended to provide performance, safety, and usability benchmarks comparable to those established for induction loops under IEC 60118-4. Areas likely to be addressed include audio quality, latency limits, reliability, coverage expectations, and user interaction requirements.

Once published, IEC 60118-17 will provide a reference point for regulators, designers, and compliance auditors. As with earlier IEC standards, it is expected that Australia and other jurisdictions will adopt or align with it through national standards updates. This will be a critical step in enabling consistent assessment and certification of Auracast systems.

4. Market Readiness and Industry Adoption

Auracast is moving from specification to deployment, supported by hearing advocacy organisations, major hearing aid manufacturers, and a growing transmission equipment ecosystem. At the same time, stakeholders consistently emphasise that adoption must be managed carefully to avoid excluding people who rely on established assistive listening systems.

4.1 Perspectives from hearing loss peak bodies

Hearing loss advocacy organisations broadly recognise Auracast as a significant development for accessibility, while cautioning against premature replacement of hearing loops and telecoils.

If the T-Coil is 'slowing down', the question is: 'Why would Auracast™ make a difference?' To answer that question, we look at the most important stakeholders in the market, representative hearing-loss peak bodies, hearing aid manufacturers, sales representatives of Auracast™ transmission equipment, and some early adopting clients.

Royal National Institute for Deaf People (RNID) UK, frames Auracast as a major opportunity for inclusive access across health, employment, transport, and culture, describing it as a technology with the potential to "revolutionise" audio accessibility (Royal National Institute for Deaf People, 2025).

Australian advocacy positions are generally supportive but emphasise transition risk. Better Hearing Australia highlights that Auracast offers strong potential, but near-term impact is constrained by cost, device compatibility, digital literacy, and infrastructure readiness. Their position supports a dual-technology approach: maintaining and upgrading existing hearing augmentation systems while planning staged Auracast rollout (Better Hearing Australia (Brisbane), 2025).

Internationally, the European Federation of Hard of Hearing People (EFHOH) explicitly warns against suggestions that loops and telecoils are "no longer needed," calling for a balanced approach that promotes both technologies to maintain accessibility in a range of settings (European Federation of Hard of Hearing People, 2024).

Across these statements, the common message is consistent: Auracast is viewed as an important step forward, but equity and continuity require hybrid operation during transition.

4.2 Hearing aid manufacturer adoption and pricing

Major hearing aid manufacturers have moved quickly to support Auracast. All major brands either already offer Auracast-enabled models or have announced Auracast-ready products, often describing Auracast as the next stage of connectivity and assistive listening.

In industry interviews, GN Resound group indicated strong market momentum in Australia, stating that Auracast-enabled products are now available across multiple price points, including subsidised options, and claiming substantial unit sales since launch.

Indicative pricing shows Auracast-capable hearing aids spanning a wide range, roughly from the lower end of the market (including cost-sensitive channels such as warehouse retail) through to premium devices priced into several thousand dollars per aid. Cochlear implant processors are also positioned for Auracast capability via firmware updates in some cases.

The key adoption signal is not just availability, but breadth: Auracast is not restricted to premium flagship devices and is increasingly being marketed as a mainstream feature.

In an interview with us, GN ReSound announced that it will carry Auracast™-enabled products in all price classes.

"We have now sold 180,000 units of Auracast™-enabled hearing aids since we launched our first device in 2024 in Australia alone. We now have compatible devices across every price point and in some brands, even HSP fully subsidised products."

Table 1 represents some of the major brands in the market with current Auracast-enabled models.

TABLE 1: HEARING AIDS MANUFACTURER, AURACAST STATUS

Manufacturer / Brand	**Auracast Status & Claim**	**Typical Price Range (AUD)**
Resound (GN Group)	Current Auracast-enabled selected models	Viva microRIE from $2,480 Nexia From $4,495 [specsavers.com.au]
Beltone (GN Group)	Current Auracast-enabled selected models	Commence from $1,480 Envision from $2,480 [harmonyhearing.com.au]
Cochlear	Nucleus 8, Auracast via firmware update.	Price on application; typically covered by private health or NDIS; not listed directly [cochlear.com]
Oticon (Demant)	Auracast-Ready Oticon Companion hearing aids with Bluetooth® LE Audio support are compatible with Auracast technology. [www.oticon.com.au]	Intent from $2,465 [harmonyhearing.com.au]
Starkey	Current Auracast-enabled selected models (Edge AI, Omega AI)	Edge AI from $1090 [hearingsavers.com.au]
Phonak (Sonova)	Current Auracast-enabled selected models	Audeo Infinio from$1,995 Infinio Ultra from $3,480 [harmonyhearing.com.au]

Auracast availability varies by manufacturer, model, firmware version and connected device ecosystem. Some devices require software or firmware updates to activate Auracast

functionality after purchase. Bluetooth SIG provide a growing list of devices that are Auracast enabled (see
Find an Auracast™ product).

4.3 Auracast transmission ecosystem

Transmission systems are being marketed with features that address real-world installation needs. Integration into existing audio visual (AV) systems, network management, scalable coverage, and, in some cases, hybrid products that combine Auracast and hearing loop functionality.

The ecosystem is not limited to professional integrators. Consumer-grade transmitters are also emerging, enabling smaller venues or clinics to deploy Auracast without major infrastructure works. This contributes to a faster diffusion pathway than legacy assistive listening systems that require building-integrated installation.

TABLE 2 EXAMPLES OF AURACAST TRANSMITTER MANUFACTURERS

Category	Major Brands	Notes
B2B	Ampetronic, Williams AV, Opus Technologies, Bettear, Avantree (AirCast), MoerLab/MOOR Technology	Designed for venues, AV integration, Dante, multi-unit mesh, PoE, secure streams
B2C	Avantree, MoerLab, Rambotech	Home TV transmitters, portable transceivers, compact LE Audio

The ecosystem now extends well beyond traditional assistive listening suppliers and includes specialist audio manufacturers, AV integration companies, wireless networking providers such as Flairmesh, and global consumer electronics vendors.

Most providers offer a range of solutions to fit the use case. There are solutions targeting diverse scenarios, from entertainment and education to guided tours and secure institutional communications, leveraging Auracast's Bluetooth LE Audio capabilities for improved accessibility and connectivity.

Bettear for instance offers: B-CASTER, which will broadcast Auracast™ stereo channels directly to hearing aids, cochlear implants, and hearables. A link port enables chaining additional B-CASTER units or Wi-Fi access points, suitable for cinemas, classrooms, concert halls, universities, outdoor venues, and silent TV setups. B-RTX is a handheld transceiver designed for both broadcasting and listening to Auracast™ channels. It suits environments like tours, museums, exhibitions, galleries, and visitor centres. B-PASS is an assistive listening solution that streams high-quality, encrypted audio to multiple listeners concurrently. It ensures secure audio distribution in sensitive environments like legal venues, banks, healthcare facilities, and government institutions. Features include NFC scanning for quick pairing and robust encryption for courtroom and meeting applications. Recently added is the . A professional multi-channel Auracast transmitter designed to broadcast up to six individual audio streams simultaneously

from a single compact unit. It is ideal for multi-language interpretation, complex classrooms, or multi-screen sports/exhibit venues.

Ampetronic offers a suite of professional Auracast™ solutions designed for large-scale public venues, transport hubs, performance spaces, and institutional environments, centred around its Auri™ platform co-developed with Listen Technologies. The Auri TX2N transmitter provides network-ready deployment with Dante integration, PoE power, flexible routing, and scalable multi-unit mesh configurations, making it suitable for complex estates and multi-zone broadcasting needs and has led to adoption in high-profile installations, including the Sydney Opera House, where Auri receivers and headphones form part of the assistive listening system deployed to support the world-first rollout of Auracast™ for live cultural performances.

Moer Labs offers a portfolio of Auracast™ LE Audio products, including transmitters, receivers, wireless earbuds, headphones, and speakers, all designed to deliver synchronised, low-latency audio to a wide range of devices, from hearing aids and T-Coil neckloops to consumer headphones and venue-scale sound systems. Their lineup features solutions for home, professional, and public environments, such as the MoerDuo™ transceiver, hearClear™ earbuds, The Show™ and Overture™ speakers, TV hearMore™ transmitter, SoundLinker™ portable transmitter, and MoerLink™ USB dongle, supported by management apps for seamless setup and secure broadcast.

Professional Auracast™ transmitters for venues in Australia typically range from about $3,500 to $4,600 AUD, with higher prices reflecting advanced features such as network integration, modular and mesh capabilities, hybrid support for hearing loops, and secure audio distribution; most providers offer a variety of products tailored for settings from entertainment and education to guided tours and secure institutional communications, leveraging Bluetooth LE Audio for accessibility and connectivity.

4.4 Early adoption and venue deployments

Early Auracast deployments provide important evidence that the technology is moving beyond laboratory trials and marketing demonstrations into real-world, operational environments. These early adopters span multiple sectors, cultures, transport, sport, hospitality, healthcare, and education, demonstrating both the flexibility of Auracast and the breadth of use cases driving adoption.

A defining characteristic of early deployments is that they are not limited to specialist accessibility pilots. Instead, Auracast is being installed in high-profile, high-traffic venues where reliability, scalability, and user experience are critical. This distinguishes Auracast from earlier assistive listening technologies, which often remained confined to compliance-driven installations with limited visibility or usage.

Iconic cultural venues have played a prominent role. The deployment at the Sydney Opera House is frequently cited as a global milestone. As one of the first major cultural institutions worldwide to introduce Auracast for hearing aid users, the Opera House installation demonstrated that broadcast Bluetooth audio could meet the demanding acoustic and operational requirements of live performance spaces. The launch was accompanied by collaboration between GN ReSound,

Hearing Australia, and the National Acoustic Laboratories, device manufacturers and technology providers such as Samsung, Google, and Bluetooth SIG. The user feedback highlighted improvements in clarity and listening comfort. Importantly, this deployment positioned Auracast not as a niche assistive feature but as part of a broader audience experience in a flagship venue.

Public transport environments represent another critical early use case. The installation at Bristol Temple Meads Station marked the first Auracast deployment in a major transport hub, a six-month trial run by Connected Places Catapult. Transport settings are particularly challenging for assistive listening due to background noise, changing passenger flows, and complex infrastructure. The Bristol trial illustrated how Auracast can deliver platform announcements and other audio information consistently across large spaces, with the station having 13 platforms and serving more than 10 million passengers each year.

Large-scale sports venues have also adopted Auracast, highlighting its suitability for expansive and acoustically complex environments. Stadium Taranaki provides an example of Auracast being integrated into a stadium PA system to deliver inclusive audio coverage across seating areas. Prior to this installation, the venue reportedly had no assistive listening system, underscoring how Auracast can act not only as a replacement for legacy technologies but as an enabler of accessibility where no previous solution existed. Currently, the MCC is installing and replacing the current hearing loop systems with Auracast.

Mid-scale and community venues illustrate how Auracast can be deployed without the cost and disruption associated with building-integrated hearing loops. Hospitality venues such as the Normanby Hotel in Brisbane demonstrate the use of multiple Auracast streams to support diverse audio needs, including sports commentary, music, and event presentations. These deployments show how assistive listening infrastructure can overlap with mainstream audio experiences, not just assistive listening, which increases overall usage.

Places of worship and theatres, such as Grace Lutheran Church and Blackfriars Theatre, highlight another adoption driver. The ability to replace FM systems that users often describe as unreliable or cumbersome. In these settings, Auracast has been reported to improve both technical reliability for operators and listening clarity for users, while avoiding the need for costly structural modifications.

Clinical and small-scale deployments further demonstrate Auracast's low barrier to entry. Hearing centres such as Daemyung Hearing Center have adopted Auracast transmitters to provide audio for educational content and demonstrations without specialist installation teams. These cases are important because they show how audiologists and clinicians can directly expose users to Auracast in everyday settings, supporting education, familiarity, and confidence with the technology.

Across all these examples, several common patterns emerge. First, early adopters are using Auracast in environments where traditional assistive listening systems have struggled with coverage, maintenance, or user engagement. Second, deployments often emphasise flexibility of multiple streams, shared audio, and integration with existing AV systems, rather than single-purpose compliance. Third, many venues appear to be adopting Auracast alongside, rather than instead of, existing hearing loops or receiver-based systems, reflecting the broader industry consensus around hybrid transition.

Taken together, these early deployments suggest that Auracast is gaining momentum not simply because it is new, but because it addresses long-standing practical limitations in assistive listening while aligning with mass-market audio ecosystems. As adoption expands, these pioneering venues are setting reference points for both technical performance and inclusive design practice.

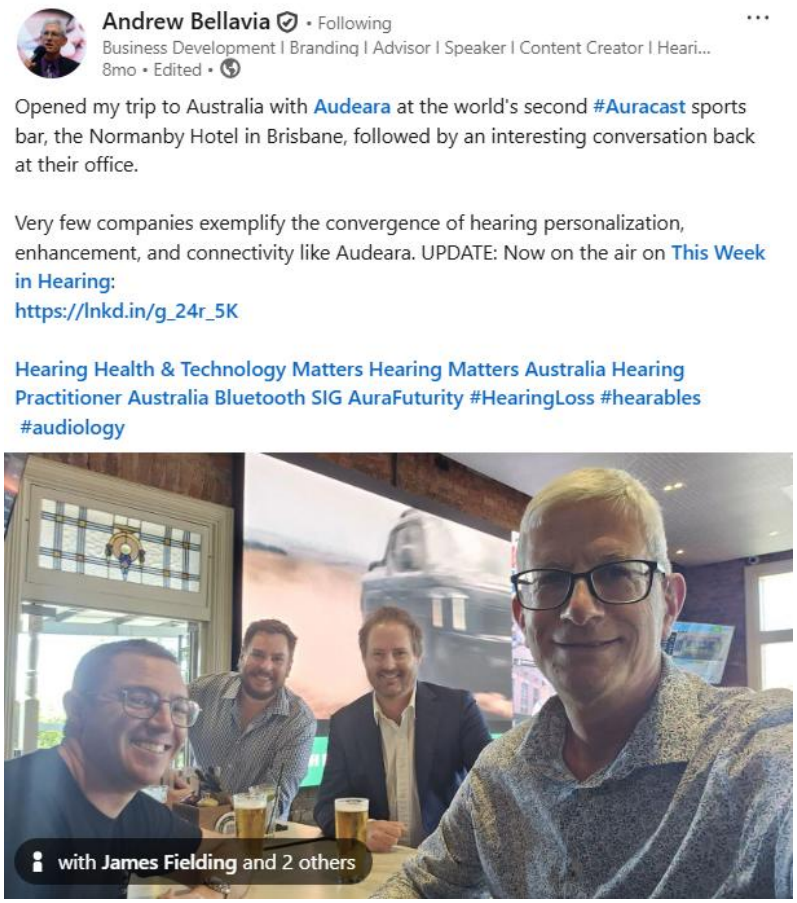

FIGURE 4: EXAMPLE OF AURACAST™ DEPLOYMENT

5. Growth Drivers Accelerating Auracast Adoption

Auracast adoption is being driven by a combination of technical, economic, and ecosystem factors that distinguish it from previous assistive listening technologies. Unlike earlier systems that remained niche or compliance-bound, Auracast benefits from alignment with mass-market consumer audio, digital infrastructure, and emerging regulatory reform. These drivers together explain why Auracast is gaining momentum across accessibility, transport, culture, and mainstream audio use cases.

5.1 Deployment and lifecycle cost advantages

One of the strongest drivers of Auracast adoption is the reduction in deployment and lifecycle costs compared with traditional hearing loop systems. Induction loops require physical installation of copper wiring within floors, walls, or ceilings, which can create design challenges that are mostly disruptive and expensive, particularly in large venues, heritage buildings, and transport environments. Maintenance costs are also non-trivial, where loops require specialist testing equipment, regular field-strength verification, and fault diagnosis that can be difficult once infrastructure is concealed.

Auracast systems rely on compact digital transmitters that integrate into existing AV and network infrastructure. Installation is typically non-invasive and scalable, allowing venues to expand coverage incrementally. Ongoing maintenance is simplified, as system functionality can be verified using common consumer devices rather than specialised field meters. Multiple industry interviews and cost comparisons suggest Auracast deployments can be achieved at a fraction of the cost of hearing loop installations, particularly when accounting for long-term maintenance and fault remediation.

In Table 3 one of the technical service providers has laid out a hypothetical example of the cost to deploy the hearing loop compared to an Auracast system.

TABLE 3: ILLUSTRATIVE COST EXAMPLE

System	Description	Components	Total Cost
Loops	2 platforms next to each other, each 4m x 65m. Only one audio source per platform.	- 2 × T14-1LW drivers = $3,994.35 - 2 × T14-1MW4 mating connectors = $190.82 - 2 × ACDB25200 direct burial cable = $1,611.96 - 2 × T14-1PSP PSU 230VAC–24VDC DIN rail mount = $1,254.91 - Installation & commissioning (estimate) = $6,000	**$13,052.04**
Auri	2 platforms next to each other, each 4m x 65m. 1 broadcast per platform; second	- 2 × AMP-AURI-TX2N = $3,268.18 - 2 × IP-rated enclosures for TX = $344.47 - 2 × Ethernet surge arrestors = $50 - 1 × Assembly & sundries (cable glands, fixings, network cable, etc.) = $600	**$7,530.83**

System	Description	Components	Total Cost
	transmitter acts as relay. Assumes local network control & monitoring.		

5.2 Mass-market ecosystem and economies of scale

Auracast is not a standalone assistive listening technology; it is part of the Bluetooth LE Audio platform supported by the global consumer electronics industry. This distinction is critical. Previous assistive listening systems relied on specialist manufacturers and limited production volumes, constraining innovation and keeping costs high.

Auracast™ is backed by leading technology companies, including Google, Microsoft, and Samsung, through their active roles in the Bluetooth SIG, ensuring broad industry support and integration across future devices. The presence of major brands alongside specialised providers also builds consumer trust, and the scale of their deployments will accelerate market penetration. This mass-market backing enables economies of scale in silicon, firmware, and device manufacturing. As Auracast capabilities are embedded into smartphones, earbuds, hearing aids, televisions, and laptops, the marginal cost of accessibility functionality declines sharply.

This ecosystem effect also accelerates innovation cycles. Features such as multi-stream broadcasting, encrypted audio, and low-latency synchronisation are developed once and reused across accessibility, entertainment, and enterprise contexts, reducing fragmentation and improving long-term viability.

Oticon states on its website:
'We partner with prominent tech companies including Apple, Google, Microsoft and Samsung in the Bluetooth Special Interest Group (SIG). Together we strive to ensure people with Oticon hearing aids can be digitally active and effortlessly connect with what matters most via any current or future device.' *(Oticon, 2025)* .

5.3 Expansion beyond disability-only use cases

A major limitation of legacy assistive listening technologies was their confinement to disability-specific use. Hearing loops, FM, and IR systems were primarily deployed to meet regulatory obligations and were often invisible or unfamiliar to the broader public.

Auracast expands assistive listening into mainstream use cases. Individuals without diagnosed hearing loss, such as people in noisy environments, non-native language speakers, or users with temporary hearing challenges, can also benefit from direct audio streaming. Examples of PPLICtiona od Auracast that apply to a broad audience include silent TVs in public spaces,

shared listening in gyms or bars, multi-language interpretation, guided tours, and group audio sharing.

Assistive listening becomes part of a shared audio infrastructure rather than a specialised accommodation, strengthening the business case for deployment and normalising accessible design.

- **Broadcasting**
  One-to-many broadcasting is currently being applied at universities, courts of law, theatres, sports venues, and places like cinemas can also benefit from the addition of Auracast.
- **Personal Audio Sharing:**
  Auracast™ allows users to broadcast audio from their phone, tablet, or computer so others nearby can listen on their own devices. This is useful for sharing music, podcasts, or any audio content in social or work settings without disturbing others.
- **Silent Screens in Public Spaces:**
  TVs in gyms, bars, airports, or waiting areas can broadcast their audio via Auracast, enabling individuals to tune in to the audio of their chosen screen using personal headphones or earbuds.
- **Multi-language and Multi-content Broadcasting:**
  Museums, exhibitions, and walking tours can use Auracast™ to provide audio to a group of people. With the addition of an AI translator, this could also provide the option of different languages on different streams.
- **Multi-room and Group Audio:**
  Auracast™ can synchronise music or announcements across multiple rooms or zones in a home, office, or public venue, supporting seamless group listening experiences.
- **Hybrid Meetings and Group Conversations:**
  In business or educational settings, Auracast™ can broadcast clean audio from microphone arrays or individual devices, making it easier for everyone—including those without hearing loss—to follow discussions in noisy or complex environments.
- **Public announcements:**
  In public settings, like airports and train stations, public announcements using Auracast™ can potentially reach people with hearing aids as well as those who wear headphones, earbuds and other devices.

5.4 Increasing prevalence of Auracast-enabled locations

The growing availability of Auracast-enabled venues creates a reinforcing adoption cycle. As users encounter Auracast in transport hubs, cultural venues, workplaces, and hospitality settings, familiarity increases, and expectations shift. At the same time, venue operators gain confidence as early adopters demonstrate feasibility at scale.

Registration of Auracast locations, visibility on mapping platforms, and public demonstrations at high-profile venues contribute to this network effect. Each additional deployment increases the

value of Auracast-capable devices for users, while the expanding installed base encourages manufacturers and integrators to invest further in compatible products. Bluetooth SIG encourages all vendors to register the installation.

5.5 Operational reliability and ease of maintenance

Operational reliability is a persistent challenge for traditional assistive listening systems. Hearing loops are vulnerable to electromagnetic interference, structural changes, and accidental damage, with faults often going unnoticed until reported by users. FM and IR systems introduce additional points of failure through receiver management, battery handling, and staff procedures.

Auracast systems benefit from digital transmission, adaptive frequency management, and error-correction mechanisms inherent to Bluetooth LE Audio. While they operate in the crowded 2.4 GHz band, real-world deployments show that performance can be managed effectively through system design and configuration. Importantly, faults are easier to detect because more users, staff and patrons alike can identify issues using standard devices.

This shift reduces reliance on specialist testing and places less burden on people with hearing loss to act as fault detectors, improving trust and long-term usability.

A manager of Melbourne's largest sports venue told us that they are working on a transition to Auracast. One of the reasons he mentioned was that the hearing loop can be fragile.
'We changed our flooring and it damaged the hearing loop coil, but we only found out much later.'
(Sport venue manager, project team interview)

5.6 Hybrid and transitional solutions

Despite these advantages, Auracast is still at an early stage of adoption. Not all users have compatible devices, and regulatory frameworks continue to reference legacy systems. As a result, hybrid deployment models are widely regarded as the most practical transition strategy.

Hybrid solutions allow Auracast to operate alongside hearing loops or receiver-based systems, ensuring continuity for telecoil users while enabling early access for Auracast-capable devices. Transitional products, such as Auracast receivers with neck loops, bridge the gap by converting digital broadcasts into magnetic signals for existing hearing aids with T-coils.

This dual-technology approach supports equity, maintains regulatory compliance, and provides operational redundancy while standards evolve and device penetration increases. Rather than delaying innovation, hybrid deployment enables real-world validation and gradual migration, aligning technological progress with accessibility obligations.

6. Public Transport as a Critical Use Case

Public transport represents one of the most demanding and consequential environments for assistive listening systems. It combines high noise levels, large and dynamic spaces, safety-critical information, and a highly diverse user population. For people who are Deaf or hard of hearing, access to clear, timely audio information in transport settings is not merely a matter of convenience but one of safety, autonomy, and equitable participation in public life.

6.1 Accessibility challenges in public transport

Despite sustained policy attention, accessibility outcomes in public transport have shown limited improvement over the past decade. National data indicate that the proportion of people with disabilities who can use all forms of public transport without difficulty has remained largely unchanged, underscoring persistent systemic barriers (European Federation of Hard of Hearing People, 2024).

For passengers who are Deaf or hard of hearing, the most significant challenges relate to access to information rather than physical access. Submissions to transport accessibility reviews consistently identify difficulties in receiving reliable real-time information, particularly during service disruptions, platform changes, and emergencies. Audio-only announcements, poor acoustics, background noise, and inconsistent visual alternatives combine to create environments where critical information is frequently missed.

Advocacy organisations such as Deaf Australia have described public transport experiences for Deaf users as ranging from “good, to bad, to downright dreadful and dangerous,” highlighting that failures in communication can directly compromise personal safety (Deaf Australia, 2023).

6.2 Limitations of the current Assistive Listening deployment

Existing assistive listening provision in public transport is constrained by both regulatory and technical limitations. Under the DSAPT, hearing augmentation is required where public address systems are installed, but the minimum performance expectations are modest compared to contemporary building standards.

In public transport premises, assistive listening systems are only required to cover a minimum of 10% of the area served by the PA system. This threshold is significantly lower than the 80–95% coverage mandated in buildings under the Premises Standards and AS 1428.5. As a result, even technically compliant installations may leave the majority of a platform, concourse, or waiting area without usable assistive audio.

Audits and stakeholder feedback indicate that compliance is inconsistent. Some stations lack hearing loops altogether, while others fail on key performance criteria such as signal strength, audio quality, integration with announcement systems, or signage. Maintenance issues are common, and faults often remain undetected until reported by users.

Vehicle-based deployments present additional challenges. Retrofitting induction loops into rolling stock is complex, loops are vulnerable to electromagnetic interference from traction

systems and charging infrastructure, and coverage is difficult to guarantee in moving vehicles. DSAPT does not specify coverage requirements for vehicles, relying instead on the principle of "equivalent access," which has led to variable and often inadequate outcomes.

To contextualise these limitations, Table 4 provides a comparison of key attributes of common hearing augmentation options in public transport, highlighting differences between regulatory requirements, real-world use, and practical strengths and constraints.

TABLE 4: COMPARISON OF KEY ATTRIBUTES OF COMMON HEARING AUGMENTATION OPTIONS IN PUBLIC TRANSPORT.

System Type	Coverage & Requirements (Current)	Coverage & Use in Practice	Pros and Cons
Induction Loop (AFIL)	*DSAPT:* ≥10% of area served by PA (Department of Transport and Main Roads, 2002). *Premises Standards:* ≥80% of room area if used in buildings (Braille Tactile Signs Aust., 2018). Signage with "T" symbol to mark loop zone. No personal receivers needed for telecoil users.	Typically installed at select seating areas (e.g. front 1–2 rows or a marked section in a waiting room). Modern loop designs in large spaces can cover ~80–90% of seating area with even signal, but vehicles often only have small loop coils by certain seats.	**+ Direct-to-hearing-aid sound** (uses hearing aid's telecoil; user just switches to T mode). **+ No borrowing equipment** (invisible to user when hearing aid is telecoil-enabled). **+ Low maintenance** (if installed well; nothing to hand out). **– Limited to telecoil users** (others not helped unless separate neckloop receivers provided). **– Signal can leak or interfere** with adjacent areas; cannot easily support multiple channels in one space. **– Installation challenges** (requires wiring around area; metal in structures or vehicles can disrupt magnetic field).
FM Radio System	*DSAPT:* ≥10% area (same as loop) (Department of Transport and Main Roads, 2002). *Premises Standards:* If used instead of loop: ≥95% area coverage, plus receivers for at least 1 in 25 people (for first 500 seats) etc. (Braille Tactile Signs Aust., 2018). Must indicate availability of receivers with signage.	Can cover entire room or vehicle (radio waves can fill space uniformly). In practice, often used for guided tours or by individual request (passengers ask for an FM unit if they need it). Not common in standard transit settings due to logistics of distribution.	**+ Broad coverage** (one transmitter can cover large area including around obstacles). **+ Multiple channels** possible (different frequencies for different content or languages). **+ Works for any user** (just need to offer them a receiver or their own device with FM tuner).

			– Requires venue-provided receivers **or personal FM devices; user must pick up, use, return a device.** – Potential RF interference **and need to manage frequencies (especially if many systems in proximity).** – Users must wear a headset or neckloop (some may find inconvenient; also hygiene and battery upkeep issues).
Infrared (IR) System	*DSAPT:* ≥10% area (same baseline rule) (Department of Transport and Main Roads, 2002). *Premises Standards:* Treated similar to FM (≥95% area coverage with sufficient receivers) in lieu of a loop (Braille Tactile Signs Aust., 2018). Signage to mark covered room and receiver pickup point.	Good for enclosed rooms (e.g. station waiting lounge). IR cannot penetrate walls, so it naturally confines coverage to intended area. Typically, multiple IR emitters are needed to blanket a large room (>100m^2) or if columns and corners create shadows. Rare in moving vehicles (sunlight and movement can disrupt signal).	**+ No electromagnetic interference** to hearing aids or other electronics. **+ Contained signal** (doesn't leak to adjacent spaces, providing privacy and allowing adjacent systems). **+ High fidelity audio** (when line-of-sight is maintained). **– Strict line-of-sight** required: obstacles or if the receiver is in a pocket will cut off sound. **– Requires receivers /headsets**, similar issues as FM with device management. **– Sunlight or fluorescent lights can reduce performance**, so not ideal for outdoor platforms or well-lit trams.
Bluetooth LE Audio (Auracast)	*Not yet in legacy standards* (expected to be recognized in future updates). Trials suggest aiming for ~100% of PA audio area coverage (Department of Transport and Main Roads, 2002). Would use the general hearing augmentation signage, potentially with a Bluetooth logo or	Can be scaled to cover entire vehicles or stations by deploying multiple Bluetooth broadcast beacons. Range per transmitter is flexible (roughly 15–30m radius) and multiple units can create a mesh for large spaces. Early implementations plan for full coverage of any area where announcements are	**+ Uses personal devices** – no special receiver needed if user has a recent hearing aid, smartphone, or earbud (fosters *bring-your-own-device* accessibility). **+ High capacity** – unlimited users can connect without affecting audio quality.

	instructions to connect (currently being standardized).	made (e.g. all passenger cars of a train).	**+ Multi-stream capable** – can offer different channels (e.g. express vs all-stop announcement streams, or multi-language audio) selectable by the user. **+ Immune to electromagnetic spill** (localized by range and pairing; no hum from electrical noise). **– New hardware needed**: users with older hearing aids or no smartphone will require a loaner receiver to participate (transit agencies may need to provide a few). **– Device pairing /connecting process** must be made very easy (standards are introducing a seamless "tune in" feature for Auracast). **– Bluetooth spectrum (2.4 GHz) can be congested**, though LE Audio is designed to coexist with Wi-Fi. **– Not yet widely available** in consumer hearing devices (will grow in coming 1–2 years as new models include Auracast support).

(Table Notes: All systems assume an existing PA or audio source as input. "Coverage" refers to geographic coverage of the assistive signal, not percentage of people; area percentages are regulatory minimums. Premises Standards refer to the Disability (Access to Premises – Buildings) Standards 2010, which align with the Building Code of Australia requirements for hearing augmentation in buildings).

6.3 Auracast applications in stations and vehicles

Auracast offers a fundamentally different deployment model that aligns more closely with the operational realities of public transport. Because Auracast relies on compact transmitters rather than embedded wiring, it can be installed in stations, platforms, and vehicles with minimal physical modification.

In stations and transport hubs, Auracast can broadcast announcements consistently across large areas without the coverage gaps associated with induction loops. Digital transmission allows for clearer audio delivery in noisy environments and reduces susceptibility to electromagnetic interference from surrounding infrastructure.

On vehicles, Auracast enables assistive listening without the constraints of magnetic field generation. Transmitters can be integrated into onboard PA systems, delivering announcements directly to hearing aids, earbuds, or dedicated receivers. This approach avoids many of the fragility and maintenance challenges associated with traditional loop installations in rolling stock.

Importantly, Auracast supports incremental deployment. Transport operators can pilot installations on selected platforms, lines, or vehicle classes, gather user feedback, and scale coverage over time without committing to large-scale structural works upfront.

Auracast has the potential to deliver users a seamless experience by enabling a single connection to a transport audio stream that delivers relevant announcements throughout their journey. This could encompass a user beginning at their local train station and transferring to a tram to reach their destination, providing a seamless multimodal experience across vehicles as well as station and stop infrastructure.

6.4 Auracast possibilities

One of the most significant advantages of Auracast in transport environments is its support for multiple simultaneous audio streams. This capability enables functions that are impractical or impossible with traditional assistive listening systems.

Stations and vehicles could broadcast announcements in multiple languages concurrently with the aid of a separate translation device, allowing passengers to select their preferred language on their own device. This is particularly relevant in major cities and tourist hubs, where multilingual communication is increasingly necessary. This is one way of taking advantage of the Auracast feature of multiple streams, but it does require integration with live translation devices.

Auracast streams could also potentially be used for context-specific streams. For example, one stream could carry routine service information, while another is reserved for urgent service disruptions or emergency alerts. This selective listening reduces cognitive load and hearing fatigue, especially for users who rely on assistive listening throughout the day. This is heavily reliant on what information is available and can be provided to the transmitter.

Wayfinding applications are another emerging use case. Digital kiosks, signage, or platform beacons equipped with Auracast transmitters can provide spoken navigation instructions, platform changes, or transfer guidance directly to users' devices. This would be especially beneficial for passengers with combined hearing and vision impairments or those unfamiliar with complex interchanges.

In emergencies, Auracast can deliver clear, prioritised audio instructions that are not masked by crowd noise or reverberation, complementing visual alerts and improving overall situational awareness.

It is important to understand that Auracast can only deliver audio; it is up to those who install it to provide the necessary audio information to broadcast over the Auracast system and take advantage of the features Auracast offers over current assistive listening solutions.

6.5 Implications for safety, equity and user experience

The implications of improved assistive listening in public transport extend beyond accessibility compliance. Clear and reliable access to information directly affects safety outcomes, particularly during emergencies, service disruptions, and unplanned events.

From an equity perspective, Auracast has the potential to narrow longstanding gaps between transport accessibility standards and real-world user experience. By enabling broader coverage, personal device use, and multilingual support, it addresses many of the limitations that have historically disadvantaged Deaf and hard-of-hearing passengers.

User experience is also transformed. Instead of searching for limited “looped areas” or relying on staff intervention, passengers can access information wherever they are, using devices they already own. This autonomy aligns with modern expectations of inclusive design and reduces current frustrations associated with assistive technologies.

Taken together, these factors make public transport one of the most compelling and high-impact use cases for Auracast. It is a domain where the technology’s technical capabilities, scalability, and user-centred design directly address persistent accessibility failures, while also supporting broader improvements in communication, safety, and service quality.

7. Standards, Regulations, and Education

The long-term success of Auracast as an assistive listening solution depends not only on technical capability but on alignment with standards, regulation, professional practice, and user education. While Auracast is advancing rapidly through industry adoption, regulatory frameworks and accessibility standards are still evolving. This section examines the current state of compliance, identifies gaps, and outlines a realistic pathway for transition.

7.1 Current assistive listening standards and compliance

In Australia, assistive listening requirements are primarily governed through the National Construction Code, the Disability Discrimination Act 1992, and associated standards such as AS 1428.5 Design for Access and Mobility – Communication for people who are deaf or hearing impaired. These frameworks mandate the provision of hearing augmentation systems in specified public environments where amplified audio is present.

Existing standards were developed around mature technologies, most notably induction hearing loops, infrared systems, and FM-based systems. Performance criteria, coverage requirements, receiver provision, signage, and latency limits are well defined for these systems, with induction loops benefiting from long-established international alignment through IEC 60118-4.

Auracast does not yet have explicit recognition within these standards. As a result, current installations must be assessed under the category of "receiver-based systems," triggering obligations such as the provision of loan devices and compliance with existing coverage and signage rules. This creates a mismatch between regulatory intent and emerging technology capabilities.

7.2 Regulatory gaps and required updates

At present, several regulatory gaps limit the effective integration of Auracast into accessibility frameworks. These include:

- Lack of explicit recognition of Auracast in building and transport standards.
- Misclassification of Auracast as a generic receiver-based system, despite its broadcast and personal-device model.
- Receiver provision rules that do not reflect the growing prevalence of Auracast-enabled hearing aids and consumer devices.
- Outdated coverage benchmarks, particularly in transport standards, that fall short of contemporary accessibility expectations.

Addressing these gaps will require coordinated updates across building codes, transport standards, and accessibility guidance. Importantly, reforms should remain technology-neutral and performance-based, focusing on outcomes rather than prescribing specific systems. This approach allows innovation while safeguarding accessibility.

7.3 Education usability and adoption risks

Standards and regulations alone are insufficient to ensure effective adoption. Usability and professional education remain critical risk factors. Audiologists, accessibility consultants, venue operators, and AV integrators all play a role in determining whether Auracast delivers meaningful benefit to users.

Evidence from interviews and industry feedback indicates that a lack of professional familiarity can undermine outcomes. Users may be unaware that their hearing aids support Auracast, uncertain how to connect, or hesitant to engage with new technology. Without appropriate guidance, even technically robust systems risk underuse.

Education efforts should therefore target both professionals and end users. Demonstration installations, clear signage, simple connection workflows, and consistent messaging are essential to building confidence and trust during the transition period. Government incentive programs and government advertising would also help raise awareness to a large extent.

8. Planning for the Future of Assistive Listening

Planning for the future requires acknowledging that no single technology will immediately replace all existing systems. Hearing loops remain widely used and trusted, and many users continue to rely on telecoil functionality. At the same time, Auracast is rapidly expanding in capability, device support, assistive listening system features and real-world deployment.

A phased, hybrid approach is the most practical strategy. This involves maintaining existing assistive listening systems while introducing Auracast alongside them, particularly in high-impact environments. Such an approach ensures continuity of access, allows time for standards to mature, and provides real-world validation of new solutions.

8.1 Transitioning to the next phase of Assistive Listening System

Auracast represents a shift in assistive listening from infrastructure-bound, specialist systems to a broadcast, device-centric model aligned with mainstream audio technology. It addresses many of the limitations that have constrained previous systems' coverage gaps, maintenance burden, limited scalability, and restricted use cases, while opening new possibilities for multi-language communication, personalised audio, and inclusive design.

Importantly, Auracast does not negate the value of existing systems. Instead, it extends the assistive listening ecosystem, creating a pathway toward more flexible, resilient, and user-centred accessibility. As standards evolve and adoption increases, Auracast is positioned not as a disruptive replacement, but as the next phase in the ongoing development of assistive listening systems.

FIGURE 5: WHAT A HYBRID TRANSITION COULD LOOK LIKE (SOURCE: HEARINGLOOP, RINGWOOD)

Strategic planning should also consider lifecycle costs, scalability, and future-proofing. Investments made today should support both current compliance and long-term evolution toward digital, broadcast-based accessibility.

Where government audits identify locations in which assistive listening systems are absent, non-compliant, or no longer functioning despite regulatory requirements, Auracast could be introduced as a remediation option once it is formally recognised within accessibility standards. In these contexts, Auracast offers a practical pathway to restore hearing augmentation coverage more rapidly and reliably than retrofitting traditional systems, provided continuity for existing users is maintained during transition.

Industry representatives and advocacy bodies both call for a gradual, well-managed transition to Auracast™. During this interim period, a hybrid deployment of Auracast™ alongside existing induction loop systems is widely recommended. This approach offers significant advantages:

- Continuity and future readiness: Operating both technologies ensures uninterrupted access for current telecoil users while enabling compatibility with emerging Auracast™ devices.
- Enhanced inclusivity: A combined system supports individuals using either telecoil or Auracast™ -enabled hearing aids and extends connectivity to those without hearing aids through headphones paired with Auracast™ receivers.

Adopting this dual-technology model is considered the most practical and equitable strategy for stakeholders. It facilitates a smooth migration to next-generation solutions without excluding existing users, reinforcing a commitment to universal accessibility.

References:

1. Ampetronic Ltd. (2023). *Australian Standards – AS 1428.5 2021*. Ampetronic. https://www.ampetronic.com/expert_opinion/australian-standards-as-1428-5-2021-summary-of-changes/
2. Ampetronic Ltd. (2025). *Induction loops Standards and Legislation*. Ampetronic. https://www.ampetronic.com/info-centre/hearing-loop-basics/standards-legislation/
3. Ampetronic Ltd, & Listen Technologies Corporation. (2025). *Introduction to Hearing Enhancement Worldwide*. Ampetronic LTD and Listen Technologies Corporation. https://www.listentech.com/wp-content/uploads/2025/05/ListenTECH-Hearing-Enhancement-Global-2025_K5.pdf
4. Anovum. (2021). *AustraliaTrak 2021*. Anovum. https://www.ehima.com/wp-content/uploads/2022/03/AustraliaTrak_2021.pdf
5. Anovum . (2025). EuroTrak UK 2025. In *EHIMA - European Hearing Instrument Manufacturers Association*. Anovum . https://www.ehima.com/surveys/
6. AuD, J. S. (2025, April 2). *"Auracast is Here!" Now What?* Hearing Tracker. https://www.hearingtracker.com/opinion/auracast-is-here-now-what
7. Better Hearing Australia (Brisbane). (2025, May 6). *Statement on the Future of Auracast™ Technology*. https://bhabrisbane.org.au/statement-auracast-future-hearing-accessibility/
8. Bluetooth Special Interest Group. (2019a). *Bluetooth Technology Website*. Bluetooth.com. https://www.bluetooth.com/
9. Bluetooth Special Interest Group. (2019b). *Find an Auracast™ Product | Bluetooth® Technology Website*. Bluetooth® Technology Website; Bluetooth SIG. https://www.bluetooth.com/auracast/find-a-product/
10. Braille Tactile Signs Aust. (2018). *Welcome To Zscaler Directory Authentication*. Brailletactilesigns.com.au. https://brailletactilesigns.com.au/pages/relevant-standard-codes?srsltid=AfmBOopvynPFrSDfw041EuxHfQRg5u3F-OSMIZY9PW2K0nLv8sa3ra4L
11. Deaf Australia. (2023). *Submission to the 2022 Review of the Disability Standards for Accessible Public Transport 2002*. Deafaustralia.org.au. https://deafaustralia.org.au/
12. Department of Transport and Main Roads. (2002). *Reform of the Disability Standards for Accessible Public Transport 2002 Submission to the Consultation Regulation Impact Statement Department of Transport and Main Roads Reform of the Disability Standards for Accessible Public Transport 2002 -Submission to the Consultation Regulation Impact Statement -i*. https://cabinet.qld.gov.au/documents/2022/Aug/AccessTransport/Attachments/Standards.PDF
13. European Federation of Hard of Hearing People. (2024). *Position Statement on Auracast and Telecoils - Call for balanced approach*. https://efhoh.org/wp-content/uploads/2025/05/2024-EFHOH-position-statement-on-concerns-about-withdrawal-from-telecoils.pdf
14. Hearing Care Industry Association. (2023, August 22). *FAQs - HCIA*. HCIA. https://hcia.com.au/faqs/
15. Oticon. (2025). *Connect your clients to what matters most*. 1. https://www.oticon.com.au/professionals/hearing-solutions/connectivity
16. Royal National Institute for Deaf People. (2025, February 12). *Auracast: A revolution in audio accessibility*. RNID. https://rnid.org.uk/2025/02/auracast-a-revolution-in-audio-accessibility/