Hearing Connections

HEARING BETTER

HEARING AUGMENTATION & HEARING LOOP INFORMATION

WHY DO WE NEED HEARING AUGMENTATION?

People with hearing loss commonly use hearing devices, like hearing aids or cochlear implants to improve their hearing. These hearing devices are generally great one to one, with no background noise. But in an auditorium, the person with hearing loss hears the noise, but cannot understand what is being said. This is due to the “echoes” in the room (also called reverberation) which people cannot distinguish, but “blurs” the sound.

The solution is to install a Hearing Augmentation system, which allows a deaf, hearing impaired or hard of hearing user to hear the output signal directly in their ear using a hearing device. With such a device the user can hear the sound without reverberation or background noise. Furthermore, they can hear speech clearly where otherwise they would have struggled or been unable to understand anything.

WHAT ARE HEARING AUGMENTATION SYSTEMS?

There are two types of Hearing Augmentation Systems:

Hearing Loop Systems

Receiver Systems - which consist of either:

- FM/Digital wireless Systems
- Infrared Systems

What does NOT qualify as Hearing Augmentation Systems are SoundField systems (unless receivers are provided), PA systems, Public Wi-Fi systems (that use the client’s smart phone) and Personal hearing assistance systems.

Hearing Augmentation systems typically connect to the output of an existing PA/sound system/sound source. This can include wireless microphones, TVs, and music systems both in the home and in public places.

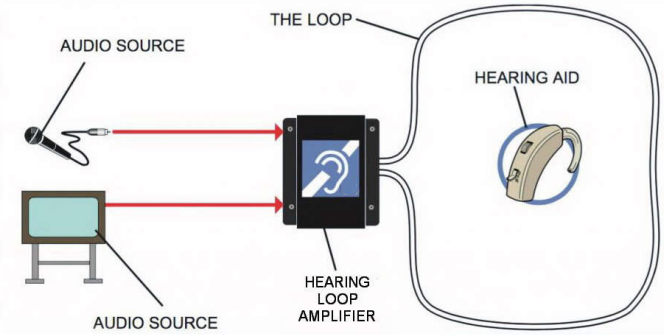
The systems are received by the consumer using a hearing aid or cochlear implant on the telecoil setting (previously known as the "T Switch"), however all systems can be used with headphones or earbuds if the user does not wear hearing devices.

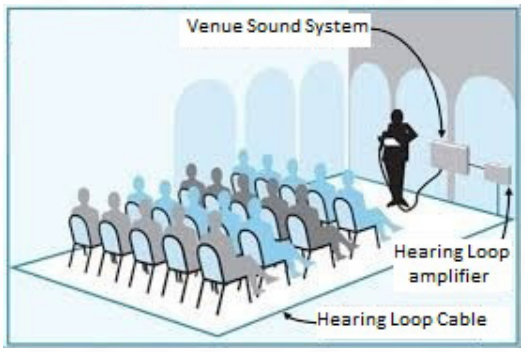
TYPES OF HEARING AUGMENTATION

Hearing Loop System

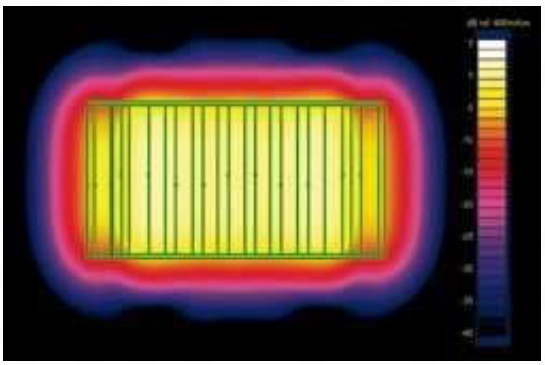
A hearing loop (sometimes called an audio induction loop) is a system for use by people with hearing devices with a Telecoil. Alternatively, receivers are available for those not using hearing devices or whose hearing devices do not have a Telecoil.

Hearing loops require installation by a professional experienced in hearing loops (such as Hearing Connections). If not installed correctly users may be required to tilt their head at an awkward angle to pick up the signal or find unexpected dead spots in the area.





Hearing Loop concept where no metal is present in the building structure



Complex Hearing Loop arrays for adjacent areas, concrete and steel framed buildings

FM/Digital System

A FM System is for use by people with or without hearing devices. An FM System is made up of one base station transmitter connected to the sound system output. Depending on the device, the transmitter can be located with the sound system or in a nearby room.

For both FM and the Infrared systems every receiver must be provided with a neckloop for Telecoil users and a headset for other users.

INFRA-RED SYSTEM

An Infrared System is made up of usually two or more wall mounted emitters connected to the sound system output. These emitters use non-visible light to transmit the signal from the emitters to body worn receivers.

Due to the light signal, this is a line-of-sight system and any disruption or blockage of the signal (even temporarily) can disrupt the sound. This can take the form of a person walking between the emitter and the user, or the user turning in another direction if there are not an adequate number of emitters.

For both FM and the Infrared systems every receiver must be provided with a neckloop for Telecoil users and a headset for other users.

An Infrared System is for use by people with or without hearing devices.

COMPARISON CHART

	Hearing Loop	FM/Digital	Infrared	SoundField with Receivers Note 1	SoundField no Receivers Note 2	Public Wifi including Smartphones	Personal Assistive Listening Roger Note 3
Complies with NCC Legal Requirements without receivers Note 4	Yes	No	No	No	No	No	No
Complies with NCC Legal Requirements with receivers Note 4	Yes	Yes	Yes	Yes	No	No Note 6	No Note 3
Connected to venue's Audio System	Yes	Yes	Yes	Note 1	Note 2	Yes	No Note 6
User Preferred	Yes	2nd Option	No				No
Venue Preferred	Yes	2nd Option		Note 2			No
Lowest Maintenance	Yes						No
Easiest to Install		Yes					No
Maximum Privacy			Yes				No
Range	Various	Up to 750m	Various	20m Note 5	20m Note 5	Various	10m/20m Note 7

The Roger system is designed for, and is excellent as a personal microphone system, not as a Hearing Augmentation System.

Hearing Connections supplies all the above systems – we can provide the best solution for your needs.

Notes relating to the Comparison Table

Note 1: SoundField may be used as an amplification system or a combined amplification and hearing augmentation system. Only when used with receivers is it a hearing augmentation system. SoundField Systems are typically used in classrooms for children with mild fluctuating hearing loss. Students requiring hearing augmentation must use receivers or connect their own personal system to the SoundField system.
Not all students own personal systems for this purpose.

Note 2: An installed SoundField system without receivers is an inbuilt amplification system. Not all SoundField systems are capable of having receivers. Those which are not cable of, and/or not supplied with, receivers are not hearing augmentation systems.

Note 3: A personal assistive listening system is not owned by the venue, and is typical owned by the user or provided by the hearing service provider to the user for their personal use, and will typically be a single microphone and a receiver. This is not a hearing augmentation system.

Note 4: To comply with NCC legal requirements, DP9 and D3.7.of the NCC must be met.

Note 5: Does not comply with DP9 of the NCC when the latency is greater than 40mS.

Note 6: The Personal Assistive Listening System transmitters have built in batteries, and therefore are not suitable for permanent connection to a venue's audio system (as the batteries will eventually corrode and may destroy the transmitter).

Note 7: When used at greater range than 20 metres, repeater units with internal batteries are required. These are not suitable for permanent connection to a venue's audio system as the batteries will eventually corrode and may destroy the repeater.

Legal Requirements

There are numerous legal requirements involving Hearing Augmentation Systems, and signs for them.

- NCC - National Construction Codes (previously BCA - Building Codes of Australia) – DP9, and Sections D3.6 and 3.7
- DDA - Disability Discrimination Act 1992 – The Premises Standards - DP9, and Sections D3.6 and 3.7
- Fit for Purpose (each state has its own fair trading laws requiring all systems to be fit for purpose)
- Australian Standard AS 1428.5 - 2010 (applies if listed in a contract).

SIGNAGE

Hearing Connections can provide both Braille and printed signs for Hearing Loop Systems, FM systems and Infrared systems.

Braille Signs are required at the entry to indicate the room or area has a hearing augmentation system (Hearing Loop, or Receiver system – i.e. FM/Digital or Infra-red system).

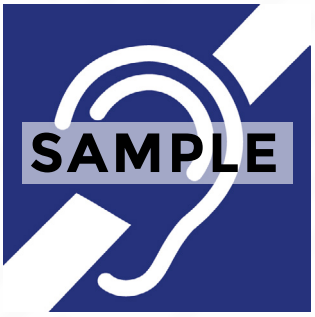
Printed signs are required inside the room.

Both signs require the International Symbol for Deafness to be included.
The symbol must be white on blue, and the blue must be Ultramarine B21 or equivalent.

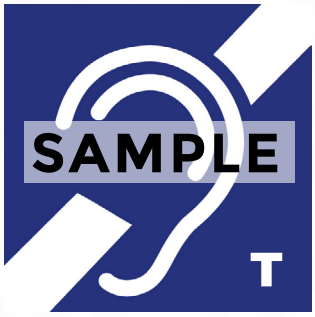
All signs display the International Symbol for Deafness, and the appropriate wording – both as required by

- National Construction Codes / Building Code of Australia 2019 – D3.6
- Disability (Access to Premises - Buildings) Standards 2010 – D3.6

Some signs modify the International Deafness Symbol with a "T" – this is not compliant with the legal requirements in Australia.



CORRECT



NOT VALID IN AUSTRALIA

HEARING AUGMENTATION AUDITS

Hearing Connections can provide onsite Audits of any installed Hearing Augmentation System.

The audits can be based on:

- compliance with the minimum requirements for a working Hearing Augmentation System, or
- compliance with NCC requirements, or
- compliance with AS 1428.5, or
- compliance with NCC and AS1428

Hearing Connections can discuss the best approach with you.

FURTHER INFORMATION

If you have any questions, email Andrew Stewart: Managing Director of Hearing Connections at andrew@hearconnect.com.au

Other articles are available here
Sign up to receive our newsletter here

About the Author

Andrew Stewart is qualified in electronics and has been leading research into hearing augmentation systems for over 30 years – including designing, installing, testing and commissioning of Hearing Augmentation Systems. He and his team have conducted their own research of comparison methodologies of installing hearing loop systems and designed and constructed test equipment. He's been involved in installations at Sydney Opera House, First Class Qantas Club Singapore, art galleries, museums, theatres and many others.

Andrew was a key leader in the development of AS 1428.5 - 2010, the authoritative document on Hearing Augmentation in Australia. He is also a life member of Deafness Forum of Australia (the peak body for hearing impaired people in Australia) and continues to represent them, as he has on many committees for over 20 years. Andrew has been hearing impaired all his life, with a progressive loss, and now wears two cochlear implants.

He has 9 other family members who wear hearing aids and/or cochlear implants.

Why choose Hearing Connections

Hearing Connections is built on experience of Andrew Stewart, who:

- Has been **wearing hearing aids** since age 7, and now wears two cochlear implants.
- Knows both sides of the story – the **lived experience,** and the **electronics qualifications.**
- Has been **specialising** in Hearing Augmentation Systems for over 33 years.
- Was **instrumental** in the writing of the definitive Australian Standard **AS 1428.5**.
- Has conducted **research and development** of Hearing Augmentation systems for improved outcomes.
- Has over **33 years of design, installation and commissioning** of Hearing Augmentation systems (loop systems, FM systems, sound field systems and public address systems) for a range of public access buildings, from small halls to significant buildings and venues, including Sydney Opera House and airports.
- **Lectures** in Hearing Augmentation for building professionals.
- Provides **training** in Hearing Augmentation for Access Consultants, Building certifiers and surveyors, and architects.
- Over 20 years of **advocating** for the needs of deaf and hearing impaired people.
- Is a **life member** of Deafness Forum of Australia.
- Has won **numerous awards** for service in advocating for the needs of deaf and hearing impaired people.