

Advantages and Disadvantages Of Assistive Listening Systems

Hearing Loss Technology Conference

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Assistive listening systems used in classrooms, auditoriums, and similar spaces fall into three main categories: Infra-Red (IR), Radio-Frequency (RF), and Induction Loop (Loop).

While Bluetooth is commonly used to connect audio devices together, Bluetooth is designed for one-to-one connections between devices. Bluetooth does not have a suitable “one source to many simultaneous receivers” mode, so Bluetooth as it exists today and for the foreseeable future is not suitable for providing audio from a source to many recipients simultaneously. We will consider Bluetooth highly useful for many purposes, but not useful for auditorium and similar settings with many attendees wishing to employ a facilities-provided assistive listening system.

IR, RF, and Loop assistive hearing systems all provide advantages and disadvantages when compared to each other. A major determining factor in choosing which system to employ is the nature of the space where the system is to be used, and the degree to which the facility operator wishes to serve attendees.

An assistive listening system that goes unused has no value to event attendees. This is the case whether the assistive listening system is unused due to (1) poor performance by the system, (2) lack of ease of use by attendees, and/or (3) poor quality audio being delivered to the assistive listening system. A poorly mic'd function won't sound good to users no matter which assistive listening system is chosen.

An IR Assistive Listening System

An IR system requires that the user employ an IR signal receiver and headphones or a neckloop even if the user has T-Coil equipped aids or cochlear implants. This frequently discourages users who choose not to use the system because of the “hassle factor” of waiting in line to check out a receiver and then staying after the event to return it.

IR is relatively easy to install in a new or existing facility.

IR can carry multiple channels, allowing for multiple simultaneous language interpretation and for visual description for blind individuals.

IR is blocked by opaque objects such as columns, walls, and persons between the user and the IR emitter(s). IR signals, like light, are blocked by walls, and an IR system will not be heard outside the room in which it is in use unless line-of-sight is available from the user to the emitter(s), such as through an open doorway.

An RF System, Analog or Digital

An RF system requires that the user employ an analog or digital RF signal receiver and headphones or a neckloop even if the user has T-Coil equipped aids or cochlear implants. This frequently discourages users who choose not to use the system because of the “hassle factor” of waiting in line to check out a receiver and then staying after the event to return it.

RF is relatively easy to install in a new or existing facility.

RF can carry multiple channels, allowing for multiple simultaneous language interpretation and for video description for blind individuals.

RF is not blocked by persons or objects such as columns or even most walls. May be heard outside the room in which it is employed.

RF can be subject to interference from stage wireless equipment such as wireless intercoms, talk-back systems, outside 2-way radios, TV channels, and other systems that operate on radio waves.

Induction Hearing Loops

A loop can be directly used by attendees who have hearing aids equipped with T-Coils or who have cochlear implants. To the best of my knowledge all cochlear implants have T-Coils. This leads to much greater use of the assistive hearing system by members of the hard-of-hearing community.

A loop can be used with inexpensive receivers by attendees who do not (yet) have hearing aids, or who have hearing aids that lack T-Coils.

A loop is easy to install in a facility while the facility is being built or remodeled – is slightly more work to install in an already fully-built-out existing facility.

A loop can carry only one channel – generally the main PA system audio that the entire audience also hears.

A loop is not blocked by persons or objects such as columns or even most walls. May be heard outside the room in which it is employed. Careful installation can minimize or eliminate the loop signal from being heard outside the room. Conversely, the loop can be installed so as to intentionally provide listening for a short distance outside the room in which the loop is employed.

With today’s technology all three systems are capable of providing excellent sound quality. Sound quality difference among the three system is no longer an issue.