Audio Frequency Induction Loop White Paper

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Description

An induction loop is a way of transmitting audio frequencies through a wire loop to a hearing aid that has a telecoil. Much like an FM system, the induction loop is most frequently used to improve the speech or music by transmitting directly to the hearing aid which helps to eliminate background noise.

1 How does induction loop work?

First an electrical current is amplified and passed through a loop of wire. As a result a magnetic field is generated around the area of the wire. The magnetic field that is created varies in direct proportion to the strength and frequency of the signal (or sound) being transmitted. If another wire is placed within the range of the field of the first wire, an identical electrical current is produced in it. The second current can be amplified and converted into an exact duplicate of the original sound signal.

2 What are the pros & cons of induction loop technology?

Pros:

- Feeds right into the hearing aid.
- Good for small classrooms.
- No need for receivers
- Low cost maintenance.

Cons:

- Hearing aid must have the t-coil – approximately 30% of the hearing aids in the United States have t-coils.
- Cannot accommodate those who do not have hearing aids.
- Dedicated to one source and one source only.
- Security: It is an un-secure transmission and if security is needed IR is needed.
- Many different dead spots if wire is not installed properly.
- SNR is determined by the hearing aid - <40-45 dB SNR
- Cost of installations is higher than an FM system due to needing amplifier and wires.
- Susceptibility to interference from other sources of electromagnetic energy - devices such as light dimmers, computers, electric motors or alternating current wiring within the building can generate electromagnetic fields sufficient to compete with the loop system.
- Only one loop system can be used within a certain radius.
- Each hearing aid has a different squelch limitation.
- It is difficult to place wire into an existing room without it being seen.

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