contacta

Why Install a Loop System that Meets the IEC Standard?

By Richard McKinley
Managing Director, Contacta Inc.

Over the years, I've have heard many comments about loop systems such as, *"Our loop is good enough; Elsie loves it. Many others have tried it, but Elsie is the only one with really bad hearing".* A comment like this, regarding loop systems, is unfortunate because it implies that many have attempted to use the loop system, but received very little benefit from it. As a result, individuals who do not benefit from a "great" loop system rely on their hearing instrument in a difficult listening environment and are lucky if they comprehend twenty-five percent of what is being said.

In another example of a problematic loop system in a synagogue in Baltimore, a Rabbi had to give the following instructions to congregants regarding the loop system, *"For those who wear hearing aids you need to sit in the outside seat of each row and if you wish to use the loop receiver with headphones you can sit in towards the middle of the room."* This is an unacceptable scenario where congregants could only sit in select areas to benefit from the loop system that was installed. Sadly, the Rabi was told this system met all applicable standards.

When loop systems do not meet the IEC standards, the users suffer and criticize the loop in the following ways:

1. Those that have used the loop system say they can hear better with their hearing instrument.
   Cause: Poor frequency response, low signal level or too much background noise.
2. Those who have tried the loop system say that the volume is too low.
   Cause: The loop system's magnetic field is uneven resulting in low signal and/or varying strength throughout the seating area. In addition, the loop wires are placed too far apart.
3. My seating options are very limited.
   Cause: The loop signal is only adequate in a couple of seats due to lack of uniformity or unevenness of the signal level and improper system design
4. The loop system interferes with our video system or audio monitors.

Cause: The hearing loop wires are too far apart and too much current is needed to create the magnetic field.

5. The hum, heard through the T-coil in my hearing instrument is too loud.
   Cause: The presence of background noise was not properly tested and resolved before the loop system was installed.
6. The sound in the loop has an echo or is unclear.
   Cause: The audio feed to the loop system amplifier has too many open microphones or an ambient feed.
7. When I lean forward to pray, the sound goes completely away.
   Cause: Prior to the loop system installation, little thought was given to the functions that take place within the seating area. The signal loss when leaning forward suggests a perimeter loop was installed when a phased array would have been the most appropriate loop system.

In my traveling throughout the United States and Europe, these are the most common complaints I hear from those who have tried to utilize a loop system that does not meet IEC standards. It is my goal that we can all learn from each other's mistakes to install the best functioning loop systems.

The functionality of one loop system, in many cases, builds the reputation for all loops. If users have a bad experience at one loop location they could foresee all loop systems performing the same way. Please reference the newly updated literature to better ensure proper functioning of each loop system you install.

- IEC Standard 60118-4 - LOOP FIELD CERTIFICATION,
- PRE-PROPOSAL - LOOP FIELD TEST, and
- ADJUSTING A PHASED ARRAY SYSTEM, SLS UNITS

I am happy to let you all know our training schedule is finalized and will be emailed out shortly. Hope to see many of you this year!!

Sincerely,

Richard McKinley
Managing Director, Contacta Inc.
Email: richard@contactainc.com

HLAA
Hearing Loss Association of America
GET IN THE HEARING LOOP
GITHLinfo@hearingloss.org

contacta

Best Practices to Install a Loop System that Meets the IEC Standard

By Richard McKinley
Managing Director, Contacta Inc.

Do not be misled to believe a hearing loop system meets the IEC standard even if the audio from the hearing loop sounds good. Here are a few telltale signs that a loop does not meet the IEC standard and how you may be misled to believe otherwise.

Problem #1: The signal is not uniform.

Misleading approach to testing the loop: If an installer uses an old bar graph meter and measures signal strength at four or five points in the room generally right next to the hearing loop wires, or in a pre-tested location showing the facility manager that the readings are the same.

Best Practice according to the IEC Standard: The signal strength should be measured while walking throughout the looped area. This includes measuring the signal at the farthest point from a hearing loop wire.

Problem #2: Poor frequency response.

Misleading approach to testing the loop: A manufacturer's representative took a meter and measured the 1000Hz level in the center of each loop in the room and showed the facility manager/owner that the readings were *close enough* to meet the frequency response portion of the IEC standard.

Best Practice according to the IEC Standard: The frequency response should be measured in a fixed location in the center of a hearing loop. In this scenario (for example) when the frequency response was measured accurately, it revealed the frequency response was more than 10 dB out of spec when the frequency response should be -/+ 3dB. Hearing loop installers should not be measuring the frequency response within a foot of a hearing loop wire. This will artificially give meter readings that meet the IEC standard.

Problem #3: The sound is not quite loud enough and unclear.

Misleading approach to testing the loop: Most of the time, I find peak levels in the -10 to -15dB range in a poorly designed hearing loop often due to the installation of a perimeter loop or

hearing loop wire widths that are too far apart. The assumption that if the level is correct for one person seated within a hearing loop in one location, it is correct for all.

Best Practice according to the IEC Standard: Peak levels should reach 0dB+-3dB in the center of two hearing loop wires. Sadly, in most cases, a more powerful hearing loop amplifier will not solve this issue, but a new loop configuration with smaller loop widths would correct the issue.

Problem #4: Too much background noise or electromagnetic interference (EMI).

Misleading approach to verifying the loop: Don't be misled by the following comments from manufacturers and/or installers:

"A loop is only for the hearing aid wearers; that noise will go away with time."

"If we make the audio from the hearing loop louder you will not notice the background noise."

"It is fine. I checked it with my own hearing aids."

Best Practice according to the IEC Standard: According to the IEC standard, background noise level should be below -32dB. This is one area where I differ from the IEC standard and recommend that background noise level be below -40dB. In addition, I feel a non-hearing aid wearer, using the loop receiver should perform a listening check of the hearing loop, before the hearing loop system is proposed. Recently in the UK, I heard the following statement, "Loop systems are only for hearing aid users and no one uses the loop receivers therefore background noise levels of -32dB are fine." I disagree with this statement in that here in the US hearing loops are used as an ALD system and therefore need to work well for individuals who may use hearing loop receivers with headphones. Hearing loop installers and manufacturers should realize that the person paying for the hearing aid loop may not wear hearing aids and will use a loop receiver to check the loop. My suggestions is to properly assess EMI as part of a site visit and resolve EMI issues prior to moving forward with a hearing loop system installation. You don't want to find yourself in a position where payment for a completed installation is withheld until you resolve EMI issues.

In summary, if our goal is truly to sell and install a system that meets the IEC standard so that all users with properly programmed T coils can benefit from the hearing loop system, then somehow we need to empower the purchaser and provide them accurate information and/or knowledge before purchasing the loop or have an independently trained and qualified group that certifies hearing loop systems. Also, I believe that since the manufacturer of the product conducts trainings, certifies their installers, helps with the designs and sells the product, they should be liable for a good working loop and regularly send a team out to test and certify their contractor's installations. The manufacturer should also be available to solve all loop related issues along with their contractor.