7-18– 12
705.5.4

Proposed Change as Submitted

Proponent: Ed Roether, representing the ADA/A117 Harmonization Task Group

Revise as follows:

705.5.4 Alignment. Truncated domes shall be aligned in a square or radial grid pattern.

Reason: The ADA/A117 Harmonization Task Group (HTG) was created as a task group of the A117.1 Committee to compare the 2010 ADA with the 2009 A117.1 Standard. The HTG has recommend a series of changes through a set of change proposals. The HTG is recommending changes, for the most part, address where the ADA was viewed as more stringent than the A117. Where the A117 contained provisions not addressed in the ADA, these were not considered a conflict needing action to amend the A117. In addition there are a number of places where the ADA and A117.1 are different as a result of specific actions, by the A117.1 Committee during the development of the 2009 edition, to remain or create a difference where, in the judgment of the committee the ADA was deficient.

Reason for 705.5.4: The published draft of the ADA standards applicable to rights of way has included the text to allow a radial pattern of the truncated domes.

705.5.4 ROETHER.doc

Committee Action

Approved

Committee Reason: The proposal is consistent with the proposed ADA rule regarding transportation facilities. If the rule changes by its publication, the Committee can address it at that time.

7-19– 12
706.1, 706.3 (New)

Proposed Change as Submitted

Proponent: Sharon Toji, Access Communications, representing Hearing Loss Association of America

Revise as follows:

706.1 General. Accessible assistive listening systems ~~in assembly areas~~, where provided, shall comply with Section 706.

706.3 Inductive Loop Systems. Where inductive loop systems are provided, they shall comply with the following international standard: IEC-60118-4.

(Note: Where existing standards in ANSI A117, 706.4, 5 or 6 conflict or do not comply with the IEC Standard for Inductive Loop Systems, an exception shall be added as follows:)

Exception: Inductive loop systems, where provided, shall comply with 706.3.

Reason: 1. Revision to 706.1: Since accessibility codes in some states require assistive listening systems in occupancies other than assembly areas, the standard should apply to all such systems, in whatever type of occupancy they are installed.

2. Revision to 706.3: Although there are several types of assistive listening systems, and no particular system is required by the ADA Design Standards, the Induction Loop (or T-Coil) System can be used automatically by anyone who has a hearing aid fitted with the technology. We understand that 50 percent or more of the hearing aids sold in the United States have this technology. Also, people who have cochlear implants can use the T-Coil technology. Therefore, so that the many facilities that choose to install an

Induction Loop System will install one that will perform satisfactorily for the most users, we recommend that the international performance standard for such systems, the IEC-60118.4, as revised in 2007, be added to the ANSI Standard. This standard is widely adopted internationally, and is recognized by quality manufacturers of these systems, sold both in the United States and abroad. One of the values of the IEC Standard, is that it is applicable to any size room and system.

3. ANSI already adopts this standard for use in AS 60118.4-2007: “Hearing aids – Magnetic field strength in audio-frequency induction loops for hearing aids operating with an induction pickup coil.”

4. IEC, the International Electrochemical Commission, is a nonprofit organization that develops and publishes standards concerning electrical technologies.

Here is the Abstract for the IEC Standard, as it appears on the ANSI Standards Store site, where it may be purchased:
Electroacoustics - Hearing aids - Part 4: Induction loop systems for hearing aid purposes - Magnetic field strength
"Applies to audio-frequency induct ion loop systems producing an alternating magnetic field at audio frequencies and intended to provide an input signal for hearing aids operating with an induct ion pick-up coil . The standard specifies requirements for the field strength in audio-frequency induct ion loops for hearing aid purposes, which will give adequate signal -to-noise ratio without overloading the hearing aid. The standard also specifies the minimum frequency response requirements for acceptable intelligiblity. Methods for measuring the magnetic field strength are specified, and information is given on appropriate measuring equipment (see Annex B), information that should be provided to the operator and users of the system (see Annex C), and other important considerations. "

The following is from a document prepared by a British manufacturer of induction loop systems describing the revised IEC Standard.

New Requirements for Audio Induction Loops in 2007

A major revision of the Audio Induction Loop performance standard means better hearing assistance systems for the hearing impaired. It also changes the way that loop systems are specified, designed, commissioned and maintained.

Providing hearing assistance is a vital way for many organizations to help their customers and staff. With over 10% of the population suffering significant hearing loss, the benefit of hearing assistance systems can be very significant for both the provider and for those who suffer from hearing loss.

However, simply installing a system is not sufficient; a hearing assistance system such as an Audio Induction Loop must provide a genuine benefit to the hearing aid user. A poorly designed or installed hearing assistance system is unlikely to meet legislative requirements as the provider is not giving assistance to the hearing impaired. Standards can provide performance benchmarks that will ensure that systems provide a genuine benefit.

The international standard for audio induction loop systems — IEC60118-4 — sets out requirements and test methods for any loop system. As hearing assistance is increasingly mandated by equal access legislation around the world, IEC60118-4 has become the reference for all loop systems, often appearing in specifications and tenders or directly in hearing assistance legislation.

IEC60118-4 has been revised and republished in 2007. The revised standard is more complex but also sets a clearer performance standard for loops. There are four main requirements:

Field Strength: Sets the output level for the system, ensuring sufficient signal is delivered to the hearing aid to provide enough volume but no distortion.

Test:

• Capable of 400mA/m RMS with 1kHz sine
• Variation ≤ +/-3dB over the required volume of use

Frequency: Sets the requirement for flat frequency response to give good speech intelligibility, the most critical requirement for loop system and the most frequently failed.

Test: Field strength variation ≤ +/-3dB from 100Hz to 5kHz over the required volume of use (reference to the level at 1KHz)

Background Noise: Sets a requirement for a maximum acceptable level of background noise. Suppression of background noise is essential to give the intelligibility required by the hearing impaired.

Test: • A-weighted background noise to be <32dB relative to the signal (400mA/m RMS)
• Ideally <47dB where possible.

Subjective Test: To ensure the system provides an undistorted clear signal to hearing aid users using the actual system sources (microphones etc.)

Test:

• Ideally hearing aid users will validate the system performance
• If not, someone from the service provider must assess the system with suitable receiving equipment.

Here is a document about the new standard submitted by company in the United States

Basic Review of IEe 60118-4 as Revised

The original IEe 60118-4 document was written to establish a standard for the installation of AFIL systems defining required signal levels and installation standards. The required signal strength was chosen to be high enough to produce an acceptable signal to noise ratio over background magnetic noise and yet not so high as to cause overloading of the hearing aid.

In many countries throughout Europe AFILS systems were thought to be required by law. The bad part – many venues installed what was felt to be the minimum system required and much was left up to interpretation. One manufacturer stated that at first they sold only their smallest induction loop drivers and felt many venues had installed marginal systems. In reality some studies indicated that fewer the 50% of the systems in Europe worked properly and often the users were not satisfied with the benefits of AFIL systems. Many of the revisions were meant to better define terms and clarify procedures like commissioning a new system. The desire was to have systems installed where any user could walk into any hearing loop system, sit anywhere and receive a good signal.

Basic points of the revised specification

1. Defines two different types of AFIL systems: large loop or small loop and gives different parameters for each. The small loop is a counter loop, tv loop or cushion loop. In this document we will be dealing with the large loop side of this document.

2. The 0 dB level has now been defined as a 400mA/meter as created by a 1KHz sine wave signal.
3. The useful magnetic field volume now defines the height dimension in detail (the perpendicular distance between the hearing aid pick up coil and the plane of the loop.
4. Suitability of the site is now defined by three items: the magnetic background noise level, the influence of materials in the structure and the presence of other induction loop systems in the area.
5. Background noise levels should be read using an A weighted meter with a.125 sec averaging of the RMSvalue. In a perfect environment the signal tonoise ratio should be 47dB. In other words a noise level reading -47dBA or lower is preferred, however if the actual signal to noise ratio is less than 32dB - it should be analyzed to determine if it is comprised of any undesirable tones and this information shall be reported.
6. The test signals were defined in more detail especially the pink noise signal, which is used often.
   Sinusoidal signals of 100Hz, 1KHz and 5KHz were defined as the three minimum test frequencies for testing amplifier characteristics and system response.
7. Induction loop system measurements should be taken under conditions deemed to be normal use including other powered sources such slighting. Once the system has been commissioned it recommends that multiple users evaluate the system as a final test.
8. Typical values for the maximum field strengths (peak)(400mA/m) produced by a test signal will vary depending upon the test signal and whether the amplifier uses peak detecting AGe. For a 1KHz sine it would be 400mA/m or OdB, for pink noise it would be 200mAjm or -6dB and for male simulated speech 225mA/m or -5dB. Readings should be taken over at least 60s and the maximum indication read.
9. Commissioning the system requires that the signal levels shall be within ±3dB of the level as indicated in #8 and performed at 100Hz, 1KHz and 5KHz throughout the useful magnetic field volume.
10. Pink noise should be bandwidth limited in a manner similar to speech.
11. Information which should be provided to the hearing aid user and system operators include: signage, instructions on how to use the system, a plan showing the useful magnetic field volume, name and position of the person responsible for proper operation, documented field strength levels, how to monitor the AFIL level and operation, any special audio microphones or other equipment required for proper operation.
12. Appendix E gives a very good overview of induction loop system theory. One major point is the need for a constant loop plane and to keep the loop plane distance from the listening plane consistent and generally in the range of .12 to .16 times the loop width. Also the worst location for the loop plane is at ear height and going up and over doorways should be avoided. It was noted that loops have both resistance and inductance - therefore the amplifier should have sufficient voltage to drive the required current through the loop - especially at the higher frequencies.

We are also sending a letter of support from Listen Technologies, a United States Company that supplies Assistive Listening Systems in the United States.