



Pacific AV
System Design and Distribution

Assistive Listening Systems: A Quick Guide to Loops

This document is designed to give an overview of the NZ Laws and Regulations that cover Hearing Aid Loops. It should not be construed as a formal statement of the obligations defined in the various documents mentioned.

The NZ regulations allow for one of three options when hearing assistance is specified. These include IR, RF and Magnetic Induction via loops. This document is primarily discussing the loop option. In particular, where they may be specified and what standard they must comply with.

AS60118.4 is the technical standard for a magnetic loop and it identifies measurable criteria, and the clear implication of this is that systems must be carefully designed and installed, and subsequently tested to confirm compliance.

The Regulations

New Zealand Building Code

NOTE: This is the regulation has been in force since 2004 and applies to all **new** buildings meeting the following criteria OR any buildings that are **being altered, added to or are changing their** use e.g. retail complex being turned into a cinema complex. This is usually triggered by the consent process, where it would be noted and added to the consent, whereby it is put on the BWOFF (Building Warrant of Fitness) and in turn, the compliance schedule. Failure to comply has serious consequences including fines.

Clause G5.3.5 and 5.3.6

The regulation stipulates **where** a listening enhancement system is to be installed as well as the required signage.

Clause G5 stipulates the following and is the **first criteria** that needs to be met.

- (a) *Communal Non-residential assembly spaces occupied by more than 250 people,**
- (b) Any theatre, cinema, or public hall,**
- (c) Assembly spaces in old people's homes occupied by more than 20 people.**

Provisions shall be made to accommodate people with disabilities in rooms and areas used for meetings, entertainment, assembly and recreation.

*Communal Non-Residential is defined as *a building or meeting place for people where care and service is provided by people other than the principle users.*

These are covered under 4.0.2 and 4.0.3 of the Brookers Building Law Handbook 2008 and include: churches, cinemas, clubrooms, halls, museums, public swimming pools, stadiums, theatres, early childhood centers, colleges, day care institutions, centers for handicapped persons, kindergartens, schools and universities. (Ref: Brookers Building Law Handbook 2008 Section 4.0)

G5/AS1 People with Disabilities

This section of G5 points to NZS4121 as an acceptable solution standard.

3.0.1 Acceptable activity space shall comply with NZS 4121.

NZS 4121:2001

This is the document which **sets the technical standard** for Hearing Enhancement systems under section 12.2.2 and Appendix H.

NZS4121 is used once the prerequisites of Clause G5 indicate that a Hearing Enhancement Solution is required.

12.2.2 Listening Systems states: “*in buildings that provide a sound amplification system; a listening system which will enable enhanced hearing by people with hearing aids shall be installed to cover the **total area of the room***”.

This part of the standard which requires the presence of a sound amplification system is the **second criteria**.

The combination of G5/3/5 and NZS4121:2001 determine when and where a Hearing Enhancement System are to be installed.

Appendix H states what the acceptable solutions are. They include Induction Loops, Infra Red (IR) and Radio Frequency (RF) as outlined below.

NZS4121 also calls to AS1088-4 (now been updated to AS60118-4/2007) which adopts the international hearing aid loop standard IEC60118-4. All Univox loop designs are designed to this standard.

AS60118.4 – Technical Standard for Loops

Defines the performance criteria of an induction loop system.

The key elements are:

- **Field Strength** in the specified listening area shall be -20dB re 1A/m average, using a 1kHz sinusoidal input, with a **variation of +/-3dB**. (equivalent to 0dB on 400mA/m meter such as Univox FSM 2.0)
 - **Environmental Magnetic Background noise** shall be no higher than -40dB A-weighted 1A/m measured with the loop system off (equivalent of -32dB on 400mA/m meter such as Univox FSM 2.0)
 - **Frequency Response** of the system shall be from 100Hz to 5000Hz. The variation should be no more than +/-3dB from the value taken at 1kHz.
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Building Act Regulations 2005 Compliance Schedule SS12 (update 2012)

This is the section that covers the **testing** of any Audio Loops or other Assistive Listening Systems using Form 12A. This testing is usually done by local Council registered IQP's.

In particular, it calls for six monthly testing of Audio Loops to the AS60118-4/2007 standard (updated from AS1088-4 in 2012) as well as testing for IR and RF systems.

SS 12/1 Audio loops

The six-monthly inspection and testing of:

- Magnetic field strength in the specified area.
- Magnetic background noise interference from other equipment. (e.g. an adjacent loop system, electrical fittings, heating systems etc.)
- Sound amplification installations consisting of loop systems should be tested for SPL and distortion. Where room acoustics have been altered since the last inspection, the sound system should also be tested for spectrum analysis and speech intelligibility (RASTI).

SS 12/2 Systems with Receivers

The six-monthly inspection and testing of:

- Signal transmission strength
- If after testing adjustments cannot be made to remove dead spots, mark areas that do not comply.
- Check the specified number of receivers are available for use.

Visually inspect and test:

- Cords
- Connectors
- Teleloop (where used)
- Stethoclip, earplugs
- Headset.

Systems using receivers should be maintained:

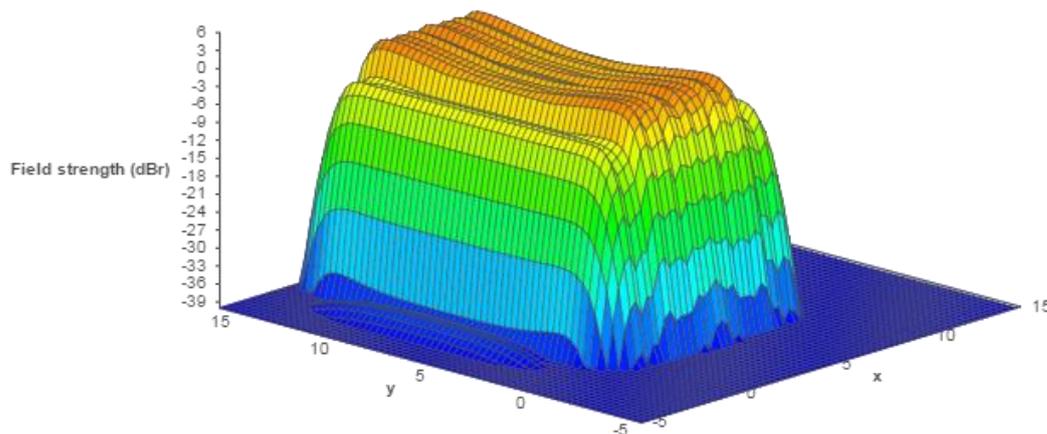
- Earplugs, headset covers or ear pads should be sanitised and sealed in a bag or replaced after each use
- Batteries charged between each use.
- If equipment is faulty or not operating as it should it must be repaired without delay.



Pacific Audio Visual Ltd represents Univox loop amps from Sweden. They have been in business since 1965 and have an excellent on-line software design facility to allow us to designs for loops at the early stages of a project. The software allows us to design a loop to comply to the IEC 60118-4 standard whilst taking into account the shape, size and floor construction of the building. We can also design side by side loops and take into account confidentiality by using our Ultra Low Spill design.

We are more than happy to assist with any designs as we want to ensure the installation meets the standard required.

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