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BY EDIN

Certificate of Conformity

Certification of a hearing loop system according to IEC 60118-4

Customer

Venue: _____

Room: _____

Contact person: _____

Date: _____

Signature: _____

Loop driver (make and type): _____

Driver serial No: _____

Loop coverage area: _____

Loop wire position: _____

Control

Measuring tool (make and type): _____

Measuring/listening height: _____

Company: _____

Name: _____

Date: _____

Certification

This hearing loop system is commissioned to perform as required by IEC 60118-4:

Name: _____

Signature: _____

Measuring procedure with Univox FSM 2.0 and attached audio files

Please read before starting the measuring procedure:

- When connecting the signal source, slowly increase the input sensitivity until AGC is activated according to the driver's manual.
- FSM 2.0 shows values as integers, which can result in an error margin of up to 1dB.
- Readings close to the loop wire (where the coverage boundary limits are) are sensitive to vertical variation which can add an error margin of up to 1dB.
- For non-conformity readings, ±3dB is the allowed variation according to the standard.
- At low level listening (no program material), the clock frequency of the FSM 2.0 micro processor may be heard.
- Overspill measurements are possible below noise level using FSM 2.0. (Please refer to FSM 2.0 User Guide)

Test protocol

Press START on FSM 2.0 to initiate the measuring procedure.

Checked

1. Background noise measurement (Noise)

Disconnect the loop driver's power cord and document the background noise levels.
Readings below -47dBA are preferred but -32dBA is acceptable.
-22dBA is accepted for short announcement loop systems.

	With A-weighted filter	Without A-weighted filter (flat)		Approved
Measured value:	dBA	dB		

2. Field strength deviation (Coverage)

Connect the loop driver to the power and activate signal *1kHz.wav*. Set field strength level to approx. -12dB using the drivers' output current control. Confirm that the field strength doesn't vary more than ±3dB within the listening area at sitting (1.2m) or standing (1.7m) height. If both sitting and standing positions are used, measure at 1.45m. Document the variation in writing (see examples below) or in a graphic floor plan (page 4).

Ex. *1. "Field strength is according to standard except Xm from the wall at 1.2m."*
2. "Field strength is according to standard except in an area of 3x2m in the middle of the listening area."

	Approved

3. Basic frequency test

Keep the field strength at -12dB. Any "low cut (speech) filter" should be turned off. Apply signal *3_freq.wav*. Document the readings at 100Hz and 5kHz in relation to the reference value at 1kHz (is automatically set to 0dB) in several locations within the listening area at selected height. Confirm that the measuring values don't vary more than ±3dB. If the deviation is too large, adjust the frequency with the MLC control. (Please refer to the User Guide of the loop driver and FSM 2.0).

	100Hz	1kHz	5kHz		Approved
Largest deviation:	dB	0dB	dB		

4. Comprehensive frequency (not required for certification) (Freq)

For measuring directions, please refer to Univox FSM 2.0 User Guide.

5. Adjustment of field strength level, 400 mA/m (Field)

Activate audio file *1kHz_pulse.wav*. Adjust the field strength level using the drivers' output current control until 0dB (400A/m) is reached, preferrably in between the listening area's outer edge and middle. (Note: A continuous sine wave is not recommmended since the loop driver's AGC might decrease the level.) Confirm that the field strength level doesn't vary more than ±3dB within the listening area.

	Target: 0dB (±3dB)		Approved
Reached field strength level:	dB		

Final confirmation and commissioning

Checked

6. Adjustment of input sensitivity and verification of field strength (Highest peak)

Connect a signal source typical for the venue and activate it. (The *haspeech.wav* and *itu.wav* speech files can be used.) Readjust the input sensitivity according to the driver's User Guide. Confirm that the highest peak reaches 400 mA/m (0dB ±3dB) by observing the highest reading within 30 seconds of measurement. If the requirement of 400mA/m (0dB) is not met, it is necessary to adjust the output current level.

	Target: 0dB (±3dB)		Approved
Highest peak:	dB		

7. Peak clipping

Ensure that the driver is not peak-clipping by observing that the clip/peak indicator doesn't light red.
Or: activate the signal *1k6Hz_pulse.wav* and verify that 400mA/m (0dB ±3dB) can be reached.

8. Sound quality

Ensure sound quality (clear sound with no distortion) by listening to the sound of the loop, using Univox Listener or Univox FSM 2.0.
Note: Background noise outside the frequency range amplified by hearing aids, might be heared. This does not affect the intelligibility for the user of the loop system.

9. Signage

Put up signs clearly showing the hearing aid users that a loop system is installed, for example at the entrance to the looped room/s.

10. Inform and instruct staff

Inform and instruct staff of the function and position of the loop system and how to use the testing instrument , e.g. Univox Listener. Keep certification and all manuals accessible.

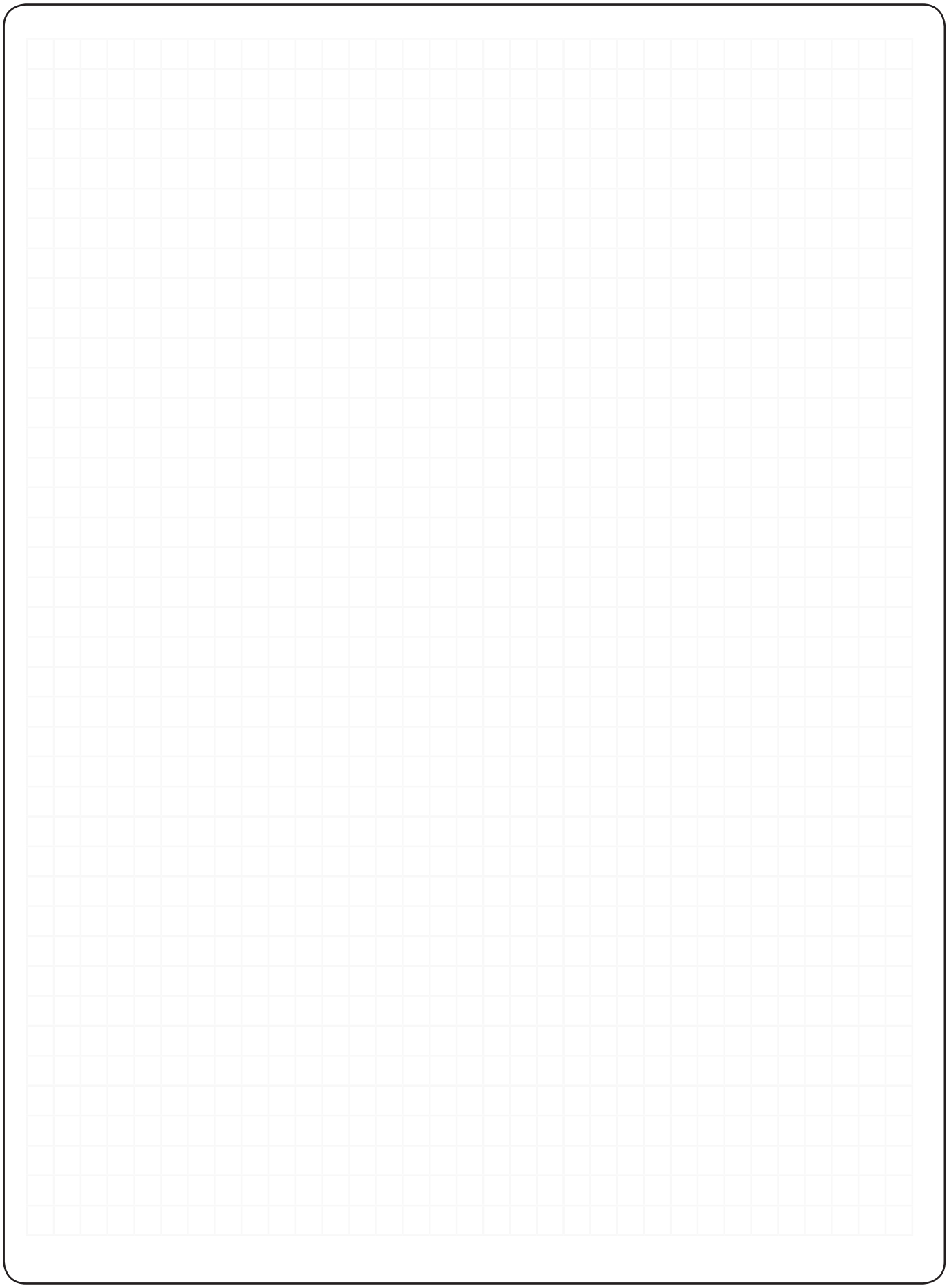
11. Floor plan (not required for certification)

A floor plan showing the position of the loop in the room and relevant measurement parameters should be attached to the documentation.

Notes

For detailed information, please study the full User Guide for Univox FSM 2.0.
FSM 2.0 User Guide and audio files are included on the USB card or can be downloaded at www.univox.eu

Floor plan



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