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AES standard on interconnections - Grounding and EMC practices - Connection of cable shields within connectors attached to portable balanced audio cables

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Abstract

This standard specifies requirements for, and summarizes general considerations relative to, the connection of cable shields within connectors attached to portable balanced cables for the transmission of audio, taking into account measures commonly necessary for the preservation of electromagnetic compatibility (EMC) at both audio and radio frequencies.

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Foreword

[This forward is not part of the AES54-1-2009, *AES standard on interconnections - Grounding and EMC practices - Connection of cable shields within connectors attached to portable balanced audio cables*]

This standard was developed in draft under project AES-X147A by task group SC-05-05-C, headed by J. Brown, and with the following members: R. Chinn, K. Fause, N. Muncy, B. Olson, R. Rayburn, J. Schmidt, T. Waldron, B. Whitlock, and J. Woodgate.

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2008-08

NOTE In AES standards documents, sentences containing the verb "shall" are requirements for compliance with the standard. Sentences containing the verb "should" are strong suggestions (recommendations). Sentences giving permission use the verb "may." Sentences expressing a possibility use the verb "can".

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0 Introduction

The shielding of cables connecting audio equipment, including those connecting microphones to audio equipment, can be critical for electromagnetic compatibility (EMC). The improper connection of these shields can allow noise current to flow on the cable shield, coupling that noise onto the signal pair by the mechanism commonly known as shield-current-induced noise (SCIN) (see references A.4 and A.7). When that shield is connected to equipment exhibiting a common design defect identified as "the pin 1 problem," the noise is coupled into signal circuitry by common impedance coupling within the equipment (see references A.3, A.4 and A.6).

1 Scope

This standard specifies requirements for, and summarizes general considerations relative to, the connection of cable shields within connectors attached to portable balanced cables for the transmission of audio, taking into account measures commonly necessary for the preservation of electromagnetic compatibility (EMC) at both audio and radio frequencies. This standard shall apply to all portable cables not integral to equipment. This standard does not apply to fixed connector panels, portable connector panels, jack fields (patch bays), nor to microphone splitters. This standard does not address issues of safety.

2 Normative References

This standard makes no normative reference to any external document.

3 Definitions and abbreviations

3.1
enclosure
All the walls that surround the live parts of electrical apparatus including doors, covers, cable entries, rods, spindles, and shafts.

3.2
shield (of a cable)
screen (of a cable)
A surrounding metallic layer to confine the electric field within the cable and/or to protect the cable from external electrical influence.

3.3
Shielding enclosure
Continuously conductive frame or enclosure housing electronic equipment, and whose potential is taken as a reference.

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