AES standard for digital audio — Digital input-output interfacing — Serial transmission format for two-channel linearly-represented digital audio data — Part 4: Physical and electrical

Published by
Audio Engineering Society, Inc.
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Abstract

AES3 provides for the serial digital transmission of two channels of periodically sampled and uniformly quantized audio signals on various media.

This Part specifies the physical signals that convey the bit stream specified in Part 3. The current version covers electrical signals on twisted-pair and co-axial cables. Other media, including fibre optic, are under consideration.

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Foreword

This foreword is not part of the *AES3-4-2009, AES standard for digital audio — Digital input-output interfacing — Serial transmission format for two-channel linearly represented digital audio data Part 4: Physical and electrical*.

AES3 has been under constant review since the standard was first issued in 1985, and the present edition reflects the collective experience and opinions of many users, manufacturers, and organizations familiar with equipment or systems employing AES3.

This document was adapted by R. Caine from the 2003 edition as amended by Amendments 5 and 6 and from AES-3id-2001, and its technical content is believed to be identical to the relevant parts of those versions. Other members of the writing group that developed this document in draft included: C. Travis, C. Langen, H. Jahne, J. Grant, J. Woodgate, M. Natter, M. Poimboeuf, R. Cabot, S. Heinzmann, M. Werwein, and M. Yonge.

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SC-02-02 Working Group on Digital Input-Output Interfacing
May 2009

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Note on normative language

In AES standards documents, sentences containing the word “shall” are requirements for compliance with the document. 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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AES standard for digital audio — Digital input-output interfacing — Serial transmission format for two-channel linearly-represented digital audio data — Part 4: Physical and electrical

1 Scope

These four documents specify an interface for the serial digital transmission of two channels of periodically sampled and linearly represented digital audio data from one transmitter to one receiver. This Part 4 document specifies the physical and electrical parameters for different media.

The transport format defined in Part 3 is intended for use with shielded twisted-pair cable of conventional design over distances of up to 100 m without transmission equalization or any special equalization at the receiver and at frame rates of up to 50 kHz. Longer cable lengths and higher frame rates may be used, but with a rapidly increasing requirement for care in cable selection and possible receiver equalization or the use of active repeaters, or both. Provision is made in this standard for adapting the balanced terminals to use 75 Ohm coaxial cable, and transmission by fibre-optic cable is under consideration.

The document does not cover connection to any common carrier equipment.

In this interface specification, mention is made of an interface for consumer use. The two interfaces are not identical.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this document. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this document are encouraged to investigate the possibility of applying the most recent editions of the indicated standards.

ISO/IEC 11801 *Information technology – Generic cabling for customer premises*, International Organization for Standardization and International Electrotechnical Commission, Geneva, Switzerland.

IEC 60169-8 *Radio frequency connectors Part 8 RF coaxial connectors diameter of outer conductor 6.5mm with bayonet lock – characteristic impedance of 50 Ohms* (Type BNC)

IEC 60268-12, *Sound system equipment, Part 12: Application of connectors for broadcast and similar use*, International Electrotechnical Commission, Geneva, Switzerland.

IEC 60603-7, *Connectors for frequencies below 3 MHz for use with printed boards - Part 7: Detailed specification for connectors, 8-way, including fixed and free connectors with common features*, multi-part, International Electrotechnical Commission, Geneva, Switzerland.

IEC 60958-3, *Digital audio interface - Part 3: Consumer applications*, International Electrotechnical Commission, Geneva, Switzerland.

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