



# Audio Engineering Society Standards Committee

## Notice and DRAFT agenda for the meeting of the SC-02-02 Working Group on digital input/output interfacing of the SC-02 Subcommittee on Digital Audio

To be held in conjunction with the upcoming AES 152nd Convention.  
The meeting is scheduled to take place online, 2022-05.  
Please check the latest schedule at: <http://www.aes.org/standards/>

### 1. Formal notice on patent policy

### 2. Introduction to working group and attendees

### 3. Amendments to and approval of agenda

*Note that projects where there is no current proposal for revision or amendment, and where there is at least 12 months before any formal review is due, are listed in an annex to this agenda. Please let the chair know if you propose to discuss any projects in this annex.*

### 4. Approval of report of previous meeting, held online, 2021-10.

### 5. Open Projects

*NOTE: One or more of these projects may be in the process of a formal Call for Comment (CFC), as indicated by the project status. In these cases only, due process requires that any comments be published.*

#### **AES10-R Review of AES10-2020: AES Recommended Practice for Digital Audio Engineering - Serial Multichannel Audio Digital Interface (MADI)** - SC-02-02

*scope: This standard describes the data organization and electrical characteristics for a multichannel audio digital interface (MADI). It includes a bit-level description, features in common with the two-channel format of the AES3, AES Recommended Practice for Digital Audio Engineering - Serial Transmission Format for Linearly Represented Digital Audio Data, and the data rates required for its utilization. The specification provides for the serial digital transmission over coaxial or fibre-optic lines of 28, 56, or 64 channels of linearly represented digital data at a common sampling frequency within the range of 32 kHz to 96 kHz having a resolution of up to 24 bits per channel. Only single-point to single-point interconnections from one transmitter to one receiver are supported.*

*status:* **Examine inclusion of twisted pair format**

<i>intent:</i> Review	<i>initiated:</i> 2020	<i>intent target:</i> 2025
<i>goal:</i> Revision		<i>goal target:</i> Revision

### 6. Liaisons

### 7. New Projects

### 8. New Business

### 9. Date of next meeting

*These meetings are subject to the rules of the AESSC, including the AES patent policy, published on the AES standards web site.*

*Please make sure you sign the attendance sheet that will be circulated. This sheet shall be passed to the secretariat after the meeting and will be used to update the membership information for this group.*

*Please make sure that any documents contributed to the meeting are passed to the secretariat who will ensure they are posted to the appropriate Working Group document site.*

## Annex to the agenda

The following projects assigned to this group have  
no current proposal for revision or amendment,  
and no formal review is due to report in less than 12 months.

Please let the chair know if you propose to discuss any projects in this annex.

**AES3-1-R Review of AES3-1-2009 (r2019), AES standard for digital audio - Digital input-output interfacing - Serial transmission format for two-channel linearly represented digital audio data Part 1: Audio Content** SC-02-02

*scope: These four documents specify a recommended 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 one defines the format for coding audio used for the audio content.*

*status: Reaffirmed*

<i>intent: Review</i>	<i>initiated: 2014</i>	<i>intent target: 2024</i>
<i>goal: none</i>		<i>goal target: Continuing</i>

**AES3-2-R Review of AES3-2-2009 (r2019), AES standard for digital audio - Digital input-output interfacing - Serial transmission format for two-channel linearly represented digital audio data Part 2: Metadata and Subcode** SC-02-02

*scope: These four documents specify a recommended 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 two defines the format for coding metadata, or subcode, relating to the audio content and carried with it.*

*status: Reaffirmed version published*

<i>intent: Review</i>	<i>initiated: 2014</i>	<i>intent target: 2024</i>
<i>goal: Reaffirmation</i>		<i>goal target: Continuing</i>

**AES3-3-R Review of AES3-3-2009 (r2019), AES standard for digital audio - Digital input-output interfacing - Serial transmission format for two-channel linearly represented digital audio data, Part 3: Transport** SC-02-02

*scope: These four documents specify a recommended 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 three defines the format for transport of an AES3 digital audio interface.*

*status: Reaffirmed version published*

<i>intent: Review</i>	<i>initiated: 2014</i>	<i>intent target: 2024</i>
<i>goal: none</i>		<i>goal target: Continuing</i>

**AES3-4-R Review of AES3-4-2009 (r2019), 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** SC-02-02

*scope: These four documents specify a recommended 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.*

**status: Reaffirmed version published**

<i>intent: Review</i>	<i>initiated: 2014</i>	<i>intent target: 2024</i>
<i>goal: none</i>		<i>goal target: Ongoing</i>

**AES5-R Review of AES5-2018: AES recommended practice for professional digital audio - Preferred sampling frequencies for applications employing pulse-code modulation**

SC-02-02

*scope: This standard covers the use of certain preferred sampling frequencies in applications employing pulse-code modulation where there is a need for interchange of high-fidelity digital audio programs with a minimum of transcoding complexity. This standard is not concerned with sampling frequencies for narrow-band audio applications, such as voicequality transmission links, or with processing devices in which both the input and the output signals are in an analog format, even if such signals are ultimately used for interchange of program.*

**status: Revised in 2018**

<i>intent: Review</i>	<i>initiated: 2018</i>	<i>intent target: 2023</i>
<i>goal: Status report</i>		<i>goal target: continuing</i>

**AES11-R Review of AES11-2020: AES Recommended Practice for Digital Audio Engineering - Synchronization of digital audio equipment in studio operations.**

SC-02-02

*scope: This document provides a recommended practice for manufacturers and users of digital audio equipment aimed at promoting economical and efficient methods for synchronizing interconnected digital audio equipment. The provisions make use of the two-channel digital audio interface standard for professional use, AES3. It is expected that the recommendations will be adopted for synchronizing all other digital audio interfaces. The document addresses two groups of parameters. The first concerns the performance requirements for the successful interchange of digital audio data between equipment (5). The second concerns the performance requirements for the regeneration of clocks used for analog-to-digital and digital-to-analog, conversion (6).*

**status: Revised to eliminate insensitive terms**

<i>intent: Review</i>	<i>initiated: 2020</i>	<i>intent target: 2025</i>
<i>goal: Revision</i>		<i>goal target: Revision</i>

**AES41-1-R Review of AES41-1-2012 (r2017): AES standard for digital audio - Audio-embedded metadata - Part 1: General**

SC-02-02

*scope: This document describes a mechanism for embedding a set of data in an audio signal. The syntax and semantics of a number of sets of data are defined in other parts of this standard. Provision is also made for the transmission of additional ancillary information. The data is embedded in the audio so that it is transported with the audio so that the data may be recovered and used to control subsequent processing of the audio, for example by low bit-rate coders or dynamics processors.*

*status: Reaffirmed in 2022*

<i>intent: Review</i>	<i>initiated: 2012</i>	<i>intent target: 2027</i>
<i>goal: Status Report</i>		<i>goal target: Ongoing</i>

**AES41-2-R Review of AES41-2-2012 (r2017): AES standard for digital audio - Audio-embedded metadata - Part 2: MPEG-1 Layer II or MPEG-2 LSF Layer II**

SC-02-02

*scope: This document describes a format for the data to be transmitted to identify MPEG-1 Layer II and MPEG-2 LSF Layer II audio bit-rate reduction. This part assumes that the transmission mechanism according to part 1 of this Standard is used.*

*status: Reaffirmed in 2022*

<i>intent: Review</i>	<i>initiated: 2012</i>	<i>intent target: 2027</i>
<i>goal: Status Report</i>		<i>goal target: Ongoing</i>

**AES41-3-R Review of AES41-3-2012 (r2017): AES standard for digital audio - Audio-embedded metadata - Part 3: AAC & HE-AAC**

SC-02-02

*scope: This document describes a format for the data to be transmitted to convey a subset of the data in ISO/IEC 14496-3, which included downmix and loudness metadata. This Part assumes that the transmission mechanism according to Part 1 of this Standard is used.*

*status: Reaffirmed in 2022*

<i>intent: Review</i>	<i>initiated: 2012</i>	<i>intent target: 2027</i>
<i>goal: Status Report</i>		<i>goal target: Ongoing</i>

**AES41-4-R Review of AES41-4-2012 (r2017): AES standard for digital audio - Audio-embedded metadata - Part 4: Dolby E**

SC-02-02

*scope: This document describes a format for the data to be transmitted to convey a subset of the data in Dolby E (as described in SMPTE RDD6-2008). This Part assumes that the transmission mechanism according to Part 1 of this Standard is used.*

*status: Reaffirmed in 2022*

<i>intent: Review</i>	<i>initiated: 2012</i>	<i>intent target: 2027</i>
<i>goal: Status Report</i>		<i>goal target: Ongoing</i>

**AES41-5-R Review of AES41-5-2012 (r2017): AES standard for digital audio - Audio-embedded metadata - Part 5: EBU loudness, true-peak, and downmix**

SC-02-02

*scope: This document describes a format for the data to be transmitted to convey loudness and true peak metadata as defined by the EBU following the work of the "PLOUD" group. This Part assumes that the transmission mechanism according to Part 1 of this Standard is used.*

*status: Reaffirmed in 2022*

<i>intent: Review</i>	<i>initiated: 2012</i>	<i>intent target: 2027</i>
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<i>goal:</i> Status Report	<i>goal target:</i> Ongoing
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**AES50-R Review of AES50-2020, AES standard for digital audio engineering - High-resolution multi-channel audio interconnection (HRMAI)** SC-02-02

*scope:* To specify a bi-directional, point-to-point connection for up to 48 channels of digital audio in a variety of formats. The link uses a single Category 5 (or better) structured-wiring data cable, and is designed for use in a studio environment. The system uses the 100Base-TX physical layer of Fast Ethernet (IEEE 802.3) to transfer framed audio data. Audio synchronisation is maintained by transmitting an audio clock signal in parallel with the audio data utilising available signal pairs on the cable.

*status:* **Revised to eliminate insensitive terms**

<i>intent:</i> Review	<i>initiated:</i> 2020	<i>intent target:</i> 2025
<i>goal:</i> UnStabilize		<i>goal target:</i> Revision

**AES51-R Review of AES51-2020: AES standard for digital audio - Digital input-output interfacing - Transmission of ATM cells over Ethernet physical layer** SC-02-02

*scope:* Specifies an encapsulation of ATM cells in Ethernet packets, so that ATM equipment may be connected using hardware specified for Ethernet networks.

*status:* **Revised to eliminate insensitive terms**

<i>intent:</i> Review	<i>initiated:</i> 2020	<i>intent target:</i> Continuing
<i>goal:</i> Review		<i>goal target:</i> Revision

**AES52-R Review of AES52-2006 (r2017), AES standard for digital audio engineering - Insertion of unique identifiers into the AES3 transport stream** SC-02-02

*scope:* This standard specifies the method for inserting unique identifiers into the user data area of an AES3 stream. This specifically covers the use of UUID as well as a basic or extended SMPTE UMID.

*status:* **Reaffirmed in 2022**

<i>intent:</i> Review	<i>initiated:</i> 2017	<i>intent target:</i> 2027
<i>goal:</i> Status report		<i>goal target:</i> Continuing

**AES53-R Review of AES53-2018, AES Standard for digital audio - Digital input-output interfacing - Sample-accurate timing in AES47** SC-02-02

*scope:* This standard specifies how the timing markers specified in 4.1.4.1.1 and 4.5 of AES47 may be used to associate an absolute timestamp with individual audio samples. It does not specify how the recipient of a call is informed whether the timing markers will conform to this standard or merely meet the minimum specifications laid down in AES47.

*status:* **Revised in 2018**

<i>intent:</i> Review	<i>initiated:</i> 2018	<i>intent target:</i> 2023
<i>goal:</i> Review		<i>goal target:</i> 2023

**AES55-R Review of AES55-2012 (r2017); AES standard for digital audio engineering - Carriage of MPEG Surround in an AES3 bitstream** SC-02-02

*scope:* To specify transport of an MPEG-D bitstream over an AES3 compliant transport. The transport method shall be compatible with an IEC 60958 compliant transport. The standard will not discuss compression algorithms associated with MPEG-D.

*status:* **Reaffirmed in 2022**

<i>intent:</i> Review	<i>initiated:</i> 2012	<i>intent target:</i> 2027
<i>goal:</i> Review Decision		<i>goal target:</i> Ongoing

**AES-2id-R Review of AES-2id-2020: AES information document for digital audio engineering - Guidelines for the use of the AES3 interface** SC-02-02

*scope:* to present information intended to assist a user to understand and use the AES3 digital audio interface. The document covers four basic topics: general, operational, electrical, and troubleshooting.

*status:* **Revised to eliminate insensitive terms**

<i>intent:</i> Review	<i>initiated:</i> 2020	<i>intent target:</i> Continuing
<i>goal:</i> Revision		<i>goal target:</i> Revision

**AES-10id-R Review of AES-10id-2020: AES information document for digital audio engineering - Engineering guidelines for the multichannel audio digital interface (MADI) AES10** SC-02-02

*scope:* to provide guidance for areas of application of the MADI standard (AES10) that might be unclear. The information presented in these guidelines is not part of the AES10 standard. It is intended to assist a user to understand and use the MADI interface. The AESSC hopes these guidelines will further the design of mutually compatible interfaces and encourage consistent operational practices.

*status:* **Revised to eliminate insensitive terms**

<i>intent:</i> Review	<i>initiated:</i> 2020	<i>intent target:</i> 2025
<i>goal:</i> Revision		<i>goal target:</i> Revision

**AES-R6-R Review of AES-R6-2020: Guidelines for AES50 (HRMAI)** SC-02-02

*scope:* Guidelines for AES50, High-resolution multi-channel audio interconnection (HRMAI)

*status:* **Revised to eliminate insensitive terms**

<i>intent:</i> Report	<i>initiated:</i> 2020	<i>intent target:</i> 2025
<i>goal:</i> Review		<i>goal target:</i> Revision

**AES-R8-R Review of AES-R8-2020: Synchronisation of digital audio over wide areas** SC-02-02

*scope:* This document is intended to provide guidance on synchronisation issues to implementers of systems in which an audio signal originated in digital form in one location is transmitted over a digital network to another location.

*status:* **Revised to eliminate insensitive terms**

<i>intent:</i> Review	<i>initiated:</i> 2020	<i>intent target:</i> none
<i>goal:</i> none		<i>goal target:</i> none

## End of annex to agenda

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