

AES standards project report on single programme connectors — Compatibility of tip-ring-sleeve connectors conforming to different standards

Published by

Audio Engineering Society, Inc.

Copyright ©2001 by the Audio Engineering Society

Abstract

This report covers the concentric connectors known as phone plugs and jacks that are widely used in the audio industry for the interconnection of sound system components as general-use consumer tip-ring-sleeve (TRS) types, as well as for the interconnection of broadcast and other professional systems such as professional TRS types.

An AES report implies a consensus of those directly and materially affected by its provisions who have approved it as representing the views of their AESSC subcommittee but not of the AES as a whole. It is intended as a guide to aid the manufacturer, the consumer, and the general public. The existence of an AES report does not in any respect preclude anyone, whether or not he or she has approved the document, from manufacturing, marketing, purchasing, or using products, processes, or procedures not in agreement with the report. Publication does not assume any liability to any patent owner, nor does it assume any obligation whatever to parties using the report. This document is subject to periodic review and users are cautioned to obtain the latest edition.

Contents

Foreword	3
1 Scope	4
2 References to international standards	4
3 Current standardization	4
3.1 Dimensional, mechanical, and electrical specification	4
3.2 Application and guidance	4
4 Specific connector types	5
4.1 6,3-, 3,5-, and 2,5-mm connectors, according to IEC 60603-11	5
4.2 B-gauge and Bantam connectors	5
5 Dimensional comparison	5
6 Problems	6
6.1 Mating with EIA jacks	6
6.2 Tip and ring contacting	6
6.3 Plug retention	6
6.4 Insertion depth	7
6.5 Examples of possible scenarios resulting in failure	7
7 Solutions	7

Foreword

[This foreword is not a part of *AES standards project report on single programme connectors – Compatibility of tip-ring-sleeve connectors conforming to different standards*, AES-R3-2001.]

This report was produced as proposed at the SC-05-02 meeting, which was held in conjunction with the 107th AES convention in New York and developed by a writing group of SC-05-02 under project AES-X40, TRS Connectors for Patch Panels. The members of the writing group were Markus Natter and John Woodgate.

The working group decided that the current status of international standardization of the dimensions of these connectors does not allow development of an AES consensus standard at this time, but that the results of its survey need to be made public to encourage standardization of the dimensions.

Ray Rayburn, Chair
Werner Bachmann, Vice-Chair
SC-05-02
2000-12-24

AES standards project report on single programme connectors — Compatibility of tip-ring-sleeve connectors conforming to different standards

1 Scope

This report covers the concentric connectors known as phone plugs and jacks that are widely used in the audio industry for the interconnection of sound system components as general-use consumer tip-ring-sleeve (TRS) types, as well as for the interconnection of broadcast and other professional systems such as professional TRS types.

Because differing dimensions specified by various standards often result in mechanical and, as a consequence, electrical incompatibilities among the various TRS jacks and plugs, this report surveys the standards, connectors, and possible incompatibility problems.

2 References to international standards

IEC 60268-11 (1987-03), *Sound system equipment. Part 11: Application of connectors for the interconnection of sound system components*. Geneva, CH : International Electrotechnical Commission.

3 Current standardization

3.1 Dimensional, mechanical, and electrical specification

3.1.1 International standards

IEC 60603-11 (1992): Dimensions of 6,3 mm (2 & 3 pole), 3,5 mm (2 & 3 pole) and 2,5 mm (2 pole) phone plugs and jacks

3.1.2 National standards

BPO Specifications D 571 and D 1172 specify _ in jacks and plugs (No.316) of B-gauge type (A, C, D gauges are superseded by B-gauge for new designs) (unpublished).

BPO Specifications D 2705 and D 2707 specify 4,4-mm 3-pole Bantam plugs (No. 322...) and jacks (unpublished).

EIA-453 (1978, reaff. 1982) specifies 0,25-in and 0,21-in (2 and 3 pole) and 0,14-in and 0,1-in (2 pole) phone plugs and jacks (not ANSI approved).

MIL-P-642 defines several types of plugs with the most relevant listed below:

- Type PJ-051 1/4-in 3-pole (similar to B-gauge BPO No.316);
- Type PJ-777 0,174-in 3-pole Bantam (equivalent to BPO No.322);

MIL-J-641 defines corresponding jacks.

3.2 Application and guidance

IEC 60268-11: Application of general use phone plugs and jacks as defined in IEC 60603-11.

IEC 61602: Technical report (guidance and survey) on identification and application of audio and video connectors.