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Entertainment Technology— Recommended Practice for Permanently Installed Control Cables for Use with ANSI E1.11 (DMX512-A) and USITT DMX512/1990 Products

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This standard was originally published when the Entertainment Services and Technology Association was operating under the name of PLASA North America. ESTA has reverted to its original name, and this document has been rebranded with the current corporate name and logo. No changes have been made to the contents of the standard.

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The ESTA Technical Standards Program

The ESTA Technical Standards Program was created to serve the ESTA membership and the entertainment industry in technical standards related matters. The goal of the Program is to take a leading role regarding technology within the entertainment industry by creating recommended practices and standards, monitoring standards issues around the world on behalf of our members, and improving communications and safety within the industry. ESTA works closely with the technical standards efforts of other organizations within our industry, including USITT and VPLT, as well as representing the interests of ESTA members to ANSI, UL, and the NFPA. The Technical Standards Program is accredited by the American National Standards Institute.

The Technical Standards Council (TSC) was established to oversee and coordinate the Technical Standards Program. Made up of individuals experienced in standards-making work from throughout our industry, the Council approves all projects undertaken and assigns them to the appropriate working group. The Technical Standards Council employs a Technical Standards Manager to coordinate the work of the Council and its working groups as well as maintain a “Standards Watch” on behalf of members. Working groups include: Control Protocols, Electrical Power, Floors, Fog and Smoke, Followspot Position, Photometrics, Rigging, and Stage Lifts.

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The Control Protocols Working Group, which authored this Standard, consists of a cross section of entertainment industry professionals representing a diversity of interests. ESTA is committed to developing consensus-based standards and recommended practices in an open setting.

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Interest category codes:

CP = Custom-market Producer

DE = Designer

DR = Dealer or Rental company

G = General interest

MP = Mass-market Producer

U = User

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Foreword

(This foreword is not a normative part of ANSI E1.27-2–2009.)

This recommended practice describes the types of permanently installed cable used to interconnect products that comply with ANSI E1.11-2004, Entertainment Technology – USITT DMX512-A: Asynchronous Serial Digital Data Transmission Standard for Controlling Lighting Equipment and Accessories, or that comply with USITT DMX512/1990.

In 2003, the Control Protocols Working Group of ESTA’s Technical Standards Program authorized the formation of a DMX512 Cabling Task Group. Writing an American National Standard that would be a recommended practice for permanently installed cables was one of the projects assigned to this task group. This document is the result.

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1 General

1.1 Scope

This Recommended Practice is intended to provide for maximum interoperability in the use of equipment connected in permanently installed entertainment lighting applications. To accomplish this intent the Recommended Practice defines acceptable cable and connector types, and the ways in which they may be used.

Entertainment lighting uses both EIA-485/EIA-485-A and EIA/TIA-568 Category 5 and higher cabling systems for data connection between equipment. There are significant differences between the two cables. In order to avoid confusion arising from the differences in specification of the two cable types this Recommended Practice has separate sections for cables designed specifically for EIA-485 signals and Category 5 and higher cable.

Category 5 cable is also known as Class D cable under ISO/IEC standard 11801. Research by the ESTA CPWG determined that Category 5, 5e, 6, and 6a cables would all be suitable for use with DMX512. Since control over future revisions of ANSI/EIA/TIA-568 and ISO/IEC 11801 is beyond the scope of this Recommended Practice, ANSI/EIA/TIA-568 Category cables shall be the controlling standard with respect to future developments. Cable, Equipment, and System Manufacturers, and Engineers, System Integrators, and Installers subject to ISO/IEC standards should consider references to Category 5 or higher cable as referencing comparable cable described by ISO/IEC standards.

This Recommended Practice applies to entertainment lighting systems that are permanently installed, regardless of the nature of the facility. Connection of portable and temporary equipment are not covered by this Recommended Practice, and applications that may limit the interoperability of entertainment lighting control systems for the sake of cost are also beyond the scope of this Recommended Practice. Connection of proprietary control systems, which may co-exist with equipment covered by this Recommended Practice, is also beyond the scope of this Recommended Practice.

1.2 Appropriate uses

This Recommended Practice is intended for those involved in the design, manufacture, installation, and use of entertainment lighting systems.

1.3 Compliance

Compliance with this Recommended Practice is strictly voluntary and the responsibility of the Specifier, System Manufacturer and installer. Disclosures and identification or other claims of compliance do not constitute certification or approval by ESTA. See clause 7 for disclosure requirements.

1.4 Local Requirements and Regulations

Cabling installations covered by this Recommended Practice are frequently also covered by local regulations which may place restrictions on cable construction, connection or installation for reasons of safety, electromagnetic compatibility or other reasons. Such local regulations may be statutory requirements or may be included in the system specification. All such regulations are entirely beyond the scope of this Recommended Practice and compliance with this Recommended Practice has no bearing on compliance with any other such requirements.

2 Normative references

ANSI/TIA/EIA-568-B-2001	Commercial Building Telecommunications Cabling Standard
ANSI/TIA/EIA-568-B.2-1-2002	Commercial Building Telecommunications Cabling Standard - Part 2 - Addendum 1 - Transmission Performance Specifications for 4-Pair 100 Ohm Category 6 Cabling