

Entertainment Services and Technology Association



American National Standard
E1.31- 2009
Entertainment Technology –
Lightweight streaming protocol for transport of
DMX512 using ACN

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American National Standard E1.31 — 2009 Entertainment Technology Lightweight streaming protocol for transport of DMX512 using ACN

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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 in an open setting. Future Control Protocols Working Group projects will include updating this publication as changes in technology and experience warrant, as well as developing new standards for the benefit of the entertainment industry.

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Table of Contents

Notice and Disclaimer.....i

Acknowledgments iv

Table of Contentsvii

1 Introduction..... 1

1.1 Scope 1

1.2 Overview and Architecture 1

1.3 Appropriate use of this standard 1

1.4 Classes of data appropriate for transmission..... 1

1.5 Compliance..... 1

2 Normative References..... 1

3 Definitions..... 3

4 Protocol Packet Structure Summary 3

5 E1.31 use of the ACN Root Layer Protocol..... 5

5.1 Preamble Size 5

5.2 Post-amble Size 5

5.3 ACN Packet Identifier 5

5.4 Flags & Length 5

5.5 Vector 5

5.6 CID (Component Identifier) 5

6 E1.31 Framing Layer Protocol..... 6

6.1 Flags & Length 6

6.2 Vector 6

6.3 Source Name..... 6

6.4 Priority	6
6.4.1 Multiple Sources at Highest Priority	6
6.4.2 Discussion of Merge and Arbitration Algorithms	7
6.4.3 Discussion of Resolution of Sources Exceeded Condition	7
6.4.4 Requirements for Merging and Arbitrating	7
6.4.5 Requirements for <i>Sources Exceeded</i> Resolution	7
6.4.6 Requirements for Devices with Multiple Operating Modes	8
6.5 Sequence Number.....	8
6.6 Options	8
6.7 Universe	8
6.8 Framing Layer Operation and Timing - Transmitter Requirements	8
6.8.1 Transmission Rate.....	8
6.8.2 Null START Code Transmission Requirements.....	9
6.9 Framing Layer Operation and Timing - Receiver Requirements	9
6.9.1 Network Data Loss	9
6.9.2 Sequence Numbering.....	9
7 DMP Layer Protocol	9
7.1 Flags & Length	10
7.2 Vector	10
7.3 Address Type and Data Type.....	10
7.4 First Property Address.....	10
7.5 Address Increment	10
7.6 Property Value Count	10
7.7 Property Values (DMX512-A Data)	10
8 Operation of E1.31 in IPv4 Networks	11

8.1 Assignment of IP Addresses	11
8.2 Association of Multicast Addresses and Universe	11
8.3 Multicast Subscription.....	11
8.4 Allocation of Multicast Addresses.....	11
9 Translation between DMX512-A and E1.31	12
9.1 DMX512-A to E1.31 Translation.....	12
9.1.1 Boot Condition	12
9.1.2 Temporal Sequence	12
9.1.3 Loss of Data	12
9.2 E1.31 to DMX512-A Translation.....	12
9.2.1 General.....	12
9.2.2 Loss of Data	12

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1 Introduction

1.1 Scope

This standard describes a mechanism to transfer DMX512-A [DMX] packets over a TCP/IP network using a subset of the ACN protocol suite. It covers data format, data protocol, data addressing, and network management.

1.2 Overview and Architecture

This standard can be used to transfer DMX512-A [DMX] packets of all START Codes via an ANSI E1.17 [ACN] supported network. A simple packet wrapper approach is used whereby the DMX512-A [DMX] data is encapsulated in a wrapper following the ACN packet structure. The ACN standard wrapper is carried in UDP [UDP] packets when used on TCP/IP networks. In the future, this use of the ACN wrapper and packet structure will also allow E1.31 to be carried over other networks supported by ACN.

The wrapper is structured such that it is both compatible and meaningful to the ANSI E1.17 [ACN] standard. Readers are referred to the ANSI E1.17 [ACN] standard, particularly the "ACN Architecture" and "Device Management Protocol" documents for more information. The "Root Layer Protocol" used in this standard is described in the "ACN Architecture" document.

This standard uses multicast addressing to provide a mechanism to partition traffic for distinct universes of DMX512-A [DMX] data. Direct unicast of DMX512-A [DMX] data is also supported.

1.3 Appropriate use of this standard

This standard uses a non-reliable transport mechanism to stream packets of data from multiple controllers to multiple receivers over the ACN network. Like DMX512-A [DMX] over EIA-485 media, there is no acknowledgement and therefore no assurance that all packets have been received.

1.4 Classes of data appropriate for transmission

This standard, E1.31, is intended to define a method to carry DMX512-A [DMX] style data over IP Networks, including Ethernet IP Networks. It is designed to carry repetitive control data from one or more controllers to one or more receivers. This protocol is intended to be used to control dimmers, other lighting devices, and related nonhazardous effects equipment.

1.5 Compliance

Compliance with this standard is strictly voluntary and the responsibility of the implementer. Markings and identification or other claims of compliance do not constitute certification or approval by the E1 accredited standards committee.

2 Normative References

[DMX] ANSI E1.11 Entertainment Technology – USITT DMX512-A Asynchronous Serial Digital Data Transmission Standard for controlling lighting equipment and accessories.

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