ANSI/CEA Standard

Description of the Data Link Layer

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(Formulated under the cognizance of the CEA's **R7 Home NetworksCommittee**.)

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CEA 600.41 DESCRIPTION OF THE DATA LINK LAYER

This document is Part 41, the Description of the Node Data Link Layer part of EIA 600. This document is a companion to Parts 42 and 43, the *Node Medium Access Control Sublayer* and *Node Logical Link Control Sublayer* documents. Original release 11-15-91.

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1. Introduction.

1.1. Document Overview.

This document provides a prose description of the Data Link Layer design for the CEBus Network. The design is the standard currently adopted by the Electronics Industries Association (EIA). Although much of the material in this document is covered in two other CEBus documents, *Node Medium Access Control Sublayer* and *Node Logical Link Control Sublayer*, *Description of the Node Data Link Layer* serves a different purpose. The sublayer documents formally specify the design of the Medium Access Control and Logical Link Control Sublayers, but do not provide in-depth explanations and background information. Thus, the intent of this document is to be descriptive, rather than to provide a formal specification, and to complement the *Node Medium Access Control Sublayer* and *Node Logical Link Control Sublayer* specifications.

Description of the Node Data Link Layer begins with a discussion of the Data Link Layer interfaces to the Network Layer and Physical Layer. A functional description of the Data Link Layer presents the "frame", the Data Link Layer's fundamental message unit, and the scheme by which frames are exchanged in communication. The processes for assembling, transmitting, receiving, and disassembling frames are discussed in detail. In the final section, the functional division of the Data Link Layer into its sublayers, the Medium Access Control (MAC) Sublayer and the Logical Link Control (LLC) Sublayer, is described. This section is intended to be a preface to the formal MAC and LLC specification documents.

Although some of the functionality associated with the Physical Layer and the Network Layer is discussed, specification of those layers is not within the scope of this document.

1.2. The CEBus Network.

The CEBus Network is a local area network which provides a standardized communication facility for the exchange of control information among devices and services in the home. It is the current design standard for the Electronics Industries Association and is intended to support such non-data-intensive functions as remote control, status indication, remote instrumentation, energy management, security systems, entertainment module coordination, and clock synchronization.

Low cost and ease of use are the primary considerations in the development of such consumer applications. By providing a standard communications interface to a number of different media, the CEBus Network addresses both of these considerations. Standardization will enable businesses to introduce new home products and services with reduced development effort and cost.

Standardization will also enable consumers to make use of the new products and services with a minimum of confusion and cost. The availability of a wide range of media - power line, infrared, RF, twisted pair, AV, fiber optic, and coaxial cable - will help to handle existing and anticipated home control communication requirements at a minimum practical cost. In particular, use of the existing 60 Hz power line as a communications medium in consumer applications circumvents the costs of installation of inter-room wiring between devices.