

ANSI/CEA Standard

Power Line Physical Layer & Medium Specification

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

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1. Introduction

This document is the preliminary specification for the CEBus Power Line (PL) Physical Layer and Media portion of the Physical Layer and Media specifications of EIA-600. Its purpose is to present the information necessary for the development of a PL physical network and devices to communicate and share information over that network. This is one of a series of documents covering the various media that comprise the CEBus standard.

This document covers the complete physical layer (OSI layer 1) including the interface to the Medium Access Control (MAC) Layer and the interface to the medium. The document also provides a set of guideline physical and electrical specifications for the power line medium environment as an aid in developing products for that environment.

1.1 Notice Concerning Patent Rights Claims

The reader's attention is called to the possibility that compliance with this standard may require the use of an invention or inventions covered by patent rights. The holders of patent rights known to the EIA have filed a commitment to license required inventions on reasonable and nondiscriminatory terms and conditions to all interested parties who wish to use said inventions for the purpose of home automation in connection with the standard. Details may be obtained from the EIA.

The EIA takes no position with respect to the validity of any claimed patent rights relating to this standard. EIA is not responsible for identifying patents for which a license may be required in order to comply with any EIA standard.

1.2 Safety Preamble

This preamble sets forth several recommendations related to safety concerns with respect to the CEBus Power Line Draft Standard.

This discussion is not complete, nor does it address all possible safety issues. The designer is urged to consult, among other things, the relevant local and National Electrical Codes. Local codes usually supplement the National Electrical Code and impose additional safety related requirements.

Products conforming to the CEBus Power Line Draft Standard should be designed, constructed, assembled, and installed following recognized safety provisions appropriate to products covered by the standard.

CEBus PL network cables are subject to at least five direct electrical safety hazards during their use:

- High energy transients coupled into the power line network from external environmental sources.
- Possible differences between safety grounds to which network components are connected.
- Possible high voltages on neutral or ground wiring.
- Possible open safety grounds.
- High short-circuit current levels available at interface.

These electrical safety hazards should be alleviated for the network to perform properly. In addition to provisions for properly handling these faults in an operational system, special measures shall be taken to maintain the intended safety features during changes of an existing network.

All wire and wiring to which CEBus devices connect should conform to wiring standards of the National Electrical Code and should have been inspected to comply with that code.