

ANSI/CEA Standard

RF Physical Layer &
Medium Specification

ANSI/CEA-600.35-R2004

February 1998



CEA[®]
Consumer Electronics Association
www.CE.org

NOTICE

Consumer Electronics Association (CEA[®]) Standards, Bulletins and other technical publications are designed to serve the public interest through eliminating misunderstandings between manufacturers and purchasers, facilitating interchangeability and improvement of products, and assisting the purchaser in selecting and obtaining with minimum delay the proper product for his particular need. Existence of such Standards, Bulletins and other technical publications shall not in any respect preclude any member or nonmember of CEA from manufacturing or selling products not conforming to such Standards, Bulletins or other technical publications, nor shall the existence of such Standards, Bulletins and other technical publications preclude their voluntary use by those other than CEA members, whether the standard is to be used either domestically or internationally.

Standards, Bulletins and other technical publications are adopted by CEA in accordance with the American National Standards Institute (ANSI) patent policy. By such action, CEA does not assume any liability to any patent owner, nor does it assume any obligation whatever to parties adopting the Standard, Bulletin or other technical publication.

This CEA Standard is considered to have International Standardization implication, but the International Electrotechnical Commission activity has not progressed to the point where a valid comparison between the CEA Standard and the IEC document can be made.

This Standard does not purport to address all safety problems associated with its use or all applicable regulatory requirements. It is the responsibility of the user of this Standard to establish appropriate safety and health practices and to determine the applicability of regulatory limitations before its use.

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

Published by

©CONSUMER ELECTRONICS ASSOCIATION 2004
Technology & Standards Department
1919 S. Eads Street
Arlington, Virginia 22202

**PRICE: Please call Information Handling Services, USA and Canada (1-800-854-7179)
International (303-397-7956), or
<http://global.ihs.com>**

All rights reserved
Printed in U.S.A.

PLEASE!

DON'T VIOLATE
THE
LAW!

This document is copyrighted by the Consumer Electronics Association (CEA[®])
and may not be reproduced without permission.

Organizations may obtain permission to reproduce a limited number of copies by
entering into a license agreement. For information contact:

Information Handling Services
15 Inverness Way East
Englewood, Colorado 80112-5704
or call U.S.A. and Canada 1-800-854-7179, International (303) 397-7956
See <http://global.ihs.com> or email global@ihs.com

CEA-600.35 RF Physical Layer & Medium Specification

CONTENTS

1. INTRODUCTION	1
1.1 PURPOSE.....	1
1.2 SCOPE	1
1.3 DEFINITIONS AND ABBREVIATIONS.....	1
1.4. RELATION OF SPECIFICATION TO THE CEBUS MODEL.....	2
2. GENERAL DESCRIPTION	3
2.1 DESCRIPTION OF USER SERVICE LEVELS	3
2.2 FUNCTIONAL PARTITIONING OF RF SPECIFICATION	4
2.3 FREQUENCY ALLOCATION	5
3. RF NETWORK TOPOLOGY	5
3.1 RF NETWORK DESCRIPTION AND COMPONENTS	5
3.2. ALLOWED TOPOLOGIES.....	6
4. RF MEDIUM SPECIFICATIONS.....	6
4.1 FREQUENCY ALLOCATION	6
4.2 ENVIRONMENTAL REQUIREMENTS.....	6
5. RF DEVICE SPECIFICATIONS.....	7
5.1 SIGNAL CHARACTERISTICS	7
5.2 PL/RF SE SUBLAYER TO CONTROL CHANNEL PHYSICAL SUBLAYER INTERFACE...12	
5.3 APPLICATION LAYER TO DATA CHANNEL PHYSICAL LAYER INTERFACE.....13	
5.4 TRANSMITTER CHARACTERISTICS.....13	
5.5 RECEIVER CHARACTERISTICS (BIDIRECTIONAL SERVICE)	14
5.6 DEVICE FAILURE MODES.....15	
REFERENCES	16
ANNEX A.....17	
A.1 TYPICAL RF PHYSICAL LAYER OPERATION	17

1. Introduction

1.1 Purpose

This document is the preliminary specification for the CEBus Radio Frequency (RF) Physical Layer and Medium portion of the Physical Layer and Medium specifications of EIA-600. Its purpose is to present all of the information necessary for the development of a RF physical layer for a CEBus device. This is one of a series of documents covering various media that comprise the CEBus standard.

This document covers the complete physical layer (OSI layer 1) including the interface to the RF Symbol Encoding Sublayer and the interface to the RF medium. The document also provides a set of guideline physical and electrical specifications for the RF medium environment as an aid in developing products for that environment.

1.2 Scope

This specification contains all the information necessary to facilitate the exchange of data and control information over the CEBus RF medium within a home. The document is divided into five major sections (1 - 5):

1 - An introduction to the RF standard.

2 - A general description of the RF network design.

3 - The specifications of RF topology and configuration rules - this section covers network components, allowed network configurations, and attachment of devices.

4 - A specification of the RF physical medium - this section covers frequency allocation of the medium, channelization, and environmental requirements.

5 - The physical layer specifications of a RF device - covers the interface to the higher ISO layers, control channel signal characteristics, data channel signal criteria, encoding, transmitter and receiver characteristics, and device failure modes.

The standard establishes a minimal set of rules for compliance. It does not rule out extended services as long as the minimum set of rules are adhered to. It is in fact the intention of the standard to permit extended services (defined by users) to coexist.

Certain aspects of the standard are defined in other documents. These documents will be referenced when relevant. In the case where a referenced standard conflicts with this document, this document will prevail.

1.3 Definitions and Abbreviations

The following definitions are specific to the RF medium specification and supplement the definitions and abbreviations found in EIA-600.10.