

ANSI/CTA Standard

Antenna Control Interface

ANSI/CTA-909-B R-2016

(Formerly ANSI/CEA-909-B)

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**Consumer
Technology
Association™**

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(Formulated under the cognizance of the CTA **R4 Video Systems Committee.**)

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FOREWORD

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Antenna Control Interface

1 Scope

CEA-909-B describes an antenna control subsystem for receiving terrestrial transmissions. The primary use is to facilitate television reception. The receiver controls the antenna apparatus to optimize the signal automatically for best reception by adjusting its configuration.

CEA-909-B allows any receiver to operate with any antenna, regardless of manufacturer. CEA-909-B defines the data algorithms used, connection standards, and other requirements. The antenna configuration is neither specified nor implied, leaving certain antenna design considerations to the manufacturer.

2 References

2.1 Normative References

The following standards contain provisions that, through reference in this text, constitute normative provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed in Section 2.1.1.

2.1.1 Normative Reference List

1. CEA-542-B, Cable Television Channel Identification Plan, July, 2003
2. FCC Channelization Rules, 47 CFR 73.603 Numerical designation of channel numbers
3. TIA-968-A, Telecommunications Telephone Terminal Equipment, Technical Requirements for Connection of Terminal Equipment to the Telephone Network, February, 2005
4. ANSI/SCTE 02 2006 "Specifications, F Connector, Female, Indoor,"

2.1.2 Normative Reference Acquisition

ANSI/SCTE Standards:

- Society of Cable Television Telecommunications Engineers (SCTE), 140 Philips Road, Exton PA 19341; Phone 800-542-5040; Fax 610-363-5898; Internet <http://www.scte.org>; Email info@scte.org

CEA & TIA Standards:

- Global Engineering Documents, World Headquarters, 15 Inverness Way East, Englewood, CO USA 80112-5776; Phone 800-854-7179; Fax 303-397-2740; Internet <http://global.ihs.com>; Email global@ihs.com

3 Introduction

The antenna control interface specified in this document enables the receiving system, which includes both the antenna and the DTV receiver, to provide improved digital television reception. CEA-909-B describes a means to optimize a suitably designed receiving antenna's directional pattern, gain, polarization, and tuning for each channel. Control of the antenna parameters is via a serial bitstream issued by the receiver over one of two defined interfaces: a separate dedicated connector or the antenna input coaxial connector. The determination of optimum antenna pattern, gain, etc. is achieved within the receiver by analysis of the received signal at different antenna settings. The search algorithm to determine the optimum setting is not specified in this document, and creating a rapid and effective search routine is expected to be a point of competition among manufacturers.

Determination of the optimum antenna parameters involves more than simply maximizing the signal level. The interface in this document inherently treats the receiver and antenna as a single system.

Demodulators in digital TVs can regard the antenna as an additional controllable resource, beyond gain