IEC 63003

Edition 1.0 2015-12

INTERNATIONAL STANDARD

IEEE Std 1505.1™

colour inside

Standard for the common test interface pin map configuration for high-density, single-tier electronics test requirements utilizing IEEE Std 1505™

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland
Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

Institute of Electrical and Electronics Engineers, Inc.
3 Park Avenue
New York, NY 10016-5997
United States of America
stds.info@ieee.org
www.ieee.org

About the IEC
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications
The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue
The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,…). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org
The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in 15 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary
More than 60 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

IEC 63003

Edition 1.0 2015-12

INTERNATIONAL STANDARD

IEEE Std 1505.1™

colour inside

Standard for the common test interface pin map configuration for high-density, single-tier electronics test requirements utilizing IEEE Std 1505™

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 25.040

ISBN 978-2-8322-2941-5

Contents

STANDARD FOR THE COMMON TEST INTERFACE PIN MAP CONFIGURATION FOR HIGH-DENSITY, SINGLE-TIER ELECTRONICS TEST REQUIREMENTS UTILIZING IEEE Std 1505™

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation.

   IEEE Standards documents are developed within IEEE Societies and Standards Coordinating Committees of the IEEE Standards Association (IEEE-SA) Standards Board. IEEE develops its standards through a consensus development process, which brings together volunteers representing varied viewpoints and interests to achieve the final product. Volunteers are not necessarily members of IEEE and serve without compensation. While IEEE administers the process and establishes rules to promote fairness in the consensus development process, IEEE does not independently evaluate, test, or verify the accuracy of any of the information contained in its standards. Use of IEEE Standards documents is wholly voluntary. IEEE documents are made available for use subject to important notices and legal disclaimers (see http://standards.ieee.org/IPR/disclaimers.html for more information).

   IEC collaborates closely with IEEE in accordance with conditions determined by agreement between the two organizations.

2) The formal decisions of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees. The formal decisions of IEEE on technical matters, once consensus within IEEE Societies and Standards Coordinating Committees has been reached is determined by a balanced ballot of materially interested parties who indicate interest in reviewing the proposed standard. Final approval of the IEEE standards document is given by the IEEE Standards Association (IEEE-SA) Standards Board.

3) IEC/IEEE Publications have the form of recommendations for international use and are accepted by IEC National Committees/IEEE Societies in that sense. While all reasonable efforts are made to ensure that the technical content of IEC/IEEE Publications is accurate, IEC or IEEE cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.

4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications (including IEC/IEEE Publications) transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC/IEEE Publication and the corresponding national or regional publication shall be clearly indicated in the latter.

5) IEC and IEEE do not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC and IEEE are not responsible for any services carried out by independent certification bodies.

6) All users should ensure that they have the latest edition of this publication.

7) No liability shall attach to IEC or IEEE or their directors, employees, servants or agents including individual experts and members of technical committees and IEC National Committees, or volunteers of IEEE Societies and the Standards Coordinating Committees of the IEEE Standards Association (IEEE-SA) Standards Board, for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC/IEEE Publication or any other IEC or IEEE Publications.

8) Attention is drawn to the normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

9) Attention is drawn to the possibility that implementation of this IEC/IEEE Publication may require use of material covered by patent rights. By publication of this standard, no position is taken with respect to the existence or validity of any patent rights in connection therewith. IEC or IEEE shall not be held responsible for identifying Essential Patent Claims for which a license may be required, for conducting inquiries into the legal validity or scope of Patent Claims or determining whether any licensing terms or conditions provided in connection with submission of a Letter of Assurance, if any, or in any licensing agreements are reasonable or non-discriminatory. Users of this standard are expressly advised that determination of the validity of any patent rights, and the risk of infringement of such rights, is entirely their own responsibility.

International Standard IEC 63003/IEEE Std 1505.1-2008 has been processed through IEC technical committee 91: Electronics assembly technology, under the IEC/IEEE Dual Logo Agreement.

The text of this standard is based on the following documents:

IEEE Std	FDIS	Report on voting
IEEE Std 1505.1-2008	91/1274/FDIS	91/1298/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

The IEC Technical Committee and IEEE Technical Committee have decided that the content of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IEEE Standard for the Common Test Interface Pin Map Configuration for High-Density, Single-Tier Electronics Test Requirements Utilizing IEEE Std 1505™

Sponsor

IEEE Instrumentation and Measurement Society

and

IEEE Standards Coordinating Committee 20 on Test and Diagnosis for Electronic Systems

Approved 26 September 2008

IEEE-SA Standards Board

Approved as a Full-Use Standard on 14 June 2013

IEEE-SA Standards Board

Abstract: This standard represents an extension to the IEEE 1505 receiver fixture interface (RFI) standard specification. Particular emphasis is placed on defining within the IEEE 1505 RFI standard a more specific set of performance requirements that employ a common scalable: (a) pin map configuration; (b) specific connector modules; (c) respective contacts; (d) recommended switching implementation; and (e) legacy automatic test equipment (ATE) transitional devices. This is intentionally done to standardize the footprint and assure mechanical and electrical interoperability between past and future automatic test systems (ATS).

Keywords: ATE, ATS, fixture, ICD, IEEE 1505.1™, interface, ITA, mass termination, receiver, scalable, TPS, UUT

IEEE Introduction

This introduction is not part of IEEE Std 1505.1-2008, IEEE Standard for the Common Test Interface Pin Map Configuration for High-Density, Single-Tier Electronics Test Requirements Utilizing IEEE Std 1505™.

This standard stems from the history of ATE implementations having unique input/output (I/O) pin out definitions. This uniqueness has prevented the interoperability of test program sets (TPSs) among different ATEs within the same organizations. Even if the same RFI was used by the target ATE, the signals I/O could not be guaranteed to be at the same pin location. This is due to there being no suitable standard pin out definition for general purpose electronic testing applications.

IEEE Std 1505-2006[a] has addressed part of the interoperability problem by defining the common mechanical interface for the ATE. This project takes the TPS interoperability problem one step further toward completion by standardizing the electrical signal I/O pin map for general purpose electronic testing applications.

Particular emphasis is placed on defining within the IEEE 1505 RFI standard a more specific set of performance requirements that employ a common scalable: (a) framework; (b) pin map configuration; (c) specific connector modules; (d) respective contacts; (e) recommended switching implementation; and (f) legacy ATE transitional devices. This is intentionally done to standardize the footprint and assure mechanical and electrical interoperability between past and future ATS. The suggested mechanical and electrical requirements necessary to implement a specific IEEE 1505 RFI product in support of a common test interface (CTI) across all U.S. Department of Defense (DoD) defense agencies, related aerospace industry, and a variety of non-U.S. government agencies such as the U.K. Ministry of Defense (MoD) is provided.

The DoD is a major buyer and user of ATE; however, existing acquisition guidance desires the use of commercial standards and/or best practices for these systems. Suitable standards currently do not exist in the commercial marketplace; therefore, this standard will provide such specification.

Notice to users

Users of IEEE Standards documents should consult all applicable laws and regulations. Compliance with the provisions of any IEEE Standards document does not imply compliance to any applicable regulatory requirements. Implementers of the standard are responsible for observing or referring to the applicable regulatory requirements. IEEE does not, by the publication of its standards, intend to urge action that is not in compliance with applicable laws, and these documents may not be construed as doing so.

Copyrights

This document is copyrighted by the IEEE. It is made available for a wide variety of both public and private uses. These include both use, by reference, in laws and regulations, and use in private self-regulation, standardization, and the promotion of engineering practices and methods. By making this document available for use and adoption by public authorities and private users, the IEEE does not waive any rights in copyright to this document.

[a] Information on references can be found in Clause 2.

Updating of IEEE documents

Users of IEEE Standards documents should be aware that these documents may be superseded at any time by the issuance of new editions or may be amended from time to time through the issuance of amendments, corrigenda, or errata. An official IEEE document at any point in time consists of the current edition of the document together with any amendments, corrigenda, or errata then in effect. In order to determine whether a given document is the current edition and whether it has been amended through the issuance of amendments, corrigenda, or errata, visit the IEEE-SA Website at http://standards.ieee.org/index.html or contact the IEEE at the address listed previously. For more information about the IEEE Standards Association or the IEEE standards development process, visit IEEE-SA Website at http://standards.ieee.org/index.html.

Errata

Errata, if any, for this and all other standards can be accessed at the following URL: http://standards.ieee.org/findstds/errata/index.html. Users are encouraged to check this URL for errata periodically.

Patents

Attention is called to the possibility that implementation of this standard may require use of subject matter covered by patent rights. By publication of this standard, no position is taken by the IEEE with respect to the existence or validity of any patent rights in connection therewith. If a patent holder or patent applicant has filed a statement of assurance via an Accepted Letter of Assurance, then the statement is listed on the IEEE-SA Website at http://standards.ieee.org/about/sasb/patcom/patents.html. Letters of Assurance may indicate whether the Submitter is willing or unwilling to grant licenses under patent rights without compensation or under reasonable rates, with reasonable terms and conditions that are demonstrably free of any unfair discrimination to applicants desiring to obtain such licenses.

Essential Patent Claims may exist for which a Letter of Assurance has not been received. The IEEE is not responsible for identifying Essential Patent Claims for which a license may be required, for conducting inquiries into the legal validity or scope of Patents Claims, or determining whether any licensing terms or conditions provided in connection with submission of a Letter of Assurance, if any, or in any licensing agreements are reasonable or non-discriminatory. Users of this standard are expressly advised that determination of the validity of any patent rights, and the risk of infringement of such rights, is entirely their own responsibility. Further information may be obtained from the IEEE Standards Association.

Standard for the Common Test Interface Pin Map Configuration for High-Density, Single-Tier Electronics Test Requirements Utilizing IEEE Std 1505™

1. Overview

1.1 Scope

The scope of this standard is the definition of a pin map utilizing the IEEE 1505™ [1] receiver fixture interface (RFI). The pin map defined within this standard shall apply to military and aerospace automatic test equipment (ATE) testing applications.

[1] Information on references can be found in Clause 2.