

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

IEEE Instrumentation and Measurement Society

Developed by the
IEEE Standard Coordinating Committee 20 on Test Diagnostics for Electronic Systems

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IEEE SA Standards Board

Abstract: An extension to the IEEE 1505™ receiver fixture interface (RFI) standard specification is provided in this standard. Particular emphasis is placed on defining within the IEEE 1505 RFI standard a more specific set of performance requirements that employ a common scalable: 1) pin map configuration; 2) specific connector modules; 3) respective contacts; 4) recommended switching implementation; and 5) 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: automatic test equipment (ATE), automatic test systems (ATS), fixture, IEEE 1505.1™, interconnecting device (ICD), interface, interface test adapter (ITA), mass termination, receiver, scalable, test program set (TPS), unit under test (UUT)

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Introduction

This introduction is not part of IEEE Std 1505.1™-2019, IEEE Standard for the Common Test Interface Pin Map Configuration for High-Density, Single-Tier Electronics Test Requirements Utilizing IEEE Std 1505™.

Developers, users, and buyers of general-purpose rack-and-stack or portable test equipment will benefit by using this modular and scalable IEEE standard for the receiver fixture interface design whether the application is for a manual, semiautomated, or fully automated test system. Previous versions of this standard restricted its adoption by mandating specific pin configurations for the interface and in doing so limited the applicability of the modular and scalable design. By eliminating the pin configuration requirement, the modular and scalable design also lends itself to being reconfigurable for easy reuse of the IEEE primary design.

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1. Overview

1.1 Scope

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

1.2 Purpose

The purpose of this standard is to permit the physical interoperability of IEEE 1505–compliant interface fixtures (also known as interface test adapters, interface devices, or interconnecting devices) on multiple ATE systems utilizing the IEEE 1505 RFI by providing a standardized physical pin map with related connector configuration and contact performance characteristics.

1.3 Statement of the problem

1.3.1 IEEE 1505.1 working group guidance recommendations

During the Common Test Interfaces Working Group (CTIWG) October 2003 meeting, the working group (WG) provided the following recommendations as guidance for the WG's success:

- a) Identify a modular/scalable interface
- b) Allow use of different-sized interface devices (IDs)/fixtures on the same general-purpose interface (GPI)
- c) Ensure test program set (TPS) hardware compatibility as interface grows
- d) Provide legacy system support
- e) Provide a transition path to support legacy TPS hardware
- f) Adhere to an open architecture system
- g) Build to one specification
- h) Provide multiple sources
- i) Create nonproprietary design and components
- j) Ensure capabilities that provision for growth and special requirements
- k) Provide room for future expansion and TPS requirements
- l) Support and promote the use of commercial-off-the-shelf (COTS) interconnect components
- m) Use industry standard connector technology

1.3.2 IEEE 1505.1 working group legacy test program set support