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IEEE Guide for the Use of IEEE Std 1641™, IEEE Standard for Signal and Test Definition

IEEE Standards Coordinating Committee 20

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

IEEE
3 Park Avenue
New York, NY 10016-5997
USA

7 June 2013

IEEE Std 1641.1™-2013
(Revision of
IEEE Std 1641.1-2006)

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Approved 6 March 2013

IEEE-SA Standards Board

Abstract: Guidance in the use of the signal and test definition (STD) standard, IEEE Std 1641-2010, is provided. IEEE Std 1641 provides the means to define and describe signals used in testing. This guide describes how to form complex signals usable across all test platforms.
Keywords: ATE, ATLAS, ATML, ATS, automatic test equipment, IEEE 1641.1™, signal definitions, test definitions, test requirements, test signals, unit under test, UUT

The Institute of Electrical and Electronics Engineers, Inc.
3 Park Avenue, New York, NY 10016-5997, USA

PDF: ISBN 978-0-7381-8367-1 STD98203
Print: ISBN 978-0-7381-8368-8 STDPD98203

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Introduction

This introduction is not part of IEEE Std 1641.1-2013, IEEE Guide for the Use of IEEE Std 1641™, IEEE Standard for Signal and Test Definition.

IEEE Std 1641-2010 defines a method of accurately defining signals and their timing as used in test procedures and requirements.[a] This guide supplements IEEE Std 1641 and is part of the document set.

This guide has been prepared to help all users of IEEE Std 1641. The standard may be used within any test discipline, and with any carrier language, and the examples provided herein should be seen as typical.

The guide explains how each of the layers in the standard are built up on the preceding (lower) layer and to inform the user how to use the layer (or layers) that are important to a specific application. It describes how a signal may be created from basic signal components (BSCs) or other signals. It also shows the application and measurement of signals using a text-only format.

The need for the guide arose from the experience of users in the creation of signals and tests using IEEE Std 1641. This experience showed that further information in the implementation and application of signal definitions was required. The purpose of this guide is to provide guidance in the technique of implementation, application, and usage of the basic signals defined in IEEE Std 1641 to create signal definitions and test requirements. This is seen as particularly important in promoting the use of a relatively new and unambiguous method of describing signals. This document is not intended to be used as an instruction manual for IEEE Std 1641 nor as a substitute for formal training, but by its nature it should find some application in the training environment.

The initial clauses are intended as a brief introduction to the application of signal and test definition (STD). Subsequent clauses concentrate on the description of signals used in test. Stimulus signals, conditioning elements, and the acquisition of information from response signals are all covered.

IEEE Std 1641 does not specify any specific carrier (test program sequencing) language, and this guide does not provide any advice about the selection of a suitable carrier language. It does show STD used within typical carrier languages and includes examples of the definition and use of signal models in different environments.

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

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IEEE Guide for the Use of IEEE Std 1641™, IEEE Standard for Signal and Test Definition

1. Overview

1.1 Scope

This guide provides application information and guidance for users who write, develop, implement, and support test requirements, signal definitions, and signal responses using IEEE Std 1641-2010, the signal and test definition (STD) standard.[1] Examples of the definition and use of signal models in different environments are included.

1.2 Purpose

This guide explains how signal definitions and test requirements may be implemented in conformance with IEEE Std 1641-2010. It also provides background information, tutorial support, and examples of signal definitions and test requirements for users of the standard.

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