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IEEE Recommended Practice for Using IEEE 1671.2™ Instrument Description Templates for Describing Synthetic Instrumentation for Classes of Instruments such as Waveform Generators, Digitizers, External Oscillators, and Up and Down Converters

IEEE Standards Coordinating Committee 20

Sponsored by the

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

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IEEE Std 1871.1™-2014

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Abstract: Instrument Description templates, compliant with IEEE Std 1671.2-2012, that providers of synthetic instruments should use to describe waveform generators, digitizers, external local oscillators, and up and down converters are provided in this recommended practice. These synthetic instruments may be integrated in an automatic test system (ATS) that is to be used to test and diagnose a unit under test (UUT).

Keywords: ATML instance document, ATS, automatic test equipment (ATE), Automatic Test Markup Language (ATML), automatic test system, IEEE 1671.2™, IEEE 1871.1™, instrument, instrumentation, synthetic instrument, XML schema

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Introduction

This introduction is not part of IEEE Std 1871.1™-2014, IEEE Recommended Practice for Using IEEE 1671.2™ Instrument Description Templates for Describing Synthetic Instrumentation for Classes of Instruments such as Waveform Generators, Digitizers, External Oscillators, and Up and Down Converters.

The Synthetic Instrument Working Group (SIWG) was formed, at Department of Defense request, to define synthetic instrumentation and its attributes. The SIWG also developed a framework that balances user and supplier objectives, facilitates rapid technology advancements and adaption throughout the test life cycle, and complements/supports other relevant test and measurement industry activities.

The goals or desired effects of the SIWG activities were to:

a) Reduce the total cost of ownership of the automatic test system (ATS).

b) Reduce time to develop and field new or upgraded ATS's.

c) Provide greater flexibility to the war fighter through the U.S. and coalition partner's interoperable ATS's.

d) Reduce the ATS's logistics footprint.

e) Reduce the ATS's physical footprint.

f) Improve the quality of test.

The SIWG addressed the reductions from the test and measurement perspective. The SIWG efforts resulted in both the definition of synthetic instruments and the specifications of their respective attributes.

Synthetic instruments were originally part of IEEE Std 1671.2-2008, as both an example of *InstrumentDescription* instances as well as to provide a definition of the necessary parameters/attributes to document a synthetic instrument as defined by the SIWG.

Contents

IEEE Recommended Practice for Using IEEE 1671.2™ Instrument Description Templates for Describing Synthetic Instrumentation for Classes of Instruments such as Waveform Generators, Digitizers, External Oscillators, and Up and Down Converters

1. Overview

1.1 Scope

This recommended practice provides Instrument Description templates, compliant with IEEE 1671.2, that providers of synthetic instruments should use to describe waveform generators, digitizers, external local oscillators, and up and down converter.