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Standard for automatic test markup language (ATML) test configuration

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STANDARD FOR AUTOMATIC TEST MARKUP LANGUAGE (ATML) INSTRUMENT DESCRIPTION

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IEEE Std	FDIS	Report on voting
IEEE Std 1671.4-2014	91/1315/FDIS	91/1339/RVD

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IEEE Standard for Automatic Test Markup Language (ATML) Test Configuration

Sponsor

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

Approved 27 March 2014

IEEE-SA Standards Board

Abstract: An exchange format is specified in this standard, using extensible markup language (XML), for identifying the test configuration used to test for and diagnose faults of a unit under test (UUT) on an automatic test system (ATS).

Keywords: ATML instance document, automatic test equipment (ATE), Automatic Test Markup Language (ATML), automatic test system (ATS), IEEE 1671.4™, Master Configuration Control Document (MCCD), Master Test Program Set Index (MTPSI), station configuration file, test configuration, XML schema

IEEE Introduction

This introduction is not part of IEEE Std 1671.4™-2014, IEEE Standard for Automatic Test Markup Language (ATML) Test Configuration.

This child, or "dot" standard, also known as an automatic test markup language (ATML) component standard, provides for the definition of the *TestConfiguration* XML schema and contains references to an example. The XML schema and example that accompany this standard provide for the identification of all of the hardware, software, and documentation that is required to test and diagnose a unit under test (UUT) on an automatic test system (ATS).

ATML's XML schemas define the basic information required within any test application and provide a vehicle for formally defining the test environment by defining a class hierarchy corresponding to these basic information entities and providing several methods within each to enable basic operations to be performed on these entities. ATML component standards within the ATML framework define the particular requirements within the test environment.

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Standard for Automatic Test Markup Language (ATML) Test Configuration

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1. Overview

1.1 General

Automatic test markup language (ATML) is a collection of IEEE standards and associated eXtensible markup language (XML) schemas that allow automatic test system (ATS) and test information to be exchanged in a common format adhering to the XML standard[1].

The ATML framework and the ATML family of standards have been developed and are maintained under the guidance of the Test Information Integration (TII) Subcommittee of IEEE Standards Coordinating Committee 20 (SCC20) to serve as a comprehensive environment for integrating design data, test strategies, test requirements, test procedures, test results management, and test system implementations, while allowing test program (TP), test asset interoperability, and unit under test (UUT) data to be interchanged between heterogeneous systems.

This standard (as well as the XML schema and XML instance document example[2] that accompany this standard) is intended to be used in documenting the test configuration utilized during the testing of a

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[1] This information is given for the convenience of users of this standard and does not constitute an endorsement by the IEEE of this consortium standard. Equivalent standards or products may be used if they can be shown to lead to the same results.
[2] The XML schemas and examples that accompany this standard are available at the locations defined in Clause 6.

particular UUT. This information includes information regarding the tested UUT, the test equipment, and the test program set (TPS).

1.2 Application of this document's annexes

This document includes three annexes.

Annex A, Annex B, and Annex C are informative, thus they are provided strictly as information, for users, implementers, and maintainers of this document.

1.3 Scope

This standard defines an exchange format, utilizing XML, for identifying all of the hardware, software, and documentation that is needed to test and diagnose a UUT on an ATS.

1.4 Application

This standard provides for the identification of all necessary assets required to test a particular UUT. Assets consist of, but are not limited to, test stations, instrumentation, interface cables, interface devices, ancillary equipment, test station software, test program software, and test program documentation. This collection of assets is the test configuration for that particular UUT.

Identifying a test configuration provides for the generation of a single "document" (also sometimes referred to as an "index card") in which every asset that is required to be in place prior to testing the UUT is recorded. This document is readable by both humans and machines; humans may use the document to identify and assemble the necessary assets, whereas the machine may use the document to verify that the necessary assets are in place.

The information contained in the XML documents conforming to this standard will be useful to the following:

a) TPS developers

b) TPS maintainers

c) Automatic test equipment (ATE) system developers

d) ATE system maintainers

e) Developers of ATML-based tools and systems

f) UUT developers and maintainers

1.5 Conventions used within this document

1.5.1 General

In accordance with *IEEE Standards Style Manual* [B9][3], any schema examples will be shown in `Courier` font. In cases where instance document examples are necessary to clearly depict the use of a schema type or element, such examples will also be shown in `Courier` font. When the characters "..." appear in an example, it indicates that the example component is incomplete.

All simple types, complex types, attribute groups, and elements will be listed. Explanatory information will be provided along with examples if additional clarification is needed. The explanatory information will include information on the intended use of the elements and/or attributes where the name of the entity does not clearly indicate its intended use. Only attributes that extend the source type will be listed for elements derived from another source type (e.g., an abstract type). Details regarding the base type will be listed along with the base type.

When referring an attribute of an XML element, the convention of [*element*]@[*attribute*] will be used. In cases where an attribute name is referred to with no associated element, the attribute name will be enclosed in single quotes. Element and type names will always be set in italics when appearing in text.

This standard uses the vocabulary and definitions of relevant IEEE standards. In case of conflict of definitions, except for those portions quoted from standards, the following precedence shall be observed: 1) Clause 3 and 2) The *IEEE Standards Dictionary Online* [B8].

1.5.2 Precedence

The *TestConfiguration* schema (TestConfiguration.xsd) element, child element, and annotation information shall take precedence over the descriptive information contained in Clause 4.

1.5.3 Word usage

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The word *may* is used to indicate a course of action permissible within the limits of the standard (*may* equals *is permitted to*).

The word *can* is used for statements of possibility and capability (*can* equals *is able to*).

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[3] The numbers in brackets correspond to those of the bibliography in Annex C.

2. Normative references

The following referenced document is indispensable for the application of this document (i.e., it must be understood and used, so each referenced document is cited in text and its relationship to this document is explained). Only the cited edition applies.

IEEE Std 1671^{TM}-2010, IEEE Standard for Automatic Test Equipment Markup Language (ATML) for Exchanging Automatic Test Equipment and Test Information via XML.[4,5]

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