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# INTERNATIONAL STANDARD

**IEEE Std 1671™**

**Automatic Test Markup Language (ATML) for Exchanging Automatic Test  
Equipment and Test Information via XML**

**(standards.iteh.ai)**

IEC 61671:2012

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## Automatic Test Markup Language (ATML) for Exchanging Automatic Test Equipment and Test Information via XML

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| IEEE Std 1671-2010 | 93/323/FDIS | 93/330/RVD       |

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**Abstract:** This document specifies a framework for the automatic test markup language (ATML) family of standards. ATML allows automatic test system (ATS) and test information to be exchanged in a common format adhering to the extensible markup language (XML) standard.

**Keywords:** ATE description, ATE test results, ATML, ATS, automatic test equipment, automatic test markup language, automatic test system, interface test adapter, ITA, SI, synthetic instrumentation, test configuration, unit under test, UUT description, UUT maintenance, XML instance document, XML schema

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## IEEE Introduction

This introduction is not part of IEEE Std 1671-2010, IEEE Standard for Automatic Test Markup Language (ATML) for Exchanging Automatic Test Equipment and Test Information via XML.

## Historical background

In 2002, an automatic test markup language (ATML) focus group was formed (outside any formal standardization body) with a mission to “define a collection of XML [extensible markup language] schemas that allows ATE [automatic test equipment] and test information to be exchanged in a common format adhering to the XML standard.”

The scope of this effort was the standardization of test information, which would allow for test program (TP) and test asset interoperability, as well as unit under test (UUT) data (including results and diagnostics), to be interchanged between heterogeneous ATE systems.

In 2004, the efforts of the focus group were brought into IEEE Standards Coordinating Committee 20 (SCC20), where the formal standardization process has taken place. Further refinements and updates to the work accomplished by the ATML focus group has (and continues to) take place within both the ATML focus group and IEEE SCC20.

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## IEEE 1671 ATML family of standards

The ATML family of standards supports TP, test asset, and UUT interoperability within an automatic test environment.

This document provides an overview of the ATML goals, defines the ATML framework, defines the ATML family of standards, and specifies common ATML data elements, and common ATML schemas.

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# Automatic Test Markup Language (ATML) for Exchanging Automatic Test Equipment and Test Information via XML

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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 allows automatic test system (ATS) and test information to be exchanged in a common format adhering to the XML standard.<sup>1</sup>

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.

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<sup>1</sup> 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.

### 1.1.1 ATML framework referenced IEEE standard

The ATML framework can reference IEEE Std 1641™ [B29].<sup>2</sup> This referenced IEEE standard, when utilized, is then considered part of the ATML framework.

### 1.1.2 Application of this document's annexes

This document includes twelve annexes. Of these twelve, four are normative (Annex A, Annex B, Annex C, and Annex D).

Annex A contains style guidelines for the ATML family XML schemas. Annex A guidelines shall be followed by ATML XML schema developers and maintainers during the development and maintenance of all ATML family XML schemas, including the XML schemas associated with this document.

Annex B contains XML schema element description and definitions for the **ATML common element XML schemas**. Annex B shall be utilized by ATML XML schema developers, maintainers, and ATML users. Annex B shall be referenced during the development and maintenance of all ATML family XML schemas, including the XML schemas associated with this document.

Annex C contains XML schema element description and definitions for the **ATML internal model XML schemas**. Annex C shall be utilized by ATML XML schema developers, maintainers, and ATML users. Annex C shall be referenced during the creation and development of ATML Capabilities or ATML WireLists documents.

Annex D contains guidelines for ATML services. Annex D shall be referenced by ATML users implementing an ATML framework.

Annex E through Annex L are informative and thus are provided strictly as information for both users and maintainers of this document.

## 1.2 Scope

ATML defines a standard exchange medium for sharing information between components of ATSS. This information includes test data, resource data, diagnostic data, and historic data. The exchange medium is defined using XML. This standard specifies the framework for the family of ATML standards.

## 1.3 Purpose

The purpose of ATML is to support TP, test asset, and UUT interoperability within an automatic test environment. ATML accomplishes this through a standard medium for exchanging UUT, test, and diagnostic information between components of the test system. The purpose of this standard is to provide an overview of ATML goals, define the ATML family of standards, and specify common data elements for the ATML family of standards.

<sup>2</sup> The numbers in brackets correspond to the numbers of the bibliography in Annex L.

## 1.4 Application

### 1.4.1 General

This document should be applied anywhere ATS and test information is to be exchanged. This ATS and test information includes the following:

- Data that will be utilized for the design, development, and utilization of automatic test equipment (ATE).
- Data that will be utilized for the design, development, and utilization of test program sets (TPSs) to test a product (e.g., UUT) on a particular ATE.
- Product design data that will be utilized during the testing of the product (e.g., UUT).
- Shared usage of maintenance data and the results of testing a product (e.g., UUT).
- Testing requirements of a particular product (e.g., UUT).
- Data that will be utilized for the design, development, and utilization of instrumentation that will be utilized within a particular ATS configuration.
- A definition of allowable ATS configurations that can be used to test and evaluate a particular product (e.g., UUT).
- A definition of the capabilities of ATSS as well as the elements of the ATS.

### 1.4.2 Users

Anticipated users of the ATML family of standards include the following:

- Product (e.g., UUT) developers
- Product (e.g., UUT) maintainers
- TPS developers
- TPS maintainers
- ATE system developers
- ATE system maintainers
- Instrumentation developers
- Developers of ATML-based tools and systems
- Developers of prime mission equipment that use the supported UUT as a component