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IEEE Standard for Software Test Documentation

Sponsor

**Software Engineering Technical Committee
of the
IEEE Computer Society**

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Abstract: A set of basic software test documents is described. This standard specifies the form and content of individual test documents. It does not specify the required set of test documents.
Keywords: test case specification, test design specification, test incident report, test item transmittal report, test log, test plan, test procedure specification, test summary report

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Introduction

(This introduction is not part of IEEE Std 829-1998, IEEE Standard for Software Test Documentation.)

Purpose

The purpose of this standard is to describe a set of basic software test documents. A standardized test document can facilitate communication by providing a common *frame of reference* (e.g., a customer and a supplier have the same definition for a test plan). The content definition of a standardized test document can serve as a completeness checklist for the associated testing process. A standardized set can also provide a baseline for the evaluation of current test documentation practices. In many organizations, the use of these documents significantly increases the manageability of testing. Increased manageability results from the greatly increased visibility of each phase of the testing process.

This standard specifies the form and content of individual test documents. It does not specify the required set of test documents. It is assumed that the required set of test documents will be specified when the standard is applied. Annex B contains an example of such a set specification.

The readers of this standard are referred to Annex C for guidelines for using this standard to meet the requirements of IEEE/EIA 12207.1-1997, IEEE/EIA Guide for Information Technology—Software life cycle processes—Life cycle data.

Overview

The documents outlined in this standard cover test planning, test specification, and test reporting.

The test plan prescribes the scope, approach, resources, and schedule of the testing activities. It identifies the items to be tested, the features to be tested, the testing tasks to be performed, the personnel responsible for each task, and the risks associated with the plan.

Test specification is covered by three document types:

- A test design specification refines the test approach and identifies the features to be covered by the design and its associated tests. It also identifies the test cases and test procedures, if any, required to accomplish the testing and specifies the feature pass/fail criteria.
- A test case specification documents the actual values used for input along with the anticipated outputs. A test case also identifies constraints on the test procedures resulting from use of that specific test case. Test cases are separated from test designs to allow for use in more than one design and to allow for reuse in other situations.
- A test procedure specification identifies all steps required to operate the system and exercise the specified test cases in order to implement the associated test design. Test procedures are separated from test design specifications as they are intended to be followed step by step and should not have extraneous detail.

Test reporting is covered by four document types:

- A test item transmittal report identifies the test items being transmitted for testing in the event that separate development and test groups are involved or in the event that a formal beginning of test execution is desired.
- A test log is used by the test team to record what occurred during test execution.
- A test incident report describes any event that occurs during the test execution which requires further investigation.
- A test summary report summarizes the testing activities associated with one or more test design specifications.

Figure 1 shows the relationships of these documents to one another as they are developed and to the testing process they document.

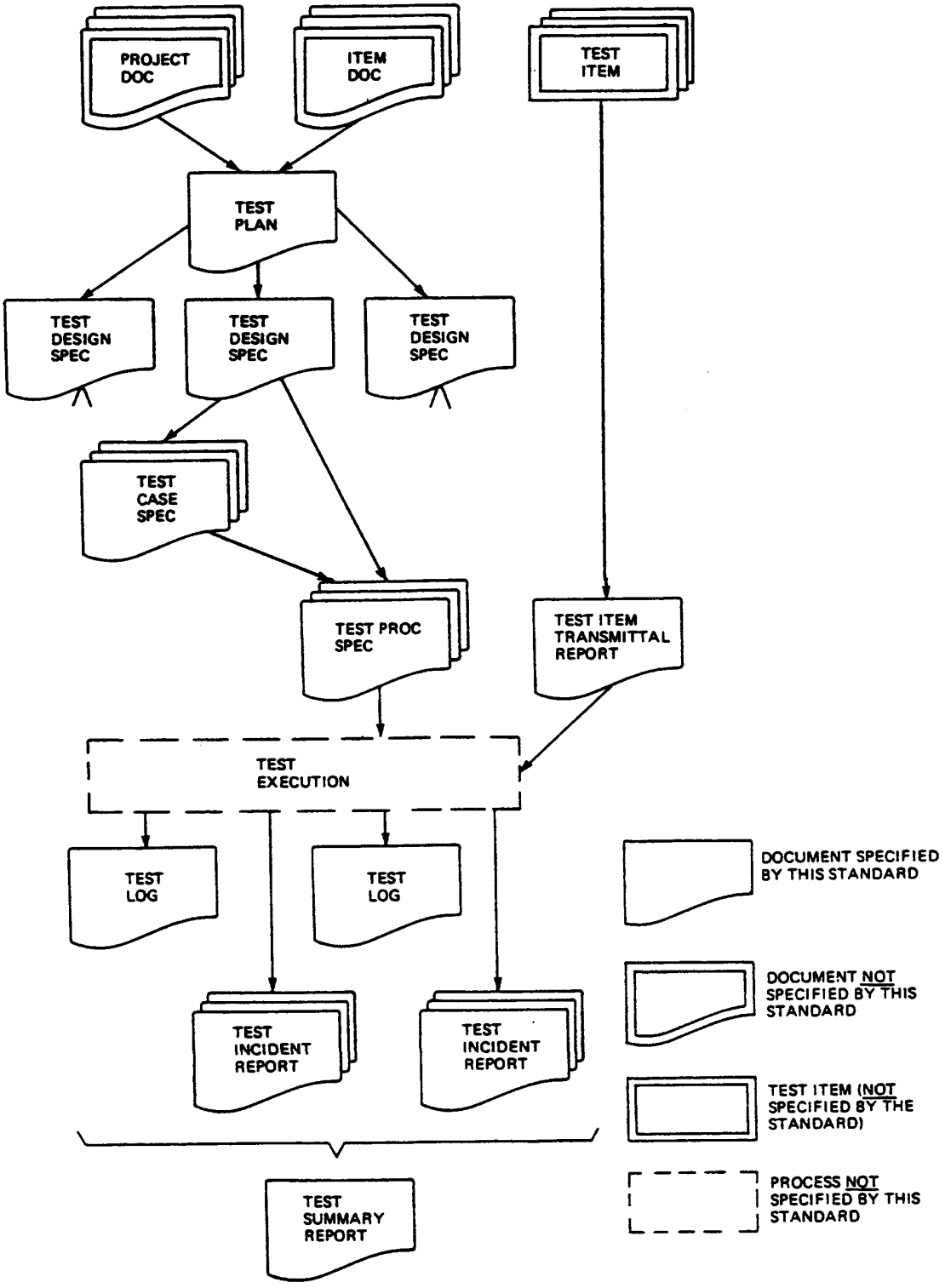

Figure 1—Relationship of test documents to testing process

Terminology

The words *shall, must,* and the imperative form identify the mandatory material within this standard. The words *should* and *may* identify optional material.

Annexes

The examples found in Annex A are meant to clarify the intent of the document descriptions found in the standard. Some suggestions about implementing and using the standard are in Annex B. Guidelines for compliance with IEEE/EIA 12207.1-1997 are provided in Annex C.

Audience

This standard should be of interest to software users and software procurement personnel; to development, test, and maintenance personnel; to operations and acquisition support managers; to software quality assurance personnel and auditors; and to participants in the legal system.

Participants

This revision was prepared by the Life Cycle Data Harmonization Working Group of the Software Engineering Standards Committee of the IEEE Computer Society. At the time this standard was approved, the working group consisted of the following members:

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IEEE Standard for Software Test Documentation

1. Scope

This standard describes a set of basic test documents that are associated with the dynamic aspects of software testing (i.e, the execution of procedures and code). The standard defines the purpose, outline, and content of each basic document. While the documents described in the standard focus on dynamic testing, several of them may be applicable to other testing activities (e.g., the test plan and test incident report may be used for design and code reviews).

This standard may be applied to commercial, scientific, or military software that runs on any digital computer. Applicability is not restricted by the size, complexity, or criticality of the software. However, the standard does *not* specify any class of software to which it must be applied. The standard addresses the documentation of both initial development testing and the testing of subsequent software releases. For a particular software release, it may be applied to all phases of testing from module testing through user acceptance. However, since all of the basic test documents may not be useful in each test phase, the particular documents to be used in a phase are *not* specified. Each organization using the standard will need to specify the classes of software to which it applies and the specific documents required for a particular test phase.

The standard does *not* call for specific testing methodologies, approaches, techniques, facilities, or tools, and does *not* specify the documentation of their use. Additional test documentation may be required (e.g., code inspection checklists and reports). The standard also does *not* imply or impose specific methodologies for documentation control, configuration management, or quality assurance. Additional documentation (e.g., a quality assurance plan) may be needed depending on the particular methodologies used.

Within each standard document, the content of each section (i.e., the text that covers the designated topics) may be tailored to the particular application and the particular testing phase. In addition to tailoring content, additional documents may be added to the basic set, additional sections may be added to any document, and additional content may be added to any section. It may be useful to organize some of the sections into subsections. Some or all of the contents of a section may be contained in another document which is then referenced. Each organization using the standard should specify additional content requirements and conventions in order to reflect their own particular methodologies, approaches, facilities, and tools for testing, documentation control, configuration management, and quality assurance.

This standard applies to documentation on electronic media as well as paper. Paper must be used for documents requiring approval signatures, unless the electronic documentation system has a secure approval annotation mechanism and that mechanism is used.