APPENDIX E
TEST SUITE ACCEPTANCE CRITERIA

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E.1 INTRODUCTION

E.1.1 OBJECTIVE OF DOCUMENT

This document is an advisory set of criteria to be used in evaluating the suitability of test suites for inclusion in the X/Open branding programme. The Document classifies criteria as being either mandatory or desirable.

Mandatory — means that a test suite must meet the criterion. Dispensations will be granted only in exceptional circumstances.

Desirable — means that the criterion may not in all circumstances be met.

Failure to meet a Desirable criterion will not necessarily result in exclusion, but will require justification. The funding model may alter the weighting and rigour applied to the criteria during test suite evaluation.

E.1.2 SCOPE OF DOCUMENT

These criteria may be used to evaluate a proposal for a new test suite or to define what work needs to be done to convert an existing test suite into one acceptable for inclusion in the Branding programme.

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E.2 TEST SUITE ACCEPTANCE CRITERIA

E.2.1 The Test Specification

1. The Test suite shall be based on a written, publicly available test specification. (Mandatory)
2. The test specification upon which the test suite is based shall confirm to POSIX .3 (Desirable)

E.2.2 The Test Suite Design

1. The test suite is aligned with the current draft/issue of the relevant specification. (Mandatory)
2. The test suite must be able to establish conformance with all legitimate options and variables defined by the specification. (Mandatory).
3. Each individually executable test must provide its own setup and clean up functionality (Mandatory)
4. No individually executable test shall introduce side effects that will affect the results of any other tests(Mandatory)
5. The unit of test execution should cover no more than a single interface function (Desirable)
6. The test suite shall have a capability to check complete and correct configuration and installation. This may include a set of defined confidence checks (Mandatory)
7. Configuration and installation checking facilities should be automated (Desirable)
8. The test suite must include clear and comprehensive user and programmer documentation (Mandatory)
9. The test suite documentation should follow the X/Open test suite documentation style guide(Mandatory)
10. The test suite shall be adequately documented and structured to facilitate debugging and fault isolation(Mandatory)
11. Test system design should conform to POSIX .3 (Desirable)
12. The test suite must be fully integrated with TET for non distributed testing or dTET for distributed testing (Desirable)
13. The test suite supplier shall produce a questionnaire designed to elicit all extra information needed to parameterise the test suite and determine the testability of the implementation. (Desirable)

E.2.3 Test Suite Portability

1. The test suite must be capable of testing its target specifications in XPG3 and XPG4 base environments in which TET or dTET is installed. (Mandatory)

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2. The test suite shall not require any resources or functionality outside TET or dTET and XPG4 or XPG3 base and the specification under test. i.e. the test suite must itself be a conforming application (Desirable)
3. Over and above TET, dTET XPG3 or XPG4 and the specification against which conformance is to be assessed, any extensions that are required to build, configure or run the test suite must be documented and must be freely available on equitable terms. (Mandatory)
4. Any activity required by the implementor in order to port the test suite to the implementation under test shall be clearly and unambiguously documented (Mandatory).

E.2.4 Test Suite Commercial Terms

1. The test suite licencing terms must allow it to be used for X/Open branding (Mandatory).
2. The test suite must be made available on fair and equitable licencing terms (Mandatory)
3. Commercial terms must be such that X/Open can recover from commercial revenue any costs it incurs in respect of ownership, support, maintenance and upgrade (Mandatory).
4. The test suite must be distributed in source code. (Mandatory)
5. A support and maintenance service must be in existence or X/Open must be enabled to set one up (Mandatory)

E.2.5 Assignment of Test Results

In this section the term "results" is used to mean the overall results (sometimes known as "verdicts") produced by a test campaign. The production of such results may in some circumstances require the output of automated testing to be analysed by automated and/or manual processes. For this reason it is the combination of test software, analysis tools and manual procedures that must together be considered as the test suite and assessed for suitability against these criteria.

1. The test suite shall meet the criterion of repeatability, in that repeated testing of the same implementation shall produce results that are consistent with those produced on the first occasion. (Mandatory)
2. The test suite shall meet the criterion of reproducibility, in that it shall produce objective rather than subjective results, so that testing of the same implementation by two different test operators who do not collude shall lead to the results produced by the one operator being consistent with those produced by the other (Mandatory).
3. The test suite shall meet the criterion of impartiality, in that the results produced for different tested implementations are free from bias. Thus if different implementations exhibit the same characteristics with regard to some objective test purpose, then when the corresponding test case is run against the different implementations the results shall be consistent with one another (Mandatory).
4. If it is necessary for expert analysis of the observations of the test to take place in order to interpret the results or determine results, then there shall be documented, objective procedures sufficient to ensure that repeatability, reproducibility, objectivity and

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impartiality are maintained. The procedures shall be such as to ensure that there can be no ambiguity over the test result to be assigned for each test (Mandatory).

5. If a test specifies two possible sets of observations either of which could result from the same behaviour on the part of the implementation under test, then the two sets of observations shall give consistent test results. It is not acceptable that one observation shall give rise to a 'pass' result and the other a 'fail' (Mandatory).
6. The test suite shall have the property that all test results shall be assigned objectively with respect to the specification against which conformance is being tested (Mandatory)
7. The test suite shall be supported by utilities and or documentation that shall ensure that there are objective criteria employed to determine whether or not each test is to be run (Mandatory)
8. If expert analysis of the observations leads to modification or qualification of the automatically produced results then the test report shall be structured in such a way that there can be no ambiguity concerning the test outcome. Such modification or qualification of the results shall not conflict with the test result given by the relevant test. The test report shall be structured such that the justification for each such modification, together with an endorsement by the test operator shall appear in the output (Desirable).
9. The test suite shall be configurable such that it will not produce test results for functions or behaviour outside the scope of the specification against which conformance is being assessed. (Desirable)

E.2.6 Test Suite Usability

1. Technical staff skilled in the technology and the implementation under test, but not necessarily in the test technology should be able to install, build and initiate a test run within one working day (Mandatory)
2. Technical staff skilled in testing, but not necessarily in the technology and the implementation under test, should be able to install, build and initiate a test run within one working day (Mandatory)
3. English shall be the language used for documentation (Mandatory)

E.2.7 Test Report

1. The result of each test must appear in the report (Mandatory)
2. It should be possible to deduce that the test report was produced from a single run of the test suite. (Mandatory)
3. Test suite documentation should define the mapping between claimed support, any optional or implementation defined features of the specification and the test results (Mandatory) (i.e. where the specification under test allows optional behaviour or there is a range in the way a particular feature is supported e.g. limits)
4. The test report automatically produced by the test tool shall include as a minimum the following information (Mandatory):-

a. The date and time that the test campaign commenced

b. The date and time that the test campaign completed.

c. An unambiguous definition of the implementation that was tested

d. Any abnormalities from standard conditions

e. An unambiguous definition of the specification against which conformance is being assessed.

5. The test report shall be structured such that any test results for functions or behaviour not within the scope of the specification against which conformance is being assessed is clearly differentiated from those that are (Mandatory).

6. The format of automatically generated test reports shall conform to POSIX .3 (Desirable)

7. The test suite must generate a formatted report in accordance with the Test Development Style Guide. If TET based, a report writer must be provided to take journal file output from the TET and produce a formatted report. (Mandatory)

8. There should be a results summary to enable the conformance status of the tested implementation to be readily apparent, preferably on one page. (Mandatory)

9. Verdicts other than PASS should cause the relevant part of the test specification (assertion), the test strategy and the observed results to be include in the report. (Desirable)

10. Test reports should include information on the settings of all parameters and configuration options (Mandatory).

11. Test suite documentation should define the mapping between claimed support, any optional or implementation defined features of the specification and the test suite parameterisation (Desirable)

E.2.8 Test Suite Acceptance

1. The X/Open acceptance procedures shall be applied for acceptance and the supplier shall meet the requirements therein (Mandatory).

2. The test suite supplier shall assert compliance or otherwise against each of the requirements whether mandatory of desirable herein. X/Open shall at its discretion audit such compliance assertions (Mandatory).

3. The test suite supplier shall supply support and maintenance during the acceptance period free of charge (Mandatory).

4. The test suite supplier shall have a direct dial UNIX email connection to X/Open or an Internet connection and shall use this medium for all routine communications (Desirable)

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