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AFNOR contribution : comparison between ISO 9646 "Conformance Testing Methodology and Framework" and IEEE 1003-3 "Test methods for measuring conformance to POSIX".

Document in reference is a description (IEEE standard) of the test methods for measuring conformance to POSIX. The description is far from being as detailed as for conformance testing of OSI protocols and profiles in ISO/IEC 9646.

POSIX methodology and the ISO 9646 methodology use similar concepts, but the vocabulary used differs.

Here are listed some of the common concepts, and where necessary, divergences are highlighted.

Both methodologies have a pragmatic approach and agree that exhaustive testing is impractical, thus conformance testing cannot guarantee conformance of an implementation to a standard.

POSIX methodology gives some detail on how to express conformance requirements (called assertions). But it is not as detailed as in 9646 (no notion of PICs). Similarly, there are considerations on how to express a test purpose (assertion text), including a new formalism which appears to be the only new POSIX concept, but no complete view is given on the practical ways to define the contents of test suites (no TSS and TP concept).

POSIX introduces details on progressive types of testing (identification testing, thorough testing, exhaustive testing) and of complexity of elements to test (simple, intermediate, complex), to explain that compromise on the test suite size has to be made, and that some tests need to be dropped voluntarily.

Conformance test suites are the collection of test cases to evaluate conformance. It is not clear if an abstract test suite view is used, but that is a tool quite standardized in POSIX methodology.

Test verdicts (Pass, Fail, unresolved (inconclusive in 9646)) are common. Non-useful tests are not deselected (no mechanism for deselection is described), but these tests have a verdict of 'untested' or 'unsupported', which lead to an equivalent result.

Here are some comparisons of the vocabulary used.

POSIX	ISO 9646
an assertion	a conformance requirement
an assertion text	a test purpose
an assertion test	a conformance test case
a conditional feature	an optional or conditional feature
an extended assertion (NOT REQUIRED TO TEST)	an untestable test purpose
Test method	Test environment, and not test method only
Conformance statement	Test report
Target system	Means of testing and tester

As a conclusion, POSIX methodology and ISO ⁹⁶⁴⁶ methodology have the same objective and follow identical paths. ISO 9646 is much more detailed and is a guide for protocol and profile test specifiers, while POSIX document cannot play this role of guide.

POSIX methodology would need to be completed to reach same level of standardization, by using possibly some of the 9646 compatible concepts, and by highlighting the differences.

A longer study is required to analyse the different concepts and definitions of POSIX methodology. But this IEEE standard, as it stands, is an interesting introduction to another conformance testing methodology, not far from and compatible with the 9646 one.