14 Conformance

14.1 Introduction

This clause specifies conformance of:

a) functional implementations of the SRM (14.2),

b) exchange formats that use SRM data structures and associated data types (14.3),

c) language bindings of the SRM API (14.4),

d) applications that use the SRM API (14.5), and

e) specifications that reference this International Standard (14.6).

Functional implementation and exchange format conformance are based on profiles. A profile represents a useful subset of the SRM. Compliance of an application to a profile is also defined. Profiles are defined in Clause 12.

This clause addresses the required computational accuracy for SRF operations (see 14.2). This clause specifies accuracy in terms of the maximum computational error of an implementation of an SRF operation. The accuracy requirement does not apply to the final result of a sequence or chain of SRF operations, only to each individual SRF operation in the sequence. This clause does not directly address the software environment, performance, or resource requirements of applications or implementations that conform to profiles of this International Standard. This clause does not define the application requirements or dictate the functional content of applications that use SRM implementations.

14.2 Functional implementation conformance

A functional implementation of the SRM *conforms* to a standard or registered profile P if the following conditions are satisfied:

a) Each ORM and RT in the ORM profile set of P shall be used with the same label, code, and terminology defined in this International Standard or by registration,

b) Each SRFT in the SRFT profile set of P shall be used with the same label, code, and terminology defined in this International Standard or by registration,

c) Each SRF in the SRF profile set of P shall be used with the same label, code, and terminology defined in this International Standard or by registration,

d) Each SRFS and SRFS member in the SRFS profile set of P shall be used with the same label, code, and terminology defined in this International Standard or by registration,

e) Each DSS in the DSS profile set of P shall be used with the same label, code, and terminology defined in this International Standard or by registration,

f) Any other instance of an SRM concept that is defined or specified in this International Standard or registered shall be used with the same label, code, and terminology defined in this International Standard or by registration,

g) The implementation shall support the data types required for the API functionality of the profile P sets of ORMs, SRFTs, SRFs, SRFSs, and DSSs. Additional functionality and data types may be supported by an implementation. If the implementation supports the API functionality specified in this

International Standard, the methods and functions shall use the data types specified in this International Standard.

h) The implementation shall support the full functionality of all SRF operations defined for each SRF that belongs to the profile in accordance with Clause 5 and Clause 10,

i) The data types and data structures shall match the specification of the corresponding data types as defined in this International Standard, and

j) The implementation shall conform to the computational accuracy requirement of profile P.

A functional implementation of the SRM is free to exceed the requirements of any profile to which it claims conformance.

14.3 Conformance of exchange formats

An exchange format *conforms* to a standard or registered profile P, if the following conditions are satisfied:

a) Each ORM and RT in the ORM profile set of P shall be used with the same label, code, and terminology defined in this International Standard or by registration,

b) Each SRFT in the SRFT profile set of P shall be used with the same label, code, and terminology defined in this International Standard or by registration,

c) Each SRF in the SRF profile set of P shall be used with the same label, code, and terminology defined in this International Standard or by registration,

d) Each SRFS and SRFS member in the SRFS profile set of P shall be used with the same label, code, and terminology defined in this International Standard or by registration,

e) Each DSS in the DSS profile set of P shall be used with the same label, code, and terminology defined in this International Standard or by registration,

f) Any other instance of an SRM concept that is defined or specified in this International Standard or registered shall be used with the same label, code, and terminology defined in this International Standard or by registration,

g) The data types and data structures shall match the specification of the corresponding data types as defined in this International Standard,

h) All data types and data structures shall be used to represent coordinates in their corresponding SRF as defined in 11.9, and

i) The units of measure that are used in data structures shall be as specified (see 4.11).

14.4 Conformance of language bindings of the SRM API

A language binding of the SRM API to a programming language *conforms* to the SRM, if the following conditions are satisfied:

a) All functions specified in Clause 11, including output values and error conditions, shall be so bound as to present the specified interfaces as closely as possible given the strictures of that programming language.

b) All data types specified in this International Standard shall be represented in that programming language.