

**SLOVENSKI STANDARD**  
**SIST-TS ETSI/TS 103 254 V1.1.1:2016**  
**01-februar-2016**

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**Metode za preskušanje in specifikacije (MTS) - TTCN-3-preskusni niz skladnosti za uporabo sheme XML - Zgradba preskusnega niza in namen preskusa (TSS&TP)**

Methods for Testing and Specifications (MTS);TTCN-3 Conformance Test Suite for use of XML schema;Test Suite Structure and Test Purposes (TSS&TP)

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# ETSI TS 103 254 v1.1.1 (2015-03)



## **Methods for Testing and Specifications (MTS); TTCN-3 Conformance Test Suite for use of XML schema; Test Suite Structure and Test Purposes (TSS&TP)**

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## Reference

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## Keywords

conformance, testing, TSS&amp;TP, TTCN, XML

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## Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Methods for Testing and Specification (MTS).

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## Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

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# 1 Scope

The purpose of the present document is to provide Test Suite Structure and Test Purposes (TSS&TP) for the conformance test suite for using XML Schema with TTCN-3 as defined in ETSI ES 201 873-1 [5] in compliance with the relevant guidance given in the proforma for TTCN-3 reference test suite ETSI TS 102 995 [4]. In the present document only XML related features, specified in ETSI ES 201 873-9 [1] have been considered but not the core language features (see ETSI ES 201 873-1 [5]), nor tool implementation (see ETSI ES 201 873-5 [i.1] and ETSI ES 201 873-6 [i.2]), language mapping (see ETSI ES 201 873-7 [i.3] and ETSI ES 201 873-8 [i.4]) and language extension (see e.g. ETSI ES 202 781 [i.5], ETSI ES 202 784 [i.6] and ETSI ES 202 785 [i.7]) aspects.

# 2 References

## 2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

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The following referenced documents are necessary for the application of the present document.

- [1] ETSI ES 201 873-9 (V4.5.1): "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 9: Using XML schema with TTCN-3".
- [2] ISO/IEC 9646-1 (1994): "Information Technology - Open Systems Interconnection - Conformance Testing Methodology and Framework - Part 1: General concepts".  
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- [3] ISO/IEC 9646-7(1995): "Conformance testing methodology and framework - Part 7: Implementation Conformance Statement".
- [4] ETSI TS 102 995: "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Proforma for TTCN-3 reference test suite".
- [5] ETSI ES 201 873-1 (V4.5.1): "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 1: TTCN-3 Core Language".

## 2.2 Informative references

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The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

- [i.1] ETSI ES 201 873-5: "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 5: TTCN-3 Runtime Interface (TRI)".
- [i.2] ETSI ES 201 873-6: "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 6: TTCN-3 Control Interface (TCI)".
- [i.3] ETSI ES 201 873-7: "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 7: Using ASN.1 with TTCN-3".

- [i.4] ETSI ES 201 873-8: "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 8: The IDL to TTCN-3 Mapping".
- [i.5] ETSI ES 202 781: "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; TTCN-3 Language Extensions: Configuration and Deployment Support".
- [i.6] ETSI ES 202 784: "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; TTCN-3 Language Extensions: Advanced Parameterization".
- [i.7] ETSI ES 202 785: "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; TTCN-3 Language Extensions: Behaviour Types".

## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in ISO/IEC 9646-1 [2], ISO/IEC 9646-7 [3], ETSI ES 201 873-1 [5] (TTCN-3) and the following apply:

**Abstract Test Suite (ATS):** test suite composed of abstract test cases

**Implementation Conformance Statement (ICS):** statement made by the supplier of an implementation claimed to conform to a given specification, stating which capabilities have been implemented

**ICS proforma:** document, in the form of a questionnaire, which when completed for an implementation or system becomes an ICS

**Implementation eXtra Information for Testing (IXIT):** statement made by a supplier or implementor of an IUT which contains or references all of the information related to the IUT and its testing environment, which will enable the test laboratory to run an appropriate test suite against the IUT  
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**IXIT proforma:** document, in the form of a questionnaire, which when completed for the IUT becomes the IXIT  
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**Implementation Under Test (IUT):** implementation of one or more OSI protocols in an adjacent user/provider relationship, being part of a real open system which is to be studied by testing

### 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ATS	Abstract Test Suite
BNF	Backus Naur Form
ICS	Implementation Conformance Statement
IUT	Implementation under Test
IXIT	Implementation eXtra Information for Testing
SUT	System Under Test
TC	Test Case
TCI	TTCN-3 Control Interface
TP	Test Purpose
TRI	TTCN-3 Runtime Interface
TS	Test System
TSS	Test Suite Structure
TSS&TP	Test Suite Structure and Test Purposes
TTCN-3	Testing and Test Control Notation edition 3
XML	eXtensible Markup Language
XSD	XML Schema Definition
URI	Unified Resource Identifier
ASCII	American Standard Code for Information Interchange
URL	Unified Resource Locator

## 4 Test Suite Structure (TSS)

The Test Suite Structure is in close alignment with ETSI ES 201 873-9 [1], containing:

- a) positive tests (Table 1);
- b) negative tests (Table 2).

The execution order of the TTCN-3 tool conformance test cases is specified in the dependencies section of test purpose descriptions.

**Table 1: Test suite structure, positive tests**

5 Mapping XML Schemas	5.1.1 Namespaces	Pos_050101_namespaces_001
		Pos_050101_namespaces_002
		Pos_050101_namespaces_003
		Pos_050101_namespaces_004
	5.1.2 Includes	Pos_050102_includes_001
		Pos_050102_includes_002
		Pos_050102_includes_003
	5.1.3 Imports	Pos_050103_imports_001
	5.1.4 Attributes of the XSD schema element	Pos_050104_attributes_of_the_xsd_schema_element_001
		Pos_050104_attributes_of_the_xsd_schema_element_002
		Pos_050104_attributes_of_the_xsd_schema_element_003
		Pos_050104_attributes_of_the_xsd_schema_element_004
		Pos_050104_attributes_of_the_xsd_schema_element_005
		Pos_050104_attributes_of_the_xsd_schema_element_006
	5.2.2 Name conversion rules	Pos_050202_name_conversion_rules_001
		Pos_050202_name_conversion_rules_002
		Pos_050202_name_conversion_rules_003
		Pos_050202_name_conversion_rules_004
		Pos_050202_name_conversion_rules_005
		Pos_050202_name_conversion_rules_006
		Pos_050202_name_conversion_rules_007
		Pos_050202_name_conversion_rules_008
		Pos_050202_name_conversion_rules_009
		Pos_050202_name_conversion_rules_010
		Pos_050202_name_conversion_rules_011
		Pos_050202_name_conversion_rules_012
		Pos_050202_name_conversion_rules_013
		Pos_050202_name_conversion_rules_014
		Pos_050202_name_conversion_rules_015
		Pos_050202_name_conversion_rules_016
		Pos_050202_name_conversion_rules_017
		Pos_050202_name_conversion_rules_018
		Pos_050202_name_conversion_rules_019
		Pos_050202_name_conversion_rules_020
		Pos_050202_name_conversion_rules_021
		Pos_050202_name_conversion_rules_022
		Pos_050202_name_conversion_rules_023
	5.2.3 Order of the mapping	Pos_050203_order_of_the_mapping_001
		Pos_050203_order_of_the_mapping_002
		Pos_050203_order_of_the_mapping_003

6 Built-in data types	Top level	Pos_06_top_level_001
	6.1.1 Length	Pos_060101_length_001 Pos_060101_length_002
	6.1.5 Enumeration	Pos_060105_enumeration_001 Pos_060105_enumeration_002 Pos_060105_enumeration_003 Pos_060105_enumeration_004 Pos_060105_enumeration_005
	6.1.7 MinInclusive	Pos_060107_mininclusive_001 Pos_060107_mininclusive_002 Pos_060107_mininclusive_003 Pos_060107_mininclusive_004 Pos_060107_mininclusive_005
	6.1.8 MaxInclusive	Pos_060108_maxinclusive_001 Pos_060108_maxinclusive_002 Pos_060108_maxinclusive_003 Pos_060108_maxinclusive_004
	6.1.9 MinExclusive	Pos_060109_minexclusive_001 Pos_060109_minexclusive_002
	6.1.10 MaxExclusive	Pos_060110_maxexclusive_001 Pos_060110_maxexclusive_002 Pos_060110_maxexclusive_003
	6.2.1 String	Pos_060201_string_001
	6.2.4 Name	Pos_060204_name_001
	6.2.12 Any URI	Pos_060212_any_uri_001
	6.3.1 Integer	Pos_060301_integer_001
	6.3.2 Positive integer	Pos_060302_positive_integer_001
	6.3.3 Non-positive integer	Pos_060303_non_positive_integer_001
	6.3.4 Negative integer	Pos_060304_negative_integer_001
	6.3.5 Non-negative integer	Pos_060305_non_negative_integer_001
	6.3.6 Long	Pos_060306_long_001
	6.3.7 Unsigned long	Pos_060307_unsigned_long_001
	6.3.8 Int	Pos_060308_int_001
	6.3.9 Unsigned int	Pos_060309_unsigned_int_001
	6.3.10 Short	Pos_060310_short_001
	6.3.11 Unsigned Short	Pos_060311_unsigned_short_001
	6.3.12 Byte	Pos_060312_byte_001
	6.3.13 Unsigned byte	Pos_060313_unsigned_byte_001
	6.4.1 Decimal	Pos_060401_decimal_001
	6.4.2 Float	Pos_060402_float_001
	6.4.3 Double	Pos_060403_double_001
	6.5.2 Date and time	Pos_060502_date_and_time_001 Pos_060502_date_and_time_002 Pos_060502_date_and_time_003 Pos_060502_date_and_time_004
	6.5.4 Date	Pos_060504_date_001 Pos_060504_date_002 Pos_060504_date_003 Pos_060504_date_004
	6.5.5 Gregorian year and month	Pos_060505_gregorian_year_and_month_001 Pos_060505_gregorian_year_and_month_002
	6.5.6 Gregorian year	Pos_060506_gregorian_year_001 Pos_060506_gregorian_year_002 Pos_060506_gregorian_year_003 Pos_060506_gregorian_year_004 Pos_060506_gregorian_year_005 Pos_060506_gregorian_year_006
	6.7 Boolean type	Pos_0607_boolean_type_001 Pos_0607_boolean_type_002

	6.8 AnyType and anySimpleType types	Pos_0608_anynotype_and_anysimpletype_types_001 Pos_0608_anynotype_and_anysimpletype_types_002
7 Mapping XSD components	7.1.1 Id	Pos_070101_id_001 Pos_070101_id_002
	7.1.4 MinOccurs and maxOccurs	Pos_070104_minoccurs_and_maxoccurs_001 Pos_070104_minoccurs_and_maxoccurs_002 Pos_070104_minoccurs_and_maxoccurs_003 Pos_070104_minoccurs_and_maxoccurs_004 Pos_070104_minoccurs_and_maxoccurs_005 Pos_070104_minoccurs_and_maxoccurs_006 Pos_070104_minoccurs_and_maxoccurs_007
	7.1.5 Default and Fixed	Pos_070105_default_and_fixed_001 Pos_070105_default_and_fixed_002 Pos_070105_default_and_fixed_003 Pos_070105_default_and_fixed_004
	7.1.6 Form	Pos_070106_form_001 Pos_070106_form_002 Pos_070106_form_003 Pos_070106_form_004 Pos_070106_form_005 Pos_070106_form_006 Pos_070106_form_007 Pos_070106_form_008
	7.1.7 Type	Pos_070107_type_001 Pos_070107_type_002 Pos_070107_type_003
	7.1.12 Use	Pos_070112_use_001 Pos_070112_use_002 Pos_070112_use_003
	7.1.14 Final	Pos_070114_final_001
	7.3 Element component	Pos_0703_element_component_001 Pos_0703_element_component_002 Pos_0703_element_component_003 Pos_0703_element_component_004
	7.4.1 Attribute element definitions	Pos_070401_attribute_element_definitions_001
	7.4.2 Attribute group definitions	Pos_070402_attribute_group_definitions_001
	7.5.1 Derivation by restriction	Pos_070501_derivation_by_restriction_001
	7.5.2 Derivation by list	Pos_070502_derivation_by_list_001 Pos_070502_derivation_by_list_002 Pos_070502_derivation_by_list_003 Pos_070502_derivation_by_list_004 Pos_070502_derivation_by_list_005
	7.5.3 Derivation by union	Pos_070503_derivation_by_union_001 Pos_070503_derivation_by_union_002 Pos_070503_derivation_by_union_003 Pos_070503_derivation_by_union_004 Pos_070503_derivation_by_union_005 Pos_070503_derivation_by_union_006
	7.6.1.1 Extending simple content	Pos_07060101_extending_simple_content_001
	7.6.1.2 Restricting simple content	Pos_07060102_restricting_simple_content_001
	7.6.2.1 Complex content derived by extension	Pos_07060201_derived_by_extension_001 Pos_07060201_derived_by_extension_002 Pos_07060201_derived_by_extension_003 Pos_07060201_derived_by_extension_004 Pos_07060201_derived_by_extension_005 Pos_07060201_derived_by_extension_006 Pos_07060201_derived_by_extension_007

	Pos_07060201_derived_by_extension_008
	Pos_07060201_derived_by_extension_009
7.6.2.2 Complex content derived by restriction	Pos_07060202_derived_by_restriction_001
7.6.3 Referencing group components	Pos_070603_referencing_group_components_001 Pos_070603_referencing_group_components_002 Pos_070603_referencing_group_components_003 Pos_070603_referencing_group_components_004 Pos_070603_referencing_group_components_005 Pos_070603_referencing_group_components_006 Pos_070603_referencing_group_components_007 Pos_070603_referencing_group_components_008 Pos_070603_referencing_group_components_009 Pos_070603_referencing_group_components_010
7.6.4 All content	Pos_070604_all_content_001 Pos_070604_all_content_002 Pos_070604_all_content_003 Pos_070604_all_content_004
7.6.5 Choice content	Pos_070605_top_level_001 Pos_070605_top_level_002
7.6.5.1 Choice with nested elements	Pos_07060501_choice_with_nested_elements_001
7.6.5.2 Choice with nested group	Pos_07060502_choice_with_nested_group_001
7.6.5.3 Choice with nested choice	Pos_07060503_choice_with_nested_choice_001
7.6.5.4 Choice with nested sequence	Pos_07060504_choice_with_nested_sequence_001 Pos_07060504_choice_with_nested_sequence_002
7.6.5.5 Choice with nested any	Pos_07060505_choice_with_nested_any_001
7.6.6.1 Sequence with nested element content	Pos_07060601_sequence_with_nested_element_001 <a href="https://standards.iteh.ai/catalog/standards/sist/cd9fe67f-7b14-4f64-9393-3061e0a23303">https://standards.iteh.ai/catalog/standards/sist/cd9fe67f-7b14-4f64-9393-3061e0a23303</a>
7.6.6.2 Sequence with nested group content	Pos_07060602_sequence_with_nested_group_001
7.6.6.3 Sequence with nested choice content	Pos_07060603_sequence_with_nested_choice_001
7.6.6.4 Sequence with nested sequence content	Pos_07060604_sequence_with_nested_sequence_001 Pos_07060604_sequence_with_nested_sequence_002
7.6.6.5 Sequence with nested any content	Pos_07060605_sequence_with_nested_any_content_001
7.6.6.6 Effect of the minOccurs and maxOccurs attributes on the mapping	Pos_07060606_effect_of_minoccurs_and_maxoccurs_001 Pos_07060606_effect_of_minoccurs_and_maxoccurs_002 Pos_07060606_effect_of_minoccurs_and_maxoccurs_003 Pos_07060606_effect_of_minoccurs_and_maxoccurs_004
7.6.7 Attribute definitions, attribute and attributeGroup references	Pos_070607_attribute_definitions_attribute_and_attributegroup_references_001 Pos_070607_attribute_definitions_attribute_and_attributegroup_references_002 Pos_070607_attribute_definitions_attribute_and_attributegroup_references_003
7.6.8 Mixed content	Pos_070608_mixed_content_001 Pos_070608_mixed_content_002 Pos_070608_mixed_content_003 Pos_070608_mixed_content_004 Pos_070608_mixed_content_005
7.7.1 The any element	Pos_070701_the_any_element_001 Pos_070701_the_any_element_002 Pos_070701_the_any_element_003 Pos_070701_the_any_element_004 Pos_070701_the_any_element_005

		Pos_070701_the_any_element_006
	7.7.2 The anyAttribute element	Pos_070702_the_anyattribute_element_001
		Pos_070702_the_anyattribute_element_002
		Pos_070702_the_anyattribute_element_003
		Pos_070702_the_anyattribute_element_004
		Pos_070702_the_anyattribute_element_005
	7.8 Annotation	Pos_0708_annotation_001
	7.9 Group components	Pos_0709_group_components_001
		Pos_0709_group_components_002
		Pos_0709_group_components_003
	7.10 Identity-constraint definition schema components	Pos_0710_identity_constraint_definition_schema_components_001
		Pos_0710_identity_constraint_definition_schema_components_002
		Pos_0710_identity_constraint_definition_schema_components_003
8 Substitutions	8.1.1 Head elements of substitution groups	Pos_080101_head_elements_of_substitution_groups_001
		Pos_080101_head_elements_of_substitution_groups_002
		Pos_080101_head_elements_of_substitution_groups_003
A Annex A (normative): TTCN-3 module XSD	Top level	Pos_A_ttcn3_module_xsd_001
		Pos_A_ttcn3_module_xsd_002
		Pos_A_ttcn3_module_xsd_003
		Pos_A_ttcn3_module_xsd_004
		Pos_A_ttcn3_module_xsd_005
		Pos_A_ttcn3_module_xsd_006
		Pos_A_ttcn3_module_xsd_007
		Pos_A_ttcn3_module_xsd_008
		Pos_A_ttcn3_module_xsd_009
		Pos_A_ttcn3_module_xsd_010
		Pos_A_ttcn3_module_xsd_011
		Pos_A_ttcn3_module_xsd_012
		Pos_A_ttcn3_module_xsd_013
		Pos_A_ttcn3_module_xsd_014
		Pos_A_ttcn3_module_xsd_015
		Pos_A_ttcn3_module_xsd_016
		Pos_A_ttcn3_module_xsd_017
		Pos_A_ttcn3_module_xsd_018
		Pos_A_ttcn3_module_xsd_019
		Pos_A_ttcn3_module_xsd_020
		Pos_A_ttcn3_module_xsd_021
		Pos_A_ttcn3_module_xsd_022
		Pos_A_ttcn3_module_xsd_023
		Pos_A_ttcn3_module_xsd_024
		Pos_A_ttcn3_module_xsd_025
		Pos_A_ttcn3_module_xsd_026
		Pos_A_ttcn3_module_xsd_027
		Pos_A_ttcn3_module_xsd_028
		Pos_A_ttcn3_module_xsd_029
		Pos_A_ttcn3_module_xsd_030
		Pos_A_ttcn3_module_xsd_031
		Pos_A_ttcn3_module_xsd_032
		Pos_A_ttcn3_module_xsd_033
		Pos_A_ttcn3_module_xsd_034
		Pos_A_ttcn3_module_xsd_035
		Pos_A_ttcn3_module_xsd_036
		Pos_A_ttcn3_module_xsd_037
		Pos_A_ttcn3_module_xsd_038
		Pos_A_ttcn3_module_xsd_039
		Pos_A_ttcn3_module_xsd_040
		Pos_A_ttcn3_module_xsd_041
		Pos_A_ttcn3_module_xsd_042
		Pos_A_ttcn3_module_xsd_043
		Pos_A_ttcn3_module_xsd_044
		Pos_A_ttcn3_module_xsd_045
		Pos_A_ttcn3_module_xsd_046

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	Pos_A_ttcn3_module_xsd_047
	Pos_A_ttcn3_module_xsd_048

**Table 2: Test suite structure, negative tests**

5 Mapping XML Schemas	Top level	Neg_05_top_level_001
	5.1.3 Imports	Neg_050103_imports_001
6 Built-in data types	6.1.1 Length	Neg_060101_length_001
	6.1.5 Enumeration	Neg_060105_enumeration_001 Neg_060105_enumeration_002
	6.1.9 MinExclusive	Neg_060109_minexclusive_001 Neg_060109_minexclusive_002
	6.1.10 MaxExclusive	Neg_060110_maxexclusive_001
	6.2.12 Any URI	Neg_060212_any_uri_001 Neg_060212_any_uri_002
	6.5.2 Date and time	Neg_060502_date_and_time_001 Neg_060502_date_and_time_002 Neg_060502_date_and_time_003 Neg_060502_date_and_time_004
	6.5.4 Date	Neg_060504_date_001 Neg_060504_date_002 Neg_060504_date_003 Neg_060504_date_004
	6.5.5 Gregorian year and month	Neg_060505_gregorian_year_and_month_001 Neg_060505_gregorian_year_and_month_002 Neg_060505_gregorian_year_and_month_003 Neg_060505_gregorian_year_and_month_004
	6.5.6 Gregorian year	Neg_060506_gregorian_year_001
	7.1.4 MinOccurs and maxOccurs	Neg_070104_minoccurs_and_maxoccurs_001 Neg_070104_minoccurs_and_maxoccurs_002 Neg_070104_minoccurs_and_maxoccurs_003
	7.1.5 Default and Fixed	Neg_070105_default_and_fixed_001
	7.1.12 Use	Neg_070112_use_001
	7.5.2 Derivation by list	Neg_070502_derivation_by_list_001 Neg_070502_derivation_by_list_002
	7.6.1.2 Restricting simple content	Neg_07060102_restricting_simple_content_001
A Annex A (normative): TTCN-3 module XSD	Top level	Neg_A_ttcn3_module_xsd_001 Neg_A_ttcn3_module_xsd_002 Neg_A_ttcn3_module_xsd_003 Neg_A_ttcn3_module_xsd_004 Neg_A_ttcn3_module_xsd_005 Neg_A_ttcn3_module_xsd_006 Neg_A_ttcn3_module_xsd_007 Neg_A_ttcn3_module_xsd_008 Neg_A_ttcn3_module_xsd_009 Neg_A_ttcn3_module_xsd_010 Neg_A_ttcn3_module_xsd_011 Neg_A_ttcn3_module_xsd_012 Neg_A_ttcn3_module_xsd_013 Neg_A_ttcn3_module_xsd_014 Neg_A_ttcn3_module_xsd_015 Neg_A_ttcn3_module_xsd_016 Neg_A_ttcn3_module_xsd_017 Neg_A_ttcn3_module_xsd_018 Neg_A_ttcn3_module_xsd_019 Neg_A_ttcn3_module_xsd_020 Neg_A_ttcn3_module_xsd_021 Neg_A_ttcn3_module_xsd_022 Neg_A_ttcn3_module_xsd_023 Neg_A_ttcn3_module_xsd_024 Neg_A_ttcn3_module_xsd_025 Neg_A_ttcn3_module_xsd_026