



SLOVENSKI STANDARD
SIST ES 201 873-6 V4.13.1:2022

01-julij-2022

Metode za preskušanje in specificiranje (MTS) - 3. različica zapisa preskušanja in krmiljenja preskusov - 6. del: Krmilni vmesnik TTCN-3 (TCI)

Methods for Testing and Specification (MTS) - The Testing and Test Control Notation version 3 - Part 6: TTCN-3 Control Interface (TCI)

iTeh STANDARD
PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: ETSI ES 201 873-6 V4.13.1 (2022-04)

[SIST ES 201 873-6 V4.13.1:2022](https://standards.iteh.ai/catalog/standards/sist/3a40a77b-b6f8-4896-ac98-ed0bbdd162b0/sist-es-201-873-6-v4-13-1-2022)

<https://standards.iteh.ai/catalog/standards/sist/3a40a77b-b6f8-4896-ac98-ed0bbdd162b0/sist-es-201-873-6-v4-13-1-2022>

ICS:

33.040.01	Telekomunikacijski sistemi na splošno	Telecommunication systems in general
-----------	--	---

SIST ES 201 873-6 V4.13.1:2022 **en**

**iTeh STANDARD
PREVIEW
(standards.iteh.ai)**

SIST ES 201 873-6 V4.13.1:2022

<https://standards.iteh.ai/catalog/standards/sist/3a40a77b-b6f8-4896-ac98-ed0bbdd162b0/sist-es-201-873-6-v4-13-1-2022>

ETSI ES 201 873-6 V4.13.1 (2022-04)



**Methods for Testing and Specification (MTS);
The Testing and Test Control Notation version 3;
Part 6: TTCN-3 Control Interface (TCI)**

STANDARD
PREVIEW
(standards.iteh.ai)

[SIST ES 201 873-6 V4.13.1:2022](https://standards.iteh.ai/catalog/standards/sist/3a40a77b-b6f8-4896-ac98-ed0bbdd162b0/sist-es-201-873-6-v4-13-1-2022)
[https://standards.iteh.ai/catalog/standards/sist/3a40a77b-
b6f8-4896-ac98-ed0bbdd162b0/sist-es-201-873-6-v4-
13-1-2022](https://standards.iteh.ai/catalog/standards/sist/3a40a77b-b6f8-4896-ac98-ed0bbdd162b0/sist-es-201-873-6-v4-13-1-2022)

Reference

RES/MTS-201873-6v4.13.1

Keywords

control, interface, methodology, TCI, testing,
TTCN-3**ETSI**

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - APE 7112B
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° w061004871

Important notice

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the prevailing version of an ETSI deliverable is the one made publicly available in PDF format at www.etsi.org/deliver.

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommitteeSupportStaff.aspx>

If you find a security vulnerability in the present document, please report it through our

Coordinated Vulnerability Disclosure Program:

<https://www.etsi.org/standards/coordinated-vulnerability-disclosure>

Notice of disclaimer & limitation of liability

The information provided in the present deliverable is directed solely to professionals who have the appropriate degree of experience to understand and interpret its content in accordance with generally accepted engineering or other professional standard and applicable regulations.

No recommendation as to products and services or vendors is made or should be implied.

No representation or warranty is made that this deliverable is technically accurate or sufficient or conforms to any law and/or governmental rule and/or regulation and further, no representation or warranty is made of merchantability or fitness for any particular purpose or against infringement of intellectual property rights.

In no event shall ETSI be held liable for loss of profits or any other incidental or consequential damages.

Any software contained in this deliverable is provided "AS IS" with no warranties, express or implied, including but not limited to, the warranties of merchantability, fitness for a particular purpose and non-infringement of intellectual property rights and ETSI shall not be held liable in any event for any damages whatsoever (including, without limitation, damages for loss of profits, business interruption, loss of information, or any other pecuniary loss) arising out of or related to the use of or inability to use the software.

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2022.
All rights reserved.

Contents

Intellectual Property Rights	16
Foreword.....	16
Modal verbs terminology.....	16
1 Scope	17
2 References	17
2.1 Normative references	17
2.2 Informative references.....	18
3 Definition of terms, symbols and abbreviations.....	18
3.1 Terms.....	18
3.2 Symbols.....	19
3.3 Abbreviations	19
4 Introduction	20
5 Compliance.....	20
6 General structure of a TTCN-3 test system.....	21
6.1 Entities in a TTCN-3 test system.....	21
6.1.0 Types of entities.....	21
6.1.1 Test Management and Control (TMC).....	22
6.1.1.0 Test Management and Control Entities.....	22
6.1.1.1 Test Management (TM)	22
6.1.1.2 Coding and Decoding (CD).....	23
6.1.1.3 Component Handling (CH).....	23
6.1.1.4 Test Logging (TL).....	24
6.1.2 TTCN-3 Executable (TE)	24
6.1.3 SUT Adaptor (SA).....	24
6.1.4 Platform Adaptor (PA).....	24
6.2 Execution requirements for a TTCN-3 test system.....	24
7 TTCN-3 control interface and operations.....	25
7.1 Overview of the TCI.....	25
7.1.0 TCI role in a TTCN-3 test system.....	25
7.1.1 Correlation between TTCN-3 and TCI operation invocations.....	25
7.1.1.0 Mapping of TTCN-3 operations to TCI operations.....	25
7.1.1.1 TTCN-3 operations with TCI operation equivalent	26
7.1.1.2 TTCN-3 operations with TCI operation pair equivalent	26
7.1.1.3 TTCN-3 operations without direct TCI operation equivalent	27
7.1.1.3.0 Mapping of TTCN-3 operations to series of TCI operations.....	27
7.1.1.3.1 Test case stop operation.....	27
7.2 TCI data.....	27
7.2.0 Abstract data types.....	27
7.2.1 General abstract data types	28
7.2.1.0 Use of general abstract data types	28
7.2.1.1 Management.....	28
7.2.1.2 Communication	29
7.2.2 Abstract TTCN-3 data types and values	29
7.2.2.0 Definition and scope of use.....	29
7.2.2.1 Abstract TTCN-3 data types	29
7.2.2.2 Abstract TTCN-3 values	31
7.2.2.2.0 Basic rules	31
7.2.2.2.1 The abstract data type Value	32
7.2.2.2.2 The abstract data type IntegerValue	35
7.2.2.2.3 The abstract data type FloatValue	35
7.2.2.2.4 The abstract data type BooleanValue	35
7.2.2.2.5 The abstract data type CharstringValue	35

7.2.2.2.6	The abstract data type UniversalCharstringValue.....	36
7.2.2.2.7	The abstract data type BitstringValue.....	36
7.2.2.2.8	The abstract data type OctetstringValue.....	37
7.2.2.2.9	The abstract data type HexstringValue.....	38
7.2.2.2.10	The abstract data type RecordValue.....	39
7.2.2.2.11	The abstract data type RecordOfValue.....	39
7.2.2.2.12	The abstract data type UnionValue.....	41
7.2.2.2.13	The abstract data type EnumeratedValue.....	41
7.2.2.2.14	The abstract data type VerdictValue.....	41
7.2.2.2.15	The abstract data type AddressValue.....	42
7.2.2.3	Abstract TTCN-3 matching mechanisms.....	42
7.2.2.3.1	The abstract data type MatchingMechanism.....	42
7.2.2.3.2	The abstract data type MatchingList.....	42
7.2.2.3.3	The abstract data type ValueRange.....	43
7.2.2.3.4	The abstract data type CharacterPattern.....	43
7.2.2.3.5	The abstract data type MatchDecodedContent.....	44
7.2.2.4	Data types for complex TTCN-3 properties.....	44
7.2.2.4.0	Scope of use of TTCN-3 properties.....	44
7.2.2.4.1	The abstract data type LengthRestriction.....	44
7.2.2.4.2	The abstract data type Permutation.....	44
7.2.2.4.3	The abstract data type RangeBoundary.....	45
7.2.3	Abstract logging types.....	45
7.2.3.1	The abstract data type TciValueTemplate.....	45
7.2.3.2	The abstract data type TciNonValueTemplate.....	45
7.2.3.3	The Value List and Mismatch Types.....	46
7.2.3.4	The Status Types.....	46
7.3	TCI operations.....	47
7.3.0	The TCI interfaces.....	47
7.3.1	The TCI-TM interface.....	48
7.3.1.0	Scope of use.....	48
7.3.1.1	TCI-TM required.....	48
7.3.1.1.0	Scope of use.....	48
7.3.1.1.1	tciRootModule.....	48
7.3.1.1.2	tciGetImportedModules.....	49
7.3.1.1.3	tciGetModuleParameters.....	49
7.3.1.1.4	tciGetTestCases.....	49
7.3.1.1.5	tciGetTestCaseParameters.....	49
7.3.1.1.6	tciGetTestCaseTSI.....	49
7.3.1.1.7	tciStartTestCase.....	50
7.3.1.1.8	tciStopTestCase.....	50
7.3.1.1.9	tciStartControl.....	50
7.3.1.1.10	tciStopControl.....	50
7.3.1.1.11	tciGetControlParameters.....	51
7.3.1.1.12	tciStartControlWithParameters.....	51
7.3.1.2	TCI-TM provided.....	51
7.3.1.2.0	Scope of use.....	51
7.3.1.2.1	tciTestCaseStarted.....	51
7.3.1.2.2	tciTestCaseTerminated.....	52
7.3.1.2.3	tciControlTerminated.....	52
7.3.1.2.4	tciGetModulePar.....	52
7.3.1.2.5	tciLog.....	52
7.3.1.2.6	tciError.....	53
7.3.1.2.7	tciControlTerminatedWithResult.....	53
7.3.2	The TCI-CD interface.....	53
7.3.2.0	Scope of use.....	53
7.3.2.1	TCI-CD required.....	54
7.3.2.1.0	Scope of use.....	54
7.3.2.1.1	getTypeForName.....	54
7.3.2.1.2	getInteger.....	54
7.3.2.1.3	getFloat.....	54

7.3.2.1.4	getBoolean.....	54
7.3.2.1.5	Void.....	55
7.3.2.1.6	getCharstring.....	55
7.3.2.1.7	getUniversalCharstring.....	55
7.3.2.1.8	getHexstring.....	55
7.3.2.1.9	getBitstring.....	55
7.3.2.1.10	getOctetstring.....	55
7.3.2.1.11	getVerdict.....	55
7.3.2.1.12	tciErrorReq.....	55
7.3.2.2	TCI-CD provided.....	55
7.3.2.2.0	Scope of use.....	55
7.3.2.2.1	decode.....	56
7.3.2.2.2	encode.....	56
7.3.2.2.3	decodeValue.....	56
7.3.2.2.4	encodeValue.....	57
7.3.3	The TCI-CH interface.....	57
7.3.3.0	Scope of use.....	57
7.3.3.1	TCI-CH required.....	58
7.3.3.1.0	Scope of use.....	58
7.3.3.1.1	tciEnqueueMsgConnected.....	58
7.3.3.1.2	tciEnqueueCallConnected.....	58
7.3.3.1.3	tciEnqueueReplyConnected.....	59
7.3.3.1.4	tciEnqueueRaiseConnected.....	59
7.3.3.1.5	tciCreateTestComponent.....	59
7.3.3.1.6	tciStartTestComponent.....	60
7.3.3.1.7	tciStopTestComponent.....	60
7.3.3.1.8	tciConnect.....	60
7.3.3.1.9	tciDisconnect.....	60
7.3.3.1.10	tciMap.....	61
7.3.3.1.11	tciMapParam.....	61
7.3.3.1.12	tciUnmap.....	61
7.3.3.1.13	tciUnmapParam.....	61
7.3.3.1.14	tciTestComponentTerminated.....	62
7.3.3.1.15	tciTestComponentRunning.....	62
7.3.3.1.16	tciTestComponentDone.....	62
7.3.3.1.17	tciGetMTC.....	62
7.3.3.1.18	tciExecuteTestCase.....	63
7.3.3.1.19	tciReset.....	63
7.3.3.1.20	tciKillTestComponent.....	63
7.3.3.1.21	tciTestComponentAlive.....	63
7.3.3.1.22	tciTestComponentKilled.....	64
7.3.3.1.23	tciCallTestComponent.....	64
7.3.3.1.24	tciTestComponentCallTerminated.....	64
7.3.3.2	TCI-CH provided.....	65
7.3.3.2.0	Scope of use.....	65
7.3.3.2.1	tciSendConnected.....	65
7.3.3.2.2	tciSendConnectedBC.....	65
7.3.3.2.3	tciSendConnectedMC.....	65
7.3.3.2.4	tciCallConnected.....	66
7.3.3.2.5	tciCallConnectedBC.....	66
7.3.3.2.6	tciCallConnectedMC.....	67
7.3.3.2.7	tciReplyConnected.....	67
7.3.3.2.8	tciReplyConnectedBC.....	68
7.3.3.2.9	tciReplyConnectedMC.....	68
7.3.3.2.10	tciRaiseConnected.....	69
7.3.3.2.11	tciRaiseConnectedBC.....	69
7.3.3.2.12	tciRaiseConnectedMC.....	69
7.3.3.2.13	tciCreateTestComponentReq.....	70
7.3.3.2.14	tciStartTestComponentReq.....	70
7.3.3.2.15	tciStopTestComponentReq.....	70
7.3.3.2.16	tciConnectReq.....	70
7.3.3.2.17	tciDisconnectReq.....	71

STANDARD
PREVIEW
(standards.iteh.ai)

SIST ES 201 873-6 V4.13.1:2022

<https://standards.iteh.ai/catalog/standards/sist/3a40a77b->

[4896-ac98-ed0bbdd162b0/sist-es-201-873-6-v4-](https://standards.iteh.ai/catalog/standards/sist/3a40a77b-4896-ac98-ed0bbdd162b0/sist-es-201-873-6-v4-)

13-1-2022

7.3.3.2.18	tciMapReq	71
7.3.3.2.19	tciMapParamReq	71
7.3.3.2.20	tciUnmapReq	71
7.3.3.2.21	tciUnmapParamReq	72
7.3.3.2.22	tciTestComponentTerminatedReq	72
7.3.3.2.23	tciTestComponentRunningReq	72
7.3.3.2.24	tciTestComponentDoneReq	72
7.3.3.2.25	tciGetMTCReq	72
7.3.3.2.26	tciExecuteTestCaseReq	73
7.3.3.2.27	tciResetReq	73
7.3.3.2.28	tciKillTestComponentReq	73
7.3.3.2.29	tciTestComponentAliveReq	73
7.3.3.2.30	tciTestComponentKilledReq	73
7.3.3.2.31	tciCallTestComponentReq	74
7.3.3.2.32	tciTestComponentCallTerminatedReq	74
7.3.4	The TCI-TL interface.....	75
7.3.4.0	Scope of use	75
7.3.4.1	TCI-TL provided.....	75
7.3.4.1.0	Scope of use.....	75
7.3.4.1.1	tliTcExecute.....	75
7.3.4.1.2	tliTcStart	76
7.3.4.1.3	tliTcStop	76
7.3.4.1.4	tliTcStarted	76
7.3.4.1.5	tliTcTerminated	77
7.3.4.1.6	tliCtrlStart	77
7.3.4.1.7	tliCtrlStop	77
7.3.4.1.8	tliCtrlTerminated	78
7.3.4.1.9	tliMSend_m.....	78
7.3.4.1.10	tliMSend_m_BC.....	79
7.3.4.1.11	tliMSend_m_MC.....	79
7.3.4.1.12	tliMSend_c	80
7.3.4.1.13	tliMSend_c_BC.....	80
7.3.4.1.14	tliMSend_c_MC.....	80
7.3.4.1.15	tliMDetected_m.....	81
7.3.4.1.16	tliMDetected_c.....	81
7.3.4.1.17	tliMMismatch_m.....	81
7.3.4.1.18	tliMMismatch_c	82
7.3.4.1.19	tliMReceive_m.....	82
7.3.4.1.20	tliMReceive_c	83
7.3.4.1.21	tliPrCall_m	83
7.3.4.1.22	tliPrCall_m_BC.....	84
7.3.4.1.23	tliPrCall_m_MC.....	84
7.3.4.1.24	tliPrCall_c.....	85
7.3.4.1.25	tliPrCall_c_BC.....	85
7.3.4.1.26	tliPrCall_c_MC.....	86
7.3.4.1.27	tliPrGetCallDetected_m.....	86
7.3.4.1.28	tliPrGetCallDetected_c.....	87
7.3.4.1.29	tliPrGetCallMismatch_m.....	87
7.3.4.1.30	tliPrGetCallMismatch_c	88
7.3.4.1.31	tliPrGetCall_m.....	88
7.3.4.1.32	tliPrGetCall_c	89
7.3.4.1.33	tliPrReply_m	89
7.3.4.1.34	tliPrReply_m_BC.....	90
7.3.4.1.35	tliPrReply_m_MC.....	90
7.3.4.1.36	tliPrReply_c.....	91
7.3.4.1.37	tliPrReply_c_BC.....	91
7.3.4.1.38	tliPrReply_c_MC.....	92
7.3.4.1.39	tliPrGetReplyDetected_m.....	92
7.3.4.1.40	tliPrGetReplyDetected_c.....	93
7.3.4.1.41	tliPrGetReplyMismatch_m.....	93
7.3.4.1.42	tliPrGetReplyMismatch_c	94
7.3.4.1.43	tliPrGetReply_m.....	94

iTech STANDARD
PREVIEW
(standards.iteh.ai)

<https://standards.iteh.ai/catalog/standards/sist/3a40a77b-1c68-7806-ac98-ed0bbdd162b0/sist-es-201-873-6-v4-13-1-2022>

7.3.4.1.44	tliPrGetReply_c	95
7.3.4.1.45	tliPrRaise_m	95
7.3.4.1.46	tliPrRaise_m_BC	96
7.3.4.1.47	tliPrRaise_m_MC	96
7.3.4.1.48	tliPrRaise_c	97
7.3.4.1.49	tliPrRaise_c_BC	97
7.3.4.1.50	tliPrRaise_c_MC	98
7.3.4.1.51	tliPrCatchDetected_m	98
7.3.4.1.52	tliPrCatchDetected_c	99
7.3.4.1.53	tliPrCatchMismatch_m	99
7.3.4.1.54	tliPrCatchMismatch_c	100
7.3.4.1.55	tliPrCatch_m	100
7.3.4.1.56	tliPrCatch_c	101
7.3.4.1.57	tliPrCatchTimeoutDetected	101
7.3.4.1.58	tliPrCatchTimeout	101
7.3.4.1.59	tliCCreate	102
7.3.4.1.60	tliCStart	102
7.3.4.1.61	tliCRunning	102
7.3.4.1.62	tliCAlive	103
7.3.4.1.63	tliCStop	103
7.3.4.1.64	tliCKill	103
7.3.4.1.65	tliCDoneMismatch	104
7.3.4.1.66	tliCDone	104
7.3.4.1.67	tliCKilledMismatch	104
7.3.4.1.68	tliCKilled	105
7.3.4.1.69	tliCTerminated	105
7.3.4.1.70	tliPConnect	105
7.3.4.1.71	tliPDisconnect	106
7.3.4.1.72	tliPMap	106
7.3.4.1.73	tliPMapParam	106
7.3.4.1.74	tliPUnmap	107
7.3.4.1.75	tliPUnmapParam	107
7.3.4.1.76	tliPClear	107
7.3.4.1.77	tliPStart	108
7.3.4.1.78	tliPStop	108
7.3.4.1.79	tliPHalt	108
7.3.4.1.80	tliEncode	109
7.3.4.1.81	tliDecode	109
7.3.4.1.82	tliTTimeoutDetected	109
7.3.4.1.83	tliTTimeoutMismatch	110
7.3.4.1.84	tliTTimeout	110
7.3.4.1.85	tliTStart	110
7.3.4.1.86	tliTStop	111
7.3.4.1.87	tliTRead	111
7.3.4.1.88	tliTRunning	111
7.3.4.1.89	tliSEnter	112
7.3.4.1.90	tliSLeave	112
7.3.4.1.91	tliVar	112
7.3.4.1.92	tliModulePar	113
7.3.4.1.93	tliGetVerdict	113
7.3.4.1.94	tliSetVerdict	113
7.3.4.1.95	tliLog	114
7.3.4.1.96	tliAEnter	114
7.3.4.1.97	tliALeave	114
7.3.4.1.98	tliANomatch	114
7.3.4.1.99	tliARepeat	115
7.3.4.1.100	tliADefaults	115
7.3.4.1.101	tliAActivate	115
7.3.4.1.102	tliADeactivate	116
7.3.4.1.103	tliAWait	116
7.3.4.1.104	tliAction	116
7.3.4.1.105	tliMatch	116

**ITeH STANDARD
PREVIEW
(standards.iteh.ai)**

[SIST ES 201 873-6 V4.13.1:2022](https://standards.iteh.ai/catalog/standards/sist/3a40a77b-6f8-4896-ac98-ed0bbdd162b0/sist-es-201-873-6-v4-13-1-2022)

<https://standards.iteh.ai/catalog/standards/sist/3a40a77b-6f8-4896-ac98-ed0bbdd162b0/sist-es-201-873-6-v4-13-1-2022>

7.3.4.1.106	tliMatchMismatch.....	117
7.3.4.1.107	tliInfo.....	117
7.3.4.1.108	tliMChecked_m.....	117
7.3.4.1.109	tliMChecked_c.....	118
7.3.4.1.110	tliPrGetCallChecked_m.....	118
7.3.4.1.111	tliPrGetCallChecked_c.....	119
7.3.4.1.112	tliPrGetReplyChecked_m.....	119
7.3.4.1.113	tliPrGetReplyChecked_c.....	120
7.3.4.1.114	tliPrCatchChecked_m.....	120
7.3.4.1.115	tliPrCatchChecked_c.....	121
7.3.4.1.116	tliCheckedAny_m.....	121
7.3.4.1.117	tliCheckedAny_c.....	122
7.3.4.1.118	tliCheckAnyMismatch_m.....	122
7.3.4.1.119	tliCheckAnyMismatch_c.....	122
7.3.4.1.120	tliRnd.....	123
7.3.4.1.121	tliEvaluate.....	123
7.3.4.1.122	tliCCall.....	123
7.3.4.1.123	tliCCallTerminated.....	124
7.3.4.1.124	tliCtrlStartWithParameters.....	124
7.3.4.1.125	tliCtrlTerminatedWithResult.....	124
8	Java™ language mapping.....	125
8.1	Introduction.....	125
8.2	Names and scopes.....	125
8.2.1	Names.....	125
8.2.2	Scopes.....	125
8.3	Type mapping.....	125
8.3.1	Basic type mapping.....	125
8.3.2	Structured type mapping.....	126
8.3.2.0	General principles.....	126
8.3.2.1	TciParameterType.....	126
8.3.2.2	TciParameterPassingModeType.....	127
8.3.2.3	TciParameterListType.....	127
8.3.2.4	TciTypeClassType.....	127
8.3.2.5	TciTestComponentKindType.....	128
8.3.2.6	TciBehaviourIdType.....	128
8.3.2.7	TciTestIdType.....	128
8.3.2.8	TciModuleIdType.....	128
8.3.2.9	TciModuleParameterIdType.....	128
8.3.2.10	TciModuleParameterListType.....	129
8.3.2.11	TciModuleParameterType.....	129
8.3.2.12	TciParameterTypeListType.....	129
8.3.2.13	TciParameterTypeType.....	130
8.3.2.14	TciModuleIdListType.....	130
8.3.2.15	TciTestIdListType.....	130
8.3.2.16	TciDecodingResult.....	131
8.3.2.17	TciMatchingTypeType.....	131
8.3.2.18	LengthRestriction.....	131
8.3.2.19	Permutation.....	132
8.3.2.20	RangeBoundary.....	132
8.3.3	Abstract type mapping.....	133
8.3.3.0	General principles.....	133
8.3.3.1	Type.....	133
8.3.4	Abstract value mapping.....	134
8.3.4.0	General principles.....	134
8.3.4.1	Value.....	134
8.3.4.2	IntegerValue.....	135
8.3.4.3	FloatValue.....	136
8.3.4.4	BooleanValue.....	136
8.3.4.5	CharstringValue.....	136
8.3.4.6	BitstringValue.....	137
8.3.4.7	OctetstringValue.....	138

iTech STANDARD
PREVIEW
(standards.iteh.ai)

SIST ES 201 873-6 V4.13.1:2022

<https://standards.iteh.ai/catalog/standards/sist/3a40a77h-96-ac-98-ed0bbdd162b0/sist-es-201-873-6-v4-13-1-2022>

13-1-2022

8.3.4.8	UniversalCharstringValue	139
8.3.4.9	HexstringValue	140
8.3.4.10	RecordValue	141
8.3.4.11	RecordOfValue	141
8.3.4.12	UnionValue	142
8.3.4.13	EnumeratedValue	143
8.3.4.14	VerdictValue	143
8.3.4.15	AddressValue	144
8.3.5	Abstract template mapping	144
8.3.5.0	General principles	144
8.3.5.1	MatchingMechanism	144
8.3.5.2	MatchingList	144
8.3.5.3	ValueRange	145
8.3.5.4	CharacterPattern	145
8.3.5.5	MatchDecodedContent	145
8.3.6	Abstract logging types mapping	146
8.3.6.0	General principles	146
8.3.6.1	TciValueTemplate	146
8.3.6.2	TciNonValueTemplate	146
8.3.6.3	TciValueList	147
8.3.6.4	TciValueDifference	147
8.3.6.5	TciValueDifferenceList	147
8.3.6.6	ComponentStatus	148
8.3.6.7	TimerStatus	148
8.3.6.8	TciStatus	148
8.4	Constants	148
8.5	Mapping of interfaces	150
8.5.0	Calling rules	150
8.5.1	The TCI-TM interface	150
8.5.1.1	TCI-TM provided	150
8.5.1.2	TCI-TM required	150
8.5.2	The TCI-CD interface	151
8.5.2.1	TCI-CD provided	151
8.5.2.2	TCI-CD required	151
8.5.3	The TCI-CH interface	151
8.5.3.1	TCI-CH provided	151
8.5.3.2	TCI-CH required	153
8.5.4	The TCI-TL interface	154
8.5.4.1	TCI-TL provided	154
8.6	Optional parameters	158
8.7	TCI initialization	158
8.8	Error handling	158
9	ANSI C language mapping	159
9.1	Introduction	159
9.2	Value interfaces	159
9.3	Logging interface	164
9.4	Operation interfaces	165
9.4.1	The TCI-TM interface	165
9.4.1.1	TCI-TM provided	165
9.4.1.2	TCI-TM required	165
9.4.2	The TCI-CD interface	166
9.4.2.1	TCI-CD provided	166
9.4.2.2	TCI-CD required	166
9.4.3	The TCI-CH interface	166
9.4.3.1	TCI-CH provided	166
9.4.3.2	TCI-CH required	167
9.4.4	The TCI-TL interface	167
9.4.4.1	TCI-TL provided	167
9.5	Data	173
9.6	Miscellaneous	174
9.7	Optional parameters	175

iTech STANDARD
PREVIEW
(standards.iteh.ai)

SIST ES 201 873-6 V4.13.1:2022
<https://standards.iteh.ai/catalog/standards/sist/3a40a77b-16f8-4896-ac98-ed0bbdd162b0/sist-es-201-873-6-v4-13-1-2022>

10	C++ language mapping	175
10.1	Introduction	175
10.2	Names and scopes	175
10.3	Memory management.....	176
10.4	Error handling	176
10.5	Type mapping.....	176
10.5.0	Basic concepts	176
10.5.1	Encapsulated C++ types.....	176
10.5.2	General abstract data types	176
10.5.2.1	TciBehaviourId	176
10.5.2.2	TciModuleId.....	177
10.5.2.3	TciModuleParameterId	177
10.5.2.4	TciTestCaseId	177
10.5.2.5	TciModuleIdList	178
10.5.2.6	TciModuleParameter	178
10.5.2.7	TciModuleParameterList.....	179
10.5.2.8	TciParameterPassingMode.....	179
10.5.2.9	TciParameter	180
10.5.2.10	TciParameterList	180
10.5.2.11	TciParameterType	181
10.5.2.12	TciParameterTypeList.....	181
10.5.2.13	TciTestComponentKind.....	182
10.5.2.14	TciTypeClass	182
10.5.2.15	TciTestCaseIdList	182
10.5.2.16	TciMatchingTypeType.....	183
10.5.2.17	LengthRestriction.....	183
10.5.2.18	Permutation	184
10.5.2.19	RangeBoundary.....	184
10.5.3	Abstract TTCN-3 data types and values	185
10.5.3.1	TciType	185
10.5.3.2	TciValue.....	186
10.5.3.3	IntegerValue.....	187
10.5.3.4	FloatValue	188
10.5.3.5	BooleanValue	188
10.5.3.6	CharstringValue	189
10.5.3.7	UniversalCharstringValue	189
10.5.3.8	BitstringValue	190
10.5.3.9	OctetstringValue	191
10.5.3.10	HexstringValue	191
10.5.3.11	RecordValue.....	192
10.5.3.12	RecordOfValue	193
10.5.3.13	UnionValue	194
10.5.3.14	EnumeratedValue.....	194
10.5.3.15	VerdictValue	195
10.5.3.16	VerdictValueEnum.....	195
10.5.3.17	AddressValue	195
10.5.3.18	MatchingMechanism.....	196
10.5.3.19	MatchingList	196
10.5.3.20	ValueRange	197
10.5.3.21	CharacterPattern.....	197
10.5.3.22	MatchDecodedContent.....	198
10.5.4	Abstract logging types	198
10.5.4.1	TciValueTemplate.....	198
10.5.4.2	TciNonValueTemplate	199
10.5.4.3	TciValueList.....	199
10.5.4.4	TciValueDifference	200
10.5.4.5	TciValueDifferenceList.....	200
10.5.4.6	ComponentStatus	201
10.5.4.7	TimerStatus	201
10.5.4.8	TciStatus	201
10.6	Operations mapping	201
10.6.1	TCI-TM	201

ITeCh STANDARD
PREVIEW
(standards.iteh.ai)

SIST ES 201 873-6 V4.13.1:2022

<https://standards.iteh.ai/catalog/standards/sist/3a40a77b->

[6618-4896-ac98-ed0bbdd162b0/sist-es-201-873-6-v4-](https://standards.iteh.ai/catalog/standards/sist/3a40a77b-6618-4896-ac98-ed0bbdd162b0/sist-es-201-873-6-v4-)

13-1-2022

10.6.1.1	TciTmRequired	201
10.6.1.2	TciTmProvided	202
10.6.2	TCI-CD	202
10.6.2.1	TciCdRequired	202
10.6.2.2	TciCdProvided	203
10.6.3	TCI-CH	203
10.6.3.1	TciChRequired	203
10.6.3.2	TciChProvided	205
10.6.4	TCI-TL	207
10.6.4.1	TciTlProvided	207
11	W3C XML mapping	215
11.1	Introduction	215
11.2	Scopes	215
11.3	Type mapping	216
11.3.1	Mapping of simple types	216
11.3.1.1	TBoolean	216
11.3.1.2	TString	216
11.3.1.3	TInteger	216
11.3.1.4	TriTimerDurationType	216
11.3.1.5	TciParameterPassingModeType	216
11.3.1.6	TriStatusType	216
11.3.1.7	TciStatusType	216
11.3.1.8	ComponentStatusType	216
11.3.1.9	TimerStatusType	216
11.3.1.10	PortStatusType	216
11.3.2	Complex type mapping	217
11.3.2.1	TriPortIdType	217
11.3.2.2	TriComponentIdType	217
11.3.2.3	TriComponentIdListType	217
11.3.2.4	Port	218
11.3.2.5	Id	218
11.3.2.6	TriMessageType	218
11.3.2.7	TriParameterType	219
11.3.2.8	TriParameterListType	219
11.3.2.9	TriAddressType	219
11.3.2.10	TriAddressListType	220
11.3.2.11	TriExceptionType	220
11.3.2.12	TriSignatureIdType	220
11.3.2.13	TriTimerIdType	221
11.3.2.14	TriTimerDurationType	221
11.3.2.15	QualifiedName	221
11.3.2.16	TciBehaviourIdType	221
11.3.2.17	TciTestCaseIdType	222
11.3.2.18	TciParameterType	222
11.3.2.19	TciParameterListType	222
11.3.2.20	TriPortIdListType	222
11.3.3	Abstract value mapping	223
11.3.3.1	Value	223
11.3.3.2	IntegerValue	225
11.3.3.3	FloatValue	225
11.3.3.4	BooleanValue	225
11.3.3.5	Void	226
11.3.3.6	VerdictValue	226
11.3.3.7	BitstringValue	226
11.3.3.8	HexstringValue	226
11.3.3.9	OctetstringValue	226
11.3.3.10	CharstringValue	227
11.3.3.11	UniversalCharstringValue	227
11.3.3.12	RecordValue	227
11.3.3.13	RecordOfValue	228
11.3.3.14	ArrayValue	229

iTech STANDARD
PREVIEW
(standards.iteh.ai)

SIST ES 201 873-6 V4.13.1:2022

[standards.iteh.ai/catalog/standards/sist/3a40a77h-](https://standards.iteh.ai/catalog/standards/sist/3a40a77h-4896-ac98-ed0bdd162b0/sist-es-201-873-6-v4-13-1-2022)

[4896-ac98-ed0bdd162b0/sist-es-201-873-6-v4-](https://standards.iteh.ai/catalog/standards/sist/3a40a77h-4896-ac98-ed0bdd162b0/sist-es-201-873-6-v4-13-1-2022)

13-1-2022

11.3.3.15	SetValue	230
11.3.3.16	SetOfValue	230
11.3.3.17	EnumeratedValue	230
11.3.3.18	UnionValue	231
11.3.3.19	AnytypeValue	231
11.3.3.20	AddressValue	232
11.3.3.21	ComponentValue	232
11.3.3.22	PortValue	232
11.3.3.23	DefaultValue	233
11.3.3.24	TimerValue	233
11.3.3.25	MatchingMechanism	233
11.3.3.26	MatchingList	234
11.3.3.27	ValueRange	234
11.3.3.28	CharacterPattern	235
11.3.3.29	MatchDecodedContent	235
11.3.4	Abstract logging types mapping	235
11.3.4.1	TciValueTemplate	235
11.3.4.2	TciNonValueTemplate	237
11.3.4.3	TciValueList	237
11.3.4.4	TciValueDifference	238
11.3.4.5	TciValueDifferenceList	238
11.4	Mapping of the operations on the logging interface	238
11.4.0	Mapping rules	238
11.4.1	Event	238
11.4.2	The TCI-TL interface	239
11.4.2.1	TCI-TL provided	239
12	C# mapping	261
12.1	Introduction	261
12.2	Names and scopes	261
12.2.1	Names	261
12.2.2	Scopes	262
12.3	Null value mapping	262
12.4	Type mapping	262
12.4.1	Basic type mapping	262
12.4.1.0	Mapped types	262
12.4.1.1	TciVerdict	263
12.4.2	Structured type mapping	263
12.4.2.0	Mapping rules	263
12.4.2.1	TciParameterPassingModeType	263
12.4.2.2	TciParameterType	263
12.4.2.3	TciParameterListType	263
12.4.2.4	TciTypeClassType	264
12.4.2.5	TciTestComponentKindType	264
12.4.2.6	TciBehaviourIdType	264
12.4.2.7	TciTestCaseIdType	265
12.4.2.8	TciTestCaseIdListType	265
12.4.2.9	TciModuleIdType	265
12.4.2.10	TciModuleIdListType	265
12.4.2.11	TciModuleParameterIdType	266
12.4.2.12	TciModuleParameterType	266
12.4.2.13	TciModuleParameterListType	266
12.4.2.14	TciParameterTypeType	266
12.4.2.15	TciParameterTypeListType	267
12.4.2.16	TciMatchingTypeType	267
12.4.2.17	LengthRestriction	267
12.4.2.18	Permutation	268
12.4.2.19	RangeBoundary	268
12.4.3	Abstract type mapping	268
12.4.3.0	Mapping rules	268
12.4.3.1	Type	268
12.4.4	Abstract value mapping	270

ITeH STANDARD
PREVIEW
(standards.iteh.ai)

[SIST ES 201 873-6 V4.13.1:2022](https://standards.iteh.ai/catalog/standards/sist/3a40a77h-18-4896-ac98-ed0bdd162b0/sist-es-201-873-6-v4-13-1-2022)

[standards.iteh.ai/catalog/standards/sist/3a40a77h-](https://standards.iteh.ai/catalog/standards/sist/3a40a77h-18-4896-ac98-ed0bdd162b0/sist-es-201-873-6-v4-13-1-2022)

[18-4896-ac98-ed0bdd162b0/sist-es-201-873-6-v4-](https://standards.iteh.ai/catalog/standards/sist/3a40a77h-18-4896-ac98-ed0bdd162b0/sist-es-201-873-6-v4-13-1-2022)

13-1-2022

12.4.4.0	Mapping rules	270
12.4.4.1	Value	270
12.4.4.2	IntegerValue	271
12.4.4.3	FloatValue	272
12.4.4.4	BooleanValue	272
12.4.4.5	CharstringValue	272
12.4.4.6	BitstringValue	273
12.4.4.7	OctetstringValue	274
12.4.4.8	UniversalCharstringValue	274
12.4.4.9	HexstringValue	275
12.4.4.10	RecordValue	276
12.4.4.11	RecordOfValue	276
12.4.4.12	UnionValue	278
12.4.4.13	EnumeratedValue	278
12.4.4.14	VerdictValue	278
12.4.4.15	AddressValue	279
12.4.5	Abstract template mapping	279
12.4.5.0	Mapping rules	279
12.4.5.1	MatchingMechanism	279
12.4.5.2	MatchingList	279
12.4.5.3	ValueRange	280
12.4.5.4	CharacterPattern	280
12.4.5.5	MatchDecodedContent	280
12.4.6	Abstract logging types mapping	280
12.4.6.0	Mapping rules	280
12.4.6.1	TciValueTemplate	281
12.4.6.2	TciNonValueTemplate	281
12.4.6.3	TciValueList	281
12.4.6.4	TciValueDifference	282
12.4.6.5	TciValueDifferenceList	282
12.4.6.6	TciStatusType	282
12.4.6.7	ComponentStatusType	283
12.4.6.8	TimerStatusType	283
12.5	Mapping of interfaces	283
12.5.0	Calling rules	283
12.5.1	TCI-TM interface	283
12.5.1.1	TCI-TM provided	283
12.5.1.2	TCI-TM required	284
12.5.2	TCI-CD interface	284
12.5.2.1	TCI-CD provided	284
12.5.2.2	TCI-CD required	284
12.5.3	TCI-CH interface	285
12.5.3.1	TCI-CH provided	285
12.5.3.2	TCI-CH required	286
12.5.4	TCI-TL interface	286
12.5.4.1	TCI-TL provided	286
12.6	Optional parameters	293
12.7	Error Handling	293
Annex A (normative):	IDL Specification of TCI	294
Annex B (normative):	XML Mapping for TCI TL Provided	312
B.0	Introduction	312
B.1	TCI-TL XML Schema for Simple Types	312
B.2	TCI-TL XML Schema for Types	313
B.3	TCI-TL XML Schema for Values	315
B.4	TCI-TL XML Schema for Templates	319
B.5	TCI-TL XML Schema for Events	322