ETSI TS 104 018-3 V2.1.1 (2025-07)

TECHNICAL SPECIFICATION

Intelligent Transport Systems (ITS);
Testing;
Conformance test specifications for
Vulnerable Road Users (VRU) awareness service;
Part 3: Abstract Test Suite (ATS) and
Protocol Implementation eXtra Information for Testing (PIXIT);
Release 2

Reference
DTS/ITS-001977

Keywords
ATS, ITS, PIXIT, testing

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Intelligent Transport Systems (ITS).

The present document is part 3 of a multi-part deliverable. Full details of the entire series can be found in part 1 [2].

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 present document contains the Abstract Test Suite (ATS) for Vulnerable Road Users (VRU) Awareness Basic Service as defined in ETSI TS 103 300-3 [1] in compliance with the relevant requirements and in accordance with the relevant guidance given in ISO/IEC 9646-7 [i.7].

The objective of the present document is to provide a basis for conformance tests for Vulnerable Road Users (VRU) Awareness Basic Service equipment giving a high probability of interoperability between different manufacturers' equipment.

The ISO standards for the methodology of conformance testing (ISO/IEC 9646-1 [i.4] and ISO/IEC 9646-2 [i.5]) as well as the ETSI rules for conformance testing (ETSI ETS 300 406 [i.8]) are used as a basis for the test methodology.

The development of ITS test specifications follows the guidance provided in the ETSI EG 202 798 [i.1]. Therefore, the ATS documentation outlined in the present document is also based on the guidance provided in ETSI EG 202 798 [i.1].

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 referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found in the ETSI docbox.

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

[1] ETSI TS 103 300-3 (V2.2.1): "Intelligent Transport Systems (ITS); Vulnerable Road Users (VRU) awareness; Part 3: Specification of VRU awareness basic service; Release 2".

[2] ETSI TS 104 018-1 (V2.1.1): "Intelligent Transport Systems (ITS); Testing; Conformance test specifications for Vulnerable Road Users (VRU) awareness service; Part 1: Test requirements and Protocol Implementation Conformance Statement (PICS) pro forma; Release 2".

[3] ETSI TS 104 018-2 (V2.1.1): "Intelligent Transport Systems (ITS); Testing; Conformance test specifications for Vulnerable Road Users (VRU) awareness service; Part 2: Test Suite Structure and Test Purposes (TSS & TP); Release 2".

[4] ETSI TS 102 894-2 (V2.3.1): "Intelligent Transport Systems (ITS); Users and applications requirements; Part 2: Applications and facilities layer common data dictionary; Release 2".

2.2 Informative 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 referenced document (including any amendments) applies.

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The following referenced documents may be useful in implementing an ETSI deliverable or add to the reader's understanding, but are not required for conformance to the present document.

[i.1] ETSI EG 202 798 (V1.1.1): "Intelligent Transport Systems (ITS); Testing; Framework for conformance and interoperability testing".

[i.2] ETSI TS 103 096-3 (V1.3.1): "Intelligent Transport Systems (ITS); Testing; Conformance test specifications for ITS Security; Part 3: Abstract Test Suite (ATS) and Protocol Implementation eXtra Information for Testing (PIXIT)".

[i.3] ETSI TR 103 099 (V1.4.1): "Intelligent Transport Systems (ITS); Architecture of conformance validation framework".

[i.4] ISO/IEC 9646-1 (1994): "Information technology — Open Systems Interconnection — Conformance testing methodology and framework — Part 1: General concepts".

[i.5] ISO/IEC 9646-2 (1994): "Information technology — Open Systems Interconnection — Conformance testing methodology and framework — Part 2: Abstract Test Suite specification".

[i.6] ISO/IEC 9646-6 (1994): "Information technology — Open Systems Interconnection — Conformance testing methodology and framework — Part 6: Protocol profile test specification".

[i.7] ISO/IEC 9646-7 (1995): "Information technology — Open Systems Interconnection — Conformance testing methodology and framework — Part 7: Implementation Conformance Statements".

[i.8] ETSI ETS 300 406 (1995): "Methods for testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

[i.9] 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".

[i.10] ETSI ES 201 873-7 (V4.5.1): "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 7: Using ASN.1 with TTCN-3".

[i.11] ETSI EN 302 637-3: "Intelligent Transport Systems (ITS); Vehicular Communications; Basic Set of Applications; Part 3: Specifications of Decentralized Environmental Notification Basic Service".

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in ETSI TS 103 300-3 [1], ISO/IEC 9646-1 [i.4] and ISO/IEC 9646-7 [i.7] apply.

3.2 Symbols

Void.

3.3 Abbreviations

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

ASN.1	Abstract Syntax Notation One
ATM	Abstract Test Method
ATS	Abstract Test Suite
BTP	Basic Transport Protocol
BV	Valid test events for Behaviour tests
EG	ETSI Guide
EN	European Norm
ES	ETSI Standard
GeoN	GeoNetworking
GNSS	Global Navigation Satellite System
ISO	International Organization for Standardization

ITS	Intelligent Transport Systems
IUT	Implementation Under Test
LDM	Local Dynamic Map
MSGF	Message Format
MTC	Main Test Component
PCTR	Protocol Conformance Test Report
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
PIXIT	Partial Protocol Implementation eXtra Information for Testing
SAP	Service Access Point
SCS	System Conformance Statement
SCTR	Static Conformance Test Report
SSP	Specific Service Permission
SUT	System Under Test
TC	Test Case
TI	Timer tests
TP	Test Purposes
TS	Technical Specification
TSS	Test Suite Structure
TTCN	Testing and Test Control Notation
V2X	Vehicle to any
VAM	VRU Awareness Message
VBS	VRU Basic Service
VRU	Vulnerable Road User

4 Abstract Test Method (ATM)

4.1 Abstract protocol tester

The abstract protocol tester used by this test suite is described in Figure 1. The test system simulates valid and invalid protocol behaviour, and analyses the reaction of the IUT.

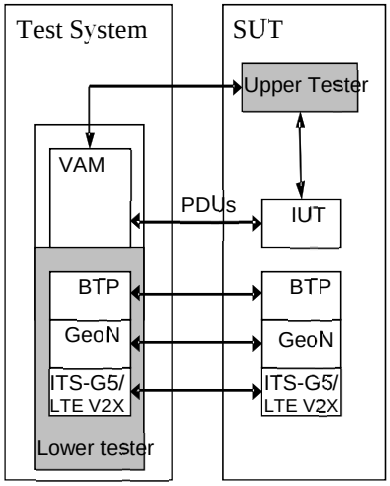

Figure 1: Abstract protocol tester - VBS

4.2 Test Configuration

This test suite uses a unique test configuration in order to cover the different test scenarios. In this configuration, the tester simulates one ITS station implementing the VBS protocol.

4.3 Test architecture

The present document implements the general TTCN-3 test architecture described in ETSI EG 202 798 [i.1], clauses 6.3.2 and 8.3.1.

Figure 2 shows the test architecture used in for the VBS ATS. The VBS test component requires using only the Main Test Component (MTC). The MTC communicates with the VBS SUT over the vamPort. The vamPort is used to exchange VBS protocol messages between the VBS test component and the VBS IUT.

The Upper tester entity in the SUT enables triggering VBS functionalities by simulating primitives from application or LDM entities. It is required to trigger the VBS layer in the SUT to send VBS messages, which are resulting from upper layer primitives. Furthermore, receiving VBS messages may result for the VBS layer in sending primitives to the upper layer (sending Data to LDM, for instance).

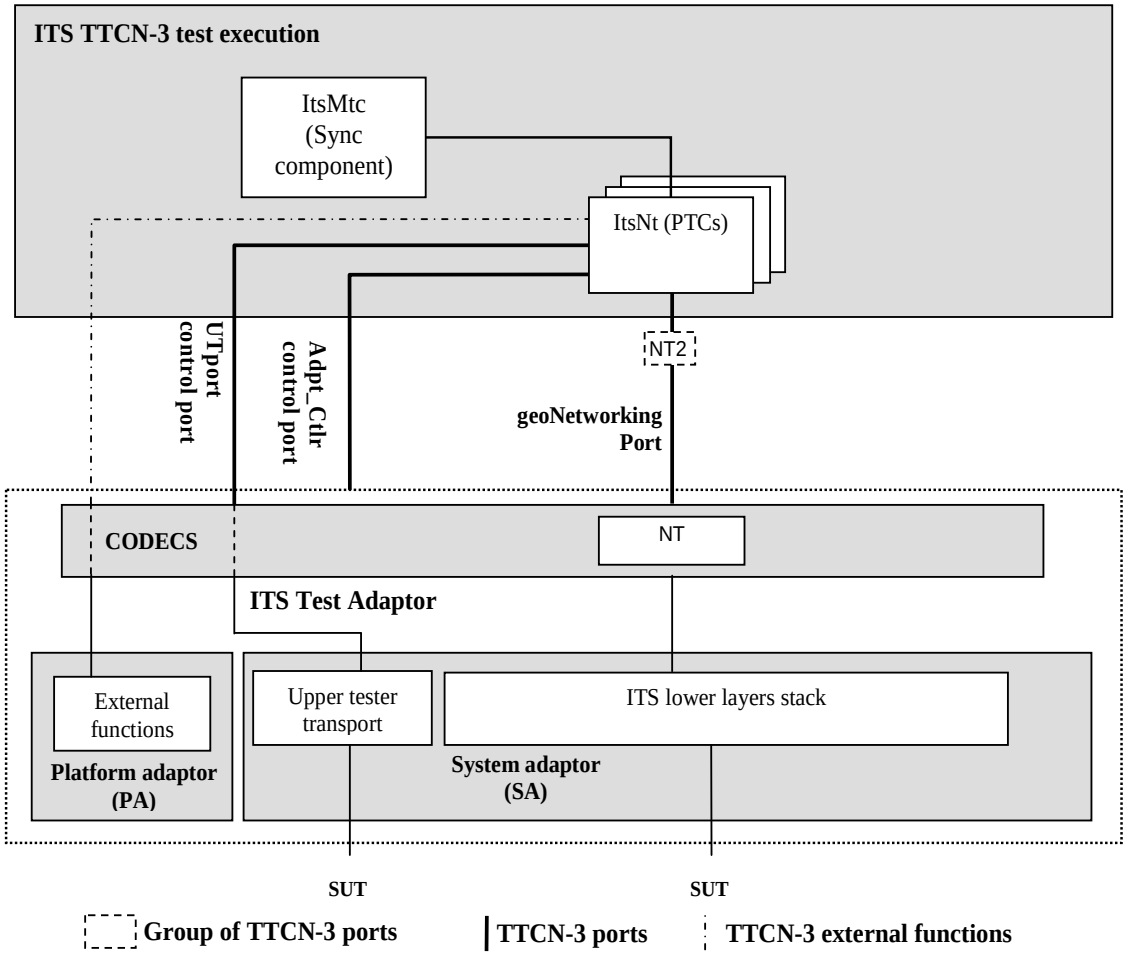

Figure 2: Test system architecture

4.4 Ports and ASPs (Abstract Services Primitives)

4.4.1 Introduction

Two ports are used by the VBS ATS:

- The vamPort, of type VamPort.
- The utPort of type UpperTesterPort.

4.4.2 Primitives of the vamPort

Two types of primitives are used in the vamPort:

- The VamInd primitive, containing the received messages of type VAM, and a timestamp corresponding to the receipt time.
- The VamReq primitive containing the sent messages of type VAM.

The VAM type is declared in the VAM.asn ASN.1 module, following the ASN.1 definition from ETSI TS 103 300-3 [1].

```
VAM ::= SEQUENCE {
    header  ItsPduHeader,
    vam     VruAwareness
}
```

4.4.3 Primitives of the utPort

This port uses two types of primitives:

- The UtInitialize primitive used to initialize IUT.
- The UtTrigger primitive used trigger upper layer events in IUT.

4.5 Executing VBS tests in secured mode

All the VBS tests, with the exception of the SSP tests, can be executed with security enabled or with security disabled. The choice of running the VBS tests in secured or non-secured mode has no impact on the result of the VBS tests because the test verdicts assess VBS protocol behaviour only.

The SSP tests can only be executed in secured mode.

The choice of running the VBS tests in secured or non-secured mode can be controlled via the test suite parameter PICS_SECURITY, see table A.5/1 of ETSI TS 104 018-1 [2].

Before running the VBS tests in secured mode, the following steps need to be executed:

- security certificates need to be generated for the tester as well as for the IUT, see ETSI TS 103 096-3 [i.2], clause 5.3.2.5;
- security certificates need to be installed onto the IUT, see ETSI TS 103 096-3 [i.2], clause 5.3.2.6;
- in case of usage of the ETSI test adapter, the following test adapter parameters need to be configured:

Test adapter parameter	Default value	Comment
TsSecuredRootPath	Data/certificates	The path to the location where all certificates (tester and IUT certificates) are installed
TsSecuredConfigId	Void	Name of the subfolder in TsSecuredRootPath in order to organize multiple IUTs
UtSecuredMode	FALSE	To use upper-tester interface in non-secured mode

4.6 ETSI test adapter

All information of the ETSI test adapter is described in ETSI TR 103 099 [i.3].

5 Untestable Test Purposes

Table 1 gives a list of TPs, which are not implemented in the ATS due to the chosen ATM or other restrictions.

Table 1: Untestable TP

Test purpose	Reason
TP/VBS/MSGF/BV-04	It is not possible to automatically test if the VRU reference point is the ground position of the center of the bounding box of the VRU because this data is not available in automatic testing.

6 ATS conventions

6.1 Introduction

The ATS conventions are intended to give a better understanding of the ATS but they also describe the conventions made for the development of the ATS. These conventions shall be considered during any later maintenance or further development of the ATS.

The ATS conventions contain two clauses, the testing conventions and the naming conventions. The testing conventions describe the functional structure of the ATS. The naming conventions describe the structure of the naming of all ATS elements.

To define the ATS, the guidelines of the document ETSI ETS 300 406 [i.8] were considered.

6.2 Testing conventions

6.2.1 Testing states

6.2.1.1 Initial state

All test cases start with the function f_prInitialState. This function brings the IUT in an "initialized" state by invoking the upper tester primitive UtInitialize.

6.2.1.2 Final state

All test cases end with the function f_poDefault. This function brings the IUT back in an "idle" state. As no specific actions are required for the idle state in ETSI EN 302 637-3 [i.11], the function f_ poDefault does not invoke any action.

As necessary, further actions may be included in the f_poDefault function.

6.2.2 Message types - ASN.1 definitions

ASN.1 definitions from ETSI TS 103 300-3 [1] are directly imported in TTCN-3 using the ASN.1 import method specified in ETSI ES 201 873-7 [i.10].

The following example shows the TTCN-3 import statement used to import ASN.1 definitions in the TTCN-3 modules:

```
import from VAM_PDU_Descriptions language "ASN.1:1997" all;
```

Generic ASN.1 definitions (message header, station Id, etc.), are defined in the Common Data Dictionary ETSI TS 102 894-2 [4] ASN.1 module. Thus the VBS ASN.1 modules shall import these definitions from the Common Data Dictionary ETSI TS 102 894-2 [4] ASN.1 module (see the following ASN.1 import statement extracted from the VBS ASN.1 module):

```
IMPORTS
    ItsPduHeader, StationID, ...
FROM ETSI-ITS-CDD {itu-t (0) identified-organization (4) etsi (0) itsDomain (5) wg1 (1) 102894 cdd
(2) major-version-4 (4) minor-version-2 (2) };
```

6.3 Naming conventions

6.3.1 General guidelines

The naming convention is based on the following underlying principles:

- in most cases, identifiers should be prefixed with a short alphabetic string (specified in Table 2) indicating the type of TTCN-3 element it represents;
- suffixes should not be used except in those specific cases identified in table 2;
- prefixes and suffixes should be separated from the body of the identifier with an underscore ("_");

EXAMPLE 1: `c_sixteen, t_wait`.

- only module names, data type names and module parameters should begin with an upper-case letter. All other names (i.e. the part of the identifier following the prefix) should begin with a lower-case letter;
- the start of second and subsequent words in an identifier should be indicated by capitalizing the first character. Underscores should not be used for this purpose.

EXAMPLE 2: `f_initialState`.

Table 2 specifies the naming guidelines for each element of the TTCN-3 language indicating the recommended prefix, suffixes (if any) and capitalization.

Table 2: ETSI TTCN-3 generic naming conventions

Language element	Naming convention	Prefix	Example identifier
Module	Use upper-case initial letter	none	IPv6Templates
Group within a module	Use lower-case initial letter	none	messageGroup
Data type	Use upper-case initial letter	none	SetupContents
Message template	Use lower-case initial letter	m_	m_setupInit
Message template with wildcard or matching expression	Use lower-case initial letters	mw_	mw_anyUserReply
Signature template	Use lower-case initial letter	s_	s_callSignature
Port instance	Use lower-case initial letter	none	signallingPort
Test component instance	Use lower-case initial letter	none	userTerminal
Constant	Use lower-case initial letter	c_	c_maxRetransmission
Constant (defined within component type)	Use lower-case initial letter	cc_	cc_minDuration
External constant	Use lower-case initial letter	cx_	cx_macId
Function	Use lower-case initial letter	f_	f_authentication()
External function	Use lower-case initial letter	fx_	fx_calculateLength()
Altstep (incl. Default)	Use lower-case initial letter	a_	a_receiveSetup()
Test case	Use ETSI numbering	TC_	TC_COR_0009_47_ND
Variable (local)	Use lower-case initial letter	v_	v_macId
Variable (defined within a component type)	Use lower-case initial letters	vc_	vc_systemName
Timer (local)	Use lower-case initial letter	t_	t_wait
Timer (defined within a component)	Use lower-case initial letters	tc_	tc_authMin
Module parameters for PICS	Use all upper case letters	PICS_	PICS_DOOROPEN
Module parameters for other parameters	Use all upper case letters	PX_	PX_TESTER_STATION_ID
Formal Parameters	Use lower-case initial letter	p_	p_macId
Enumerated Values	Use lower-case initial letter	e_	e_syncOk

6.3.2 ITS specific TTCN-3 naming conventions

Next to such general naming conventions, Table 3 shows specific naming conventions that apply to the ITS TTCN-3 test suite.

Table 3: ITS specific TTCN-3 naming conventions

Language element	Naming convention	Prefix	Example identifier
ITS Module	Use upper-case initial letter	Its"IUTname"_	ItsVam_
Module containing types and values	Use upper-case initial letter	Its"IUTname"_TypesAndValues	ItsVam_TypesAndValues
Module containing Templates	Use upper-case initial letter	Its"IUTname"_Templates	ItsVam_Templates
Module containing test cases	Use upper-case initial letter	Its"IUTname"_TestCases	ItsVam_TestCases
Module containing functions	Use upper-case initial letter	Its"IUTname"_Functions	ItsVam_Functions
Module containing external functions	Use upper-case initial letter	Its"IUTname"_ExternalFunctions	ItsVam_ExternalFunctions
Module containing components, ports and message definitions	Use upper-case initial letter	Its"IUTname"_Interface	ItsVam_Interface
Module containing main component definitions	Use upper-case initial letter	Its"IUTname"_TestSystem	ItsVam_TestSystem
Module containing the control part	Use upper-case initial letter	Its"IUTname"_TestControl	ItsVam_TestControl

6.3.3 Usage of Log statements

All TTCN-3 log statements use the following format using the same order:

- Three asterisks.
- The TTCN-3 test case or function identifier in which the log statement is defined.
- One of the categories of log: INFO, WARNING, ERROR, PASS, FAIL, INCONC, TIMEOUT.
- Free text.
- Three asterisks.

EXAMPLE 1:
```
log("*** TC_VAM_MSGF_BV_01: INFO: Initial conditions: First CAM message received ***");
```

Furthermore, the following rules are applied for the VBS ATS:

- Log statements are used in the body of the functions, so that invocations of functions are visible in the test logs:
  - All TTCN-3 setverdict statements are combined (as defined in ETSI ES 201 873-1 [i.9]) with a log statement following the same above rules (see example 2).

EXAMPLE 2:
```
setverdict (pass, "*** f_utInitializeIut: PASS: IUT initialized ***");
```

6.3.4 Test Case (TC) identifier

Table 4 shows the test case naming convention, which follows the same naming convention as the test purposes.

Table 4: TC naming convention

TC_<root>_<gr>_<x>_<nn>	Sub-Group	Category
<root> = root	VBS	
<gr> = group	MSGF	Message format
	IFGN	Interfaces - GeoNetworking
	INSE	Interfaces - security entity
	CLTR	Clustering
	FRPE	Frequency / periodicity range of VAMs
	TRAN	Transmission
	TRCN	Triggering conditions
	SECC	Security constraints
<x> = type of testing	BV	Behaviour: Valid event tests
	TI	Timer tests
<nn> = sequential number		01 to 99

EXAMPLE: TP identifier: TP/VAM/MSGF/BV/01
TC identifier: TC_VAM_MSGF_BV_01

Annex A (normative): TTCN-3 library modules

A.1 TTCN-3 files and other related modules

This test suite has been produced using the Testing and Test Control Notation (TTCN) according to ETSI ES 201 873-1 [i.9].

ETSI TS 103 300-3 [1], ETSI TS 104 018-1 [2] and ETSI TS 104 018-2 [3] have been applied to develop this test suite.

This test suite has been compiled error-free using two different commercial TTCN-3 compilers.

The TTCN-3 code of the test suite is available as a tagged version "v2.0.5" and released at ETSI forge repository:

- https://forge.etsi.org/rep/ITS/ttcn/vru-ts-104-018-3/-/tree/TTF_T036?ref_type=heads

Annex B (normative): Partial PIXIT pro forma for VBS

B.1 The right to copy

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the Partial PIXIT pro forma in this annex so that it can be used for its intended purposes and may further publish the completed Partial PIXIT.

B.2 Introduction

The PIXIT pro forma is based on ISO/IEC 9646-6.

B.3 Identification summary

The Identification summary shall be as specified in Table B.1.

Table B.1: Identification summary

PIXIT Number:	
Test Laboratory Name:	
Date of Issue:	
Issued to:	

B.4 ATS summary

The ATS summary shall be as specified in Table B.2.

Table B.2: ATS summary

Protocol Specification:	ETSI TS 103 300-3
Protocol to be tested:	VBS (Vulnerable Road Users (VRU) Basic Service)
ATS Specification:	ETSI TS 104 018-3
Abstract Test Method:	Clause 4

B.5 Test laboratory

The Test laboratory info shall be specified as in Table B.3.

Table B.3: Test laboratory info

Test Laboratory Identification:	
Test Laboratory Manager:	
Means of Testing:	
SAP Address:	

B.6 Client identification

The Client identification shall be specified as in Table B.4.

Table B.4: Client identification

Client Identification:	
Client Test manager:	
Test Facilities required:	

B.7 SUT

SUT shall be specified as in Table B.5.

Table B.5: SUT

Name:	
Version:	
SCS Number:	
Machine configuration:	
Operating System Identification:	
IUT Identification:	
PICS Reference for IUT:	
Limitations of the SUT:	
Environmental Conditions:	

B.8 Protocol layer information

B.8.1 Protocol identification

Protocol identification shall be as specified in Table B.6.

Table B.6: Protocol identification

Name:	ETSI TS 103 300-3
Version:	
PICS References:	ETSI TS 104 018-1

B.8.2 IUT information

VBS PIXITs shall be as in Table B.7.

Table B.7: VBS PIXITs

Identifier	Description	
PX_IUT_STATION_ID	**Comment**	Station Id sent by the IUT
	Type	Integer
	Default value	1
PX_IUT_STATION_TYPE	**Comment**	Station Type sent by the IUT
	Type	Integer
	Default value	1
PX_TESTER_STATION_ID	**Comment**	Station Id sent by the tester
	Type	Integer
	Default value	111 111
PX_TESTER_STATION_TYPE	**Comment**	Station Type sent by the tester
	Type	Integer
	Default value	1
PX_TS_LATITUDE	**Comment**	The Latitude of the tester (microdegrees)
	Type	Integer
	Default value	436 175 790
PX_TS_LONGITUDE	**Comment**	The Longitude of the tester (microdegrees)
	Type	Integer
	Default value	70 546 480
PX_TIME_DELTA	**Comment**	Tolerance to be applied when checking timestamps (ms)
	Type	Integer
	Default value	1 000
PX_GNSS_SCENARIO_SUPPORT	**Comment**	Does the IUT support GNSS scenarios?
	Type	Boolean
	Default value	FALSE
PX_CERT_FOR_TS	**Comment**	The certificate identifier that the tester (TS) shall use in case of secured IUT
	Type	Charstring
	Default value	"CERT_TS_A_AT"
PX_IUT_VRU_PROFILE_TYPE	**Comment**	To trigger to the IUT which profile to apply
	Type	Integer
	Default value	2
PX_VRU_CLUSTER_CREATE_PROFILE	**Comment**	To trigger to the IUT which cluster profile to apply
	Type	Bitstring
	Default value	'0001'B
PX_VRU_REPETITION	**Comment**	To indicates how many time a message shall be sent
	Type	Integer
	Default value	1

Identifier	Description	
PX_VRU_CLUSTER_CREATE_CARDINALITY	**Comment**	To indicates the cardinality of a cluster initiated by the IUT (≥ 3, 3 + the IUT as leader)
	Type	Integer
	Default value	4
PX_VRU_CLUSTER_CREATE_ID	**Comment**	To indicates the cluster ID when initiated by the TS
	Type	Integer
	Default value	78
PX_VRU_CLUSTER_CREATE_RADIUS	**Comment**	To indicates the size of the clusterBoundingBoxShape
	Type	Integer
	Default value	30 (3 meters)

Annex C (normative): PCTR pro forma for VBS

C.1 The right to copy

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the PCTR pro forma in this annex so that it can be used for its intended purposes and may further publish the completed PCTR.

C.2 Introduction

The PCTR pro forma is based on ISO/IEC 9646-6.

C.3 Identification summary

C.3.1 Protocol conformance test report

A protocol conformance test report shall be as in Table C.1.

Table C.1: Protocol conformance test report

PCTR Number:	
PCTR Date:	
Corresponding SCTR Number:	
Corresponding SCTR Date:	
Test Laboratory Identification:	
Test Laboratory Manager:	
Signature:	

C.3.2 IUT identification

An IUT shall be identified as specified in Table C.2.

Table C.2: IUT identification

Name:	
Version:	
Protocol specification:	
PICS:	
Previous PCTR if any:	

C.3.3 Testing environment

The testing environment shall be as specified in Table C.3.

Table C.3: Testing environment

PIXIT Number:	
ATS Specification:	
Abstract Test Method:	
Means of Testing identification:	
Date of testing:	
Conformance Log reference(s):	
Retention Date for Log reference(s):	

C.3.4 Limits and reservation

Additional information relevant to the technical contents or further use of the test report, or the rights and obligations of the test laboratory and the client, may be given here. Such information may include restriction on the publication of the present document.

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C.3.5 Comments

Additional comments may be given by either the client or the test laboratory on any of the contents of the PCTR, for example, to note disagreement between the two parties.

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C.4 IUT Conformance status

This IUT has or has not been shown by conformance assessment to be non-conforming to the specified protocol specification.

Strike the appropriate words in this sentence. If the PICS for this IUT is consistent with the static conformance requirements (as specified in clause C.5 in the present document) and there are no "FAIL" verdicts to be recorded (in clause C.6 in the present document) strike the words "has or", otherwise strike the words "or has not".

C.5 Static conformance summary

The PICS for this IUT is or is not consistent with the static conformance requirements in the specified protocol.

Strike the appropriate words in this sentence.

C.6 Dynamic conformance summary

The test campaign did or did not reveal errors in the IUT.

Strike the appropriate words in this sentence. If there are no "FAIL" verdicts to be recorded (in clause C.6 of the present document) strike the words "did or" otherwise strike the words "or did not".

Summary of the results of groups of test:

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C.7 Static conformance review report

If clause C.3 indicates non-conformance, this clause itemizes the mismatches between the PICS and the static conformance requirements of the specified protocol specification.

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C.8 Test campaign report

Table C.4: Test cases

ATS Reference	Selected?	Run?	Verdict	Observations (Reference to any observations made in clause C.7)
TC_VBS_MSGF_BV_01	Yes/No	Yes/No		
TC_VBS_MSGF_BV_02	Yes/No	Yes/No		
TC_VBS_MSGF_BV_03	Yes/No	Yes/No		
TC_VBS_MSGF_BV_04	Yes/No	Yes/No		Untestable, see clause 5
TC_VBS_MSGF_BV_05	Yes/No	Yes/No		
TC_VBS_MSGF_BV_06	Yes/No	Yes/No		
TC_VBS_MSGF_BV_07	Yes/No	Yes/No		
TC_VBS_MSGF_BV_08	Yes/No	Yes/No		
TC_VBS_MSGF_BV_09	Yes/No	Yes/No		
TC_VBS_MSGF_BV_10	Yes/No	Yes/No		
TC_VBS_MSGF_BV_11	Yes/No	Yes/No		
TC_VBS_MSGF_BV_12	Yes/No	Yes/No		
TC_VBS_MSGF_BV_13	Yes/No	Yes/No		
TC_VBS_MSGF_BV_14	Yes/No	Yes/No		
TC_VBS_MSGF_BV_15	Yes/No	Yes/No		
TC_VBS_MSGF_BV_16	Yes/No	Yes/No		
TC_VBS_MSGF_BV_17	Yes/No	Yes/No		
TC_VBS_MSGF_BV_18	Yes/No	Yes/No		
TC_VBS_MSGF_BV_19	Yes/No	Yes/No		
TC_VBS_MSGF_BV_20	Yes/No	Yes/No		
TC_VBS_MSGF_BV_21	Yes/No	Yes/No		
TC_VBS_MSGF_BV_22	Yes/No	Yes/No		
TC_VBS_MSGF_BV_23	Yes/No	Yes/No		
TC_VBS_MSGF_BV_24	Yes/No	Yes/No		
TC_VBS_MSGF_BV_25	Yes/No	Yes/No		
TC_VBS_MSGF_BV_26	Yes/No	Yes/No		
TC_VBS_MSGF_BV_27	Yes/No	Yes/No		
TC_VBS_MSGF_BV_28	Yes/No	Yes/No		
TC_VBS_IFGN_BV_01	Yes/No	Yes/No		
TC_VBS_IFGN_BV_02	Yes/No	Yes/No		
TC_VBS_IFGN_BV_03	Yes/No	Yes/No		

ATS Reference	Selected?	Run?	Verdict	Observations (Reference to any observations made in clause C.7)
TC_VBS_IFGN_BV_04	Yes/No	Yes/No		
TC_VBS_IFGN_BV_05	Yes/No	Yes/No		
TC_VBS_IFSE_BV_01	Yes/No	Yes/No		
TC_VBS_IFSE_BV_02	Yes/No	Yes/No		
TC_VBS_IFSE_BV_03	Yes/No	Yes/No		
TC_VBS_CLTR_BV_01	Yes/No	Yes/No		
TC_VBS_CLTR_BV_02	Yes/No	Yes/No		
TC_VBS_CLTR_BV_03	Yes/No	Yes/No		
TC_VBS_CLTR_BV_04	Yes/No	Yes/No		
TC_VBS_CLTR_BV_05	Yes/No	Yes/No		
TC_VBS_CLTR_BV_06	Yes/No	Yes/No		
TC_VBS_CLTR_BV_07	Yes/No	Yes/No		
TC_VBS_CLTR_BV_08	Yes/No	Yes/No		
TC_VBS_CLTR_BV_09	Yes/No	Yes/No		
TC_VBS_CLTR_BV_10	Yes/No	Yes/No		
TC_VBS_CLTR_BV_11	Yes/No	Yes/No		
TC_VBS_CLTR_BV_12	Yes/No	Yes/No		
TC_VBS_FRPE_TI_01	Yes/No	Yes/No		
TC_VBS_FRPE_BV_02	Yes/No	Yes/No		
TC_VBS_FRPE_TI_03	Yes/No	Yes/No		
TC_VBS_FRPE_BV_04	Yes/No	Yes/No		
TC_VBS_FRPE_BV_05	Yes/No	Yes/No		
TC_VBS_FRPE_TI_06	Yes/No	Yes/No		
TC_VBS_FRPE_TI_07	Yes/No	Yes/No		
TC_VBS_TRAN_BV_01	Yes/No	Yes/No		
TC_VBS_TRAN_BV_02	Yes/No	Yes/No		
TC_VBS_TRAN_BV_03	Yes/No	Yes/No		
TC_VBS_TRAN_BV_04	Yes/No	Yes/No		
TC_VBS_TRCN_BV_01	Yes/No	Yes/No		
TC_VBS_TRCN_BV_02	Yes/No	Yes/No		
TC_VBS_TRCN_BV_03	Yes/No	Yes/No		
TC_VBS_TRCN_BV_04	Yes/No	Yes/No		
TC_VBS_TRCN_BV_05	Yes/No	Yes/No		
TC_VBS_TRCN_BV_06	Yes/No	Yes/No		
TC_VBS_TRCN_BV_07	Yes/No	Yes/No		
TC_VBS_TRCN_BV_08	Yes/No	Yes/No		
TC_VBS_TRCN_BV_09	Yes/No	Yes/No		
TC_VBS_TRCN_BV_10	Yes/No	Yes/No		
TC_VBS_TRCN_BV_11	Yes/No	Yes/No		
TC_VBS_TRCN_BV_12	Yes/No	Yes/No		
TC_VBS_TRCN_BV_13	Yes/No	Yes/No		
TC_VBS_TRCN_BV_14	Yes/No	Yes/No		
TC_VBS_TRCN_BV_15	Yes/No	Yes/No		
TC_VBS_TRCN_BV_16	Yes/No	Yes/No		
TC_VBS_TRCN_BV_17	Yes/No	Yes/No		
TC_VBS_TRCN_BV_18	Yes/No	Yes/No		
TC_VBS_TRCN_BV_19	Yes/No	Yes/No		
TC_VBS_TRCN_BV_20	Yes/No	Yes/No		
TC_VBS_TRCN_BV_21	Yes/No	Yes/No		
TC_VBS_TRCN_BV_22	Yes/No	Yes/No		
TC_VBS_TRCN_BV_23	Yes/No	Yes/No		
TC_VBS_TRCN_BV_24	Yes/No	Yes/No		
TC_VBS_TRCN_BV_25	Yes/No	Yes/No		
TC_VBS_TRCN_BV_26	Yes/No	Yes/No		
TC_VBS_TRCN_BV_27	Yes/No	Yes/No		
TC_VBS_TRCN_BV_28	Yes/No	Yes/No		
TC_VBS_TRCN_BV_29	Yes/No	Yes/No		

C.9 Observations

Additional information relevant to the technical content of the PCTR is given here.

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History

Version	Date	Status
V2.1.1	July 2025	Publication