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Intelligent Transport Systems (ITS); Testing; Conformance test specifications for Facilities layer protocols and communication requirements for infrastructure services; Part 2: Test Suite Structure and Test Purposes (TSS & TP) Reference

2

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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 2 of a multi-part deliverable covering Conformance test specifications for Facilities layer protocols and communication requirements for infrastructure services, as identified below:

Part 1: "Test requirements and Protocol Implementation Conformance Statement (PICS) pro forma";

Part 2: "Test Suite Structure and Test Purposes (TSS & TP)";

Part 3: "Abstract Test Suite (ATS) and Protocol Implementation eXtra Information for Testing (PIXIT)".

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1 Scope

The present document provides the Test Suite Structure and Test Purposes (TSS & TP) for MAPEM-SPATEM, IVIM SREM-SSEM and RTCMEM as defined in ETSI TS 103 301 [1] in compliance with the relevant requirements and in accordance with the relevant guidance given in ISO/IEC 9646-7 [i.4]. The ISO standards for the methodology of conformance testing (ISO/IEC 9646-1 [i.2] and ISO/IEC 9646-2 [i.3]) as well as the ETSI rules for conformance testing (ETSI ETS 300 406 [i.5]) are used as a basis for the test methodology.

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.

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

[1]	ETSI TS 103 301 (V1.3.1) (2020-04): "Intelligent Transport Systems (ITS); Vehicular Communications; Basic Set of Applications; Facilities layer protocols and communication requirements for infrastructure services".
[2]	ETSI TS 103 191-1 (V1.3.1): "Intelligent Transport Systems (ITS); Testing; Conformance test specifications for Facilities layer protocols and communication requirements for infrastructure services; Part 1: Test requirements and Protocol Implementation Conformance Statement (PICS) pro forma".
[3]	CEN ISO/TS 19091-2019: "Intelligent transport systems - Cooperative ITS - Using V2I and I2V communications for applications related to signalized intersections".
[4]	CEN ISO/TS 19321-2015: "Intelligent transport systems - Cooperative ITS - Dictionary of invehicle information (IVI) data structures".

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.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

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 EG 202 798 (V1.1.1): "Intelligent Transport Systems (ITS); Testing; Framework for conformance and interoperability testing".
- [i.2] ISO/IEC 9646-1 (1994): "Information technology -- Open Systems Interconnection --Conformance testing methodology and framework -- Part 1: General concepts".
- [i.3] ISO/IEC 9646-2 (1994): "Information technology -- Open Systems Interconnection --Conformance testing methodology and framework -- Part 2: Abstract Test Suite specification".

[i.4]	ISO/IEC 9646-7 (1995): "Information technology Open Systems Interconnection Conformance testing methodology and framework Part 7: Implementation Conformance Statements".
[i.5]	ETSI ETS 300 406 (1995): "Methods for testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".
[i.6]	ISO/TS 3166-1: "Codes for the representation of names of countries and their subdivisions - Part 1: Country codes".
[i.7]	ISO/TS 14823: "Traffic and travel information - Messages via media independent stationary dissemination systems - Graphic data dictionary for pre-trip and in-trip information dissemination systems".
[i.8]	Vienna Convention.

[i.9] SAE J2540: "ITIS Phrase Lists (International Traveler Information Systems)".

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in CEN ISO/TS 19091 [3], ISO/IEC 9646-1 [i.2] and in ISO/IEC 9646-7 [i.4] apply.

3.2 Symbols

Void.

3.3 Abbreviations

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

AID	Application Identifier
ATS	Abstract Test Suite
BTP	Basic Transport Protocol
BV	Valid test events for Behaviour tests
CAM	Co-operative Awareness Messages
GBC	GeoBroadcast
GNSS	Global Navigation Satellite System
GPC	GNSS positioning correction
ISO	International Organization for Standardization
ITS	Intelligent Transport Systems
IUT	Implementation Under Test
IUT	Implementation Under Test
IVI	Infrastructure to Vehicle Information
IVIM	IVI-message
MAPEM	MapData Messages
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
RLT	Road and Lane Topology
RTCMEM	RTCM Message
RTL	Road Line Traffic
SPAT	Signal Phase And Timing
SPATEM	Signal Phase And Timing Messages
SREM	Signal Request Message
SSEM	Signal Response Message
SSP	Service Specific Permissions

TLC	Traffic Light Control
TLM	Traffic Light Manoeuvre
TP	Test Purposes
TSS	Test Suite Structure

4 Test Suite Structure (TSS)

4.1 Structure for MAPEM-SPATEM tests

4.1.1 Test groups

4.1.1.1 Introduction

Table 1 shows the MAPEM-SPATEM Test Suite Structure (TSS) including its subgroups defined for conformance testing.

Table 1: TSS for MAPEM-SPATEM

Root	Group	Category
MAPEM-SPATEM	Message Dissemination	Valid
	Message processing	Valid

The test suite is structured as a tree with the root defined as MAPEM-SPATEM.

The test suite has a total of three levels. The first level is the root. The second level separates the root into various functional areas. The third level is the standard ISO conformance test categories.

4.1.1.2 Root

The root identifies the MapData and SPAT Messages given in CEN ISO/TS 19091 [3] and ETSI TS 103 301 [1].

4.1.1.3 Groups

This level contains two functional areas identified as:

- Message Dissemination
- Message Processing

4.1.1.4 Categories

This level contains the standard ISO conformance test categories limited to valid behaviour.

4.2 Structure for IVIM tests

4.2.1 Test groups

4.2.1.1 Introduction

Table 2 shows the IVIM Test Suite Structure (TSS) including its subgroups defined for conformance testing.

Table 2: TSS for IVIM

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Root	Group	Category
IVIM	Message Dissemination	Valid
	Message processing	Valid

The test suite is structured as a tree with the root defined as IVI.

The test suite has a total of three levels. The first level is the root. The second level separates the root into various functional areas. The third level is the standard ISO conformance test categories.

4.2.1.2 Root

The root identifies the IVI Messages given in ETSI TS 103 301 [1].

4.2.1.3 Groups

This level contains two functional areas identified as:

- Message Dissemination
- Message Processing

4.2.1.4 Categories

This level contains the standard ISO conformance test categories limited to valid behaviour.

4.3 Structure for SREM-SSEM tests

4.3.1 Test groups

4.3.1.1 Introduction

Table 3 shows the SREM-SSEM Test Suite Structure (TSS) including its subgroups defined for conformance testing.

Table 3: TSS for SREM-SSEM

Root	Group	Category
SREM-SSEM	Message Dissemination	Valid
	Message processing	Valid

The test suite is structured as a tree with the root defined as SREM-SSEM.

The test suite has a total of three levels. The first level is the root. The second level separates the root into various functional areas. The third level is the standard ISO conformance test categories.

4.3.1.2 Root

The root identifies the SREM and SSEM given in ETSI TS 103 301 [1].

4.3.1.3 Groups

This level contains two functional areas identified as:

- Message Dissemination
- Message Processing

4.3.1.4 Categories

This level contains the standard ISO conformance test categories limited to valid behaviour.

4.4 Structure for RTCMEM tests

4.4.1 Test groups

4.4.1.1 Introduction

Table 4 shows the RTCMEM Test Suite Structure (TSS) including its subgroups defined for conformance testing.

Table 4: TSS for RTCMEM

Root	Group	Category
SREM-SSEM	Message Dissemination	Valid
	Message processing	Valid

The test suite is structured as a tree with the root defined as SREM-SSEM.

The test suite has a total of three levels. The first level is the root. The second level separates the root into various functional areas. The third level is the standard ISO conformance test categories.

4.4.1.2 Root

The root identifies the RTCMEM given in ETSI TS 103 301 [1].

4.4.1.3 Groups

This level contains two functional areas identified as:

- Message Dissemination
- Message Processing

4.4.1.4 Categories

This level contains the standard ISO conformance test categories limited to valid behaviour.

5 Test Purposes (TPs)

5.1 Introduction

5.1.1 TP definition conventions

The TP definition is built according to ETSI EG 202 798 [i.1].

5.1.2 TP Identifier naming conventions

The identifier of the TP is built according to table 5.

Identifier	TP_ <root>_<dir>_<gr>_<x>_<nn>[_<v>]</v></nn></x></gr></dir></root>	Example	
	<root> = root</root>	IS_TLM	TLM service
		IS_RLT	RLT service
		IS_IVI	IVI service
		IS_TLCR	TLC service (SREM)
		IS_TLCS	TLC service (SSEM)
		IS_GPC	GPC service
	<dir> = direction</dir>	GEN	Message Generation behavior
		RCV	Message Receiving behavior
	<gr> = group</gr>	MSGF	Message Dissemination
		EVUP	Event Update
		EVGN	Event Generation
		EVTR	Event Termination
		COM	Communication
		GFQ	Timers
		SEC_SND	Send behaviour of Security
			Send behaviour of Specific
		SSF_SND	service Permission
			Receive behaviour of Specific
		33F_RCV	service Permission
	<x> = type of testing</x>	BV	Valid event tests
		BO	Invalid behaviour tests
	<nn> = sequential number</nn>		01 to 99
	<v> = variant (optional)</v>		01 to 99

5.1.3 Rules for the behaviour description

The description of the TP is built according to ETSI EG 202 798 [i.1].

CEN ISO/TS 19091 [3] does not use finite state machine concept. As consequence, the test purposes use a generic "Initial State" that corresponds to a state where the IUT is ready for starting the test execution. Furthermore, the IUT shall be left in this "Initial State", when the test is completed.

Being in the "Initial State" refers to the starting point of the initial device configuration. There are no pending actions, no instantiated buffers or variables, which could disturb the execution of a test.

5.1.4 Sources of TP definitions

All TPs have been specified according to CEN ISO/TS 19091 [3], CEN ISO/TS 19321 [4] and ETSI TS 103 301 [1].

5.1.5 Mnemonics for PICS reference

To avoid an update of all TPs when the PICS document is changed, table 6 introduces mnemonics name and the correspondence with the real PICS item number.

The PICS item column refers to tables and items of ETSI TS 103 191-1 [2]. The 'PICS item' as defined in ETSI TS 103 191-1 [2] shall be used to determine the test applicability.

Mnemonic	PICS item
Innonio	
PICS_SPATEM_GENERATION	A.2/3
PICS_SPATEM_RECEPTION	A.2/4
PICS_MAPEM_GENERATION	A.2/1
PICS_MAPEM_RECEPTION	A.2/2
PICS_IVIM_GENERATION	A.3/1

Table 6: Mnemonics for PICS reference

Mnemonic	PICS item
PICS_IVIM_RECEPTION	A.3/5
PICS_IVIM_UPDATE	A.3/2
PICS_IVIM_CANCELLATION	A.3/3
PICS_IVIM_NEGATION	A.3/4
PICS_SREM_GENERATION	A.5/1
PICS_SREM_RECEPTION	A.5/2
PICS_SSEM_GENERATION	A.5/3
PICS_SSEM_RECEPTION	A.5/4
PICS_GPC_GENERATION	A.6/1
PICS_GPC_RECEPTION	A.6/2
PICS_IS_IUT_SECURED	A.1/1
PICS_T_GENIVIMMIN	A.4/1
PICS_T_GENIVIMMAX	A.4/2
PICS SHORT RANGE	A.1/2

5.2 Requirements

5.2.1 Traffic Light Manoeuvre (TLM) service

5.2.1.1 Initial conditions

According to CEN ISO/TS 19091 [3], clauses 6.7, the IUT shall conform to the following initial conditions:

the IUT has a roadway geometric information (MAP)
 containing the configuration of the target intersection (TI)
 containing the approach information (AI)
the IUT is authorized to send SPATEM

These conditions constitute the "SPATEM initial state".

5.2.1.2 Check the TLM message format

5.2.1.2.1 Check the TLM message protocol version

	TO IS THA CEN MORE DV 04	
1 P Id		
Summary	Check that protocolVersion is set to 1 and messageID is set to 4	
Reference	ETSI TS 103 301 [1], clause 5.3	
PICS Selection	PICS_SPATEM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT sending SPATEM		
ensure that		
when		
a SPATEM is generated		
then		
the IUT sends a valid	d SPATEM	
containing ITS PDU header		
containing protocolVersion		
indicating value '1'		
and containin	and containing messageID	
indicating value '4'		

TP ld	TP_IS_TLM_GEN_MSGF_BV_02
Summary	An IUT shall include the unique identifier for the intersection as part of the signal phase
	and timing message broadcast
Reference	CEN ISO/TS 19091 [3], clauses 6.7.3 and G
PICS Selection	PICS_SPATEM_GENERATION
	Expected behaviour
with	
the IUT being in th	ie "initial state"
and the IUT sendir	ng SPATEM
ensure that	
when	
the TLM servic	e is requested to send a SPATEM
then	
the IUT sends	a valid SPATEM
containing	spat
containi	ing intersections
cont	aining elements of type IntersectionState
	containing id
	indicating unique intersection identifier

5.2.1.2.2 Check the TLM message content

TP ld	TP_IS_TLM_GEN_MSGF_BV_03	
	Check that TLM service generates a SPAT message with the revision data element	
Summary	synchronized with the revision data element in the intersection configuration of the roadway	
	geometric information (MAP)	
Reference	CEN ISO/TS 19091 [3], clause G.4	
PICS Selection	PICS_SPATEM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "ir	nitial state"	
and the IUT sending S	PATEM	
and the last broadcast	et MAPEM is	
containing id of typ	e IntersectionReferenceID	
indicating <i>ID</i>		
and containing eler	and containing elements of type IntersectionGeometry	
containing revision		
indicating (R)		
ensure that		
when		
the TLM service is	requested to send a SPATEM	
containing id of type IntersectionReferenceID		
indicating <i>ID</i>		
then		
the IUT sends a valid SPATEM		
containing the elements of type IntersectionState		
containing revision		
indicatin	g R	

TP ld	TP_IS_TLM_GEN_MSGF_BV_04
Summary	An IUT shall include a timestamp as part of the signal phase and timing message
	broadcast
Reference	CEN ISO/TS 19091 [3], clauses 6.7.5 and G
PICS Selection	PICS_SPATEM_GENERATION
	Expected behaviour
with	
the IUT being in the "init	ial state"
and the IUT sending SPATEM	
ensure that	
when	
the TLM service is re	equested to send a SPATEM
then	
the IUT sends a valid SPATEM	
containing spat	
containing intersections	
containing elements of type IntersectionState	
containing moy	
indicating the minute of the year when message was generated	
containing timeStamp	
indicating the millisecond of the current minute	

TP ld	TP_IS_TLM_GEN_MSGF_BV_05	
Summary	An IUT shall include signalGroupe for each intersection if this signalGroup is defined in the	
	intersection configuration of the roadway geometric information (MAP)	
Reference	CEN ISO/TS 19091 [3], clause 6.7.6	
PICS Selection	PICS_SPATEM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT is sending s	SPATEM	
and the last broadcasted		
containing id of type IntersectionReferenceID		
Indicating <i>ID</i>		
and containing elements of type IntersectionGeometry		
containing laneset		
containing en	a connectsTo	
contai	containing colline containing elements of type Connection	
0	containing elements of type connection	
indicating (SG)		
ensure that		
when		
the TLM service is re	equested to send a SPATEM	
containing id of type IntersectionReferenceID		
indicating <i>ID</i>		
then		
the IUT sends a valid SPATEM		
containing elements of type IntersectionState		
containing spat		
containing	j intersections	
containing as many elements of type intersectionState as needed		
containing somerce alements of type MeyomentState on peoded		
containing as many elements of type wovementstate as needed		
	indicating SG	
L		

TP ld	TP_IS_TLM_GEN_MSGF_BV_06	
Summary	For each vehicular manoeuvre at a signalized intersection, an IUT shall include the current	
	movement state	
Reference	CEN ISO/TS 19091 [3], clause 6.7.8	
PICS Selection	PICS_SPATEM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "init	tial state"	
and the IUT sending SP	ATEM	
and the last broadcaste	d MAPEM is	
containing id of type	IntersectionReferenceID	
indicating ID		
and containing elem	ents of type IntersectionGeometry	
containing laneSet		
containing ele	ements of type GenericLane	
containing	g laneAttributes	
contai	ning lane i ype	
containing vehicle		
and containing connects to		
containing elements of type Connection		
indicating Signal Storp		
ensure that		
when		
the TLM service is re	equested to send a SPATEM	
then		
the IUT sends a vali	d SPATEM	
containing spat		
containing intersections		
containing	g elements of type IntersectionState	
containing id of type IntersectionReferenceID		
inc	dicating ID	
and containing states		
containing elements of type MovementState		
containing signalGroup		
indicating SG		
	containing state-time-speed	
	containing elements of type MovementEvent	
	not containing timing	
	or containing timing	
	indicating time interval containing current time	

	-	
1	1	
-		

TP ld	TP_IS_TLM_GEN_MSGF_BV_07	
Summary	For each pedestrian manoeuvre at a signalized intersection, an IUT shall include the	
	current movement state	
Reference	CEN ISO/TS 19091 [3], clause 6.7.9	
PICS Selection	PICS_SPATEM_GENERATION AND PICS_PEDESTRIAN_MANOEUVRES	
	Expected behaviour	
with		
the IUT being in the	e "initial state"	
and the IUT sending	g SPATEM	
and the last broadc	asted MAPEM is	
containing id of	type IntersectionReferenceID	
indicating ID		
and containing e	elements of type IntersectionGeometry	
containing la	aneSet	
containir	g elements of type GenericLane	
conta	aning laneAttributes	
C	ontaining lane lype	
1	containing crosswalk	
and		
anu u	containing connects to connection	
	containing signal Group	
indicating Signal Group		
ensure that		
when		
the TLM service	is requested to send a SPATEM	
then		
the IUT sends a	valid SPATEM	
containing s	pat	
containir	ig intersections	
conta	containing elements of type IntersectionState	
C	ontaining id of type IntersectionReferenceID	
	indicating ID	
and containing states		
	containing elements of type MovementState	
	containing signalGroup	
	indicating SG	
	containing state-time-speed	
	containing elements of type MovementEvent	
	not containing timing	
	or containing timing	
indicating time interval containing current time		

TPId	TP IS TIM GEN MSGE BV 08	
-	For each active manoeuvre an IUT shall include the earliest time point when the	
Summary	manoeuvre state is predicted to change	
Reference	CEN ISO/TS 19091 [3], clause 6.7.11	
PICS Selection	PICS_SPATEM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT sending SP	ATEM	
and the last broadcasted	MAPEM is	
containing id of type	IntersectionReferenceID	
indicating ID		
and containing eleme	ents of type IntersectionGeometry	
containing laneSe	et	
containing ele	ements of type GenericLane	
containing	laneAttributes	
contair	ning lane l ype	
Cor		
and conta	ining connects I o	
contair	ning elements of type Connection	
Cor	indications (SC)	
	Indicating (SG)	
when		
the TI M service is re	pruested to send a SDATEM	
then	quested to serie a SPATEM	
the II IT sends a valid SPATEM		
containing spat		
containing oper		
containing elements of type IntersectionState		
containing of type IntersectionReferenceID		
indicating ID		
and containing states		
containing elements of type MovementState		
containing signalGroup		
	indicating SG	
and containing state-time-speed		
	containing 1 st element of type MovementEvent	
	containing timing	
containing minEndTime		
	indicating the earliest time point when state can be changed	

5.2.1.2.3 Check the TLM message timing information

TP ld	TP_IS_TLM_GEN_MSGF_BV_09	
	For each manoeuvre at a signalized intersection, an IUT shall include:	
Summory	the next expected movement states pertaining to that manoeuvre	
Summary	• the time point for when the succeeding manoeuvre state is predicted to change	
	the start time for each pending manoeuvre	
Reference	CEN ISO/TS 19091 [3], clauses 6.7.13 and 6.7.14	
PICS Selection	PICS_SPATEM_GENERATION AND PICS_SPATEM_HAS_TIMING	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT sending SP	ATEM	
and the last broadcasted	d MAPEM is	
containing id of type	IntersectionReferenceID	
indicating ID		
and containing eleme	ents of type IntersectionGeometry	
containing laneS	et	
containing ele	ements of type GenericLane	
containing laneAttributes		
containing lane lype		
	containing vehicle	
and contai	and containing connects I o	
Contai		
	indicating (SG)	
ensure that		
when		
the TLM service is re	equested to send a SPATEM	
then		
the IUT sends a valid	d SPATEM	
containing spat		
containing int	ersections	
containing	gelements of type IntersectionState	
containing id of type IntersectionReferenceID		
indicating ID		
and containing states		
containing elements of type MovementState		
containing signalGroup		
	Indicating SG	
	containing state-time-speed	
	containing elements of type wovements vent [1v]	
	containing minEndTime	
	indicating the earliest time point when state ends	
	and optionally containing startTime	
	indicating time point when state starts	
	and containing nextTime	
	indicating time point when the manoeuvre will next be permitted	

TP Id	TP IS TIM GEN MSGE BV 10	
Summary	Check that SPAT message prioritization is encoded using regional extension	
Reference	CEN ISO/TS 19091 [3], clauses G.5.1.4 and G.8.2.5.2	
PICS Selection	PICS SPATEM GENERATION AND PICS SPATEM PRIORITIZATION	
	Expected behaviour	
with	· · · · · · · · · · · · · · · · · · ·	
the IUT being in the "init	ial state"	
and the IUT sending SP	ATEM	
and the IUT received CA	AM	
containing stationId		
indicating (PrioS	ID)	
triggerring the priorit	ization request	
ensure that		
when		
the TLM service is re	equested to send a SPATEM	
containing prioritization response		
then		
the IUT sends a valid	J SPATEM	
containing spat		
containing intersections		
containing elements of type intersectionState		
indicating ID		
and containing regional		
containing regional		
containing activePrioritizations		
	containing stationID	
indicating PrioSID		
	and containing priorState	
	indicating prioritization request status	

5.2.1.2.4 Check the TLM messge prioretization

TPId	TP IS TIM GEN MSGE BV 11	
	For each manoeuvre at a signalized intersection, an ILIT shall indicate if one or more	
Summary	nedestrians have been detected in the nedestrian crossing	
Reference	CEN ISO/TS 19091 [3] clause 6.7.16	
PICS Selection	PICS SPATEM GENERATION AND PICS SPATEM PEDESTRIAN MANOEUV/RES	
	Expected behaviour	
with		
the IUT being in the "initi	al state"	
and the IUT sending SP	ATEM	
and the last broadcasted	I MAPEM is	
containing id of type	IntersectionReferenceID	
indicating ID		
and containing elements of type IntersectionGeometry		
containing laneSe	et	
containing ele	ments of type GenericLane	
containing	laneAttributes	
contair	ning laneType	
cor	ntaining vehicle	
and contain	ning connects to	
contair	ning elements of type Connection	
COI		
ensure that		
when		
the TLM service is re	quested to send a SPATEM	
indicating presence of pedestrians on the signalized intersection		
then		
the IUT sends a valid SPATEM		
containing spat		
containing intersections		
containing elements of type IntersectionState		
containing id of type IntersectionReferenceID		
indicating ID		
and co	ntaining maneuverAssistList	
	containing connectionid	
	and containing pedBicycleDetect	
	indicating true	

5.2.1.2.5 Check the TLM pedestrian and bicycle indication

TP Id	TP IS TIM GEN MSGE BV 12		
Summary	An IUT shall transmit information about the optimal speed for vehicles on each lane		
Reference	CEN ISO/TS 19091 [3], clause 6.7.18		
PICS Selection	PICS SPATEM GENERATION AND PICS SPATEM HAS OPTIMAL SPEED		
	Expected behaviour		
	•		
with			
the IUT being in the "init	ial state"		
and the IUT sending SP	АТЕМ		
and the last broadcasted	d MAPEM is		
containing id of type	IntersectionReferenceID		
indicating ID			
and containing elem	ents of type IntersectionGeometry		
containing laneS	et		
containing ele	ements of type GenericLane		
containing			
contai	containing laneType		
	ntaining venicle		
and contai	ning connects of type Connection		
Contai	containing elements of type Connection		
	indicating (SG)		
ensure that			
when			
the TLM service is re	equested to send a SPATEM		
then			
the IUT sends a valid	d SPATEM		
containing spat			
containing intersections			
containing elements of type IntersectionState			
containing id of type IntersectionReferenceID			
indicating ID			
and containing states			
containing elements of type MovementState			
containing signalGroup			
Indicating SG			
and containing state-time-speed			
	containing elements of type iniovement vent		
containing specus			
	containing type		
	indicating ecoDrive or transit		
	and containing speed		
	indicating optimal speed		

5.2.1.2.6 Check the TLM optimal speed indication

TP ld	TP_IS_TLM_GEN_MSGF_BV_13
Summary	An IUT shall transmit information about the signal timing progression speed along the
	roadway
Reference	CEN ISO/TS 19091 [3], clause 6.7.19
PICS Soloction	PICS_SPATEM_GENERATION AND
FICS Selection	PICS_SPATEM_HAS_SIGNAL_PROGRESSION_SPEED
	Expected behaviour
with	
the IUT being in the "in	itial state"
and the IUT sending SI	PATEM
and the last broadcaste	d MAPEM is
containing id of type	IntersectionReferenceID
indicating ID	
and containing elem	ients of type IntersectionGeometry
containing lanes	Set
containing e	ements of type GenericLane
containin	glaneAttributes
conta	ining lane lype
and cont	aining connects to
conta	Ining elements of type Connection
	indicating Signal Stop
ensure that	
when	
the TI M service is r	requested to send a SPATEM
then	
the IUT sends a val	Id SPATEM
containing spat	
containing in	tersections
containin	a elements of type IntersectionState
conta	ining id of type IntersectionReferenceID
in	dicating ID
and c	ontaining states
CC	Intaining elements of type MovementState
	containing signalGroup
	indicating SG
	and containing state-time-speed
	containing elements of type MovementEvent
	containing speeds
	containing element of type AdvisorySpeed
	containing type
	indicating greenwave
	and containing speed
1	indicating the signal timing progression speed

TP ld	TP_IS_TLM_GEN_MSGF_BV_14		
Summary	An IUT shall transmit the length of the queue and the length of available vehicular storage		
	on each egress lane		
Reference	CEN ISO/TS 19091 [3], clauses 6.7.20 and 6.7.21		
PICS Selection	PICS_SPATEM_GENERATION AND PICS_SPATEM_HAS_EGRESS_QUEUE		
	Expected behaviour		
with			
the IUT being in the "init	ial state"		
and the IUT sending SP.	АТЕМ		
and the last broadcasted	J MAPEM is		
containing id of type	IntersectionReferenceID		
indicating ID	indicating <i>ID</i>		
and containing elements of type IntersectionGeometry			
containing laneSet			
containing elements of type GenericLane			
containing	containing laneAttributes		
contai	containing laneType		
containing vehicle			
ensure that			
wnen			
the TLM service is requested to send a SPATEM			
then			
the IUT senas a valid SPATEM			
containing space			
containing intersections			
containing elements of type IntersectionState			
indicating ID			
and containing managuyerAssist list			
containing planets of type ConnectionManeuverAssist			
containing elements of type connection waterweizesist			
	indicating current length of the queue		
	and containing availableStorageLength		
	indicating available space for the line queue		

5.2.1.2.7



TP ld	TP_IS_TLM_GEN_EVGN_BV_01	
Summary	Check that TLM Service generates a new SPATEM on reception of a valid	
	AppSPATEM_Start request	
Reference	ETSI TS 103 301 [1], clause 5.4.2	
PICS Selection	PICS_SPATEM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "SP	ATEM initial state"	
and the IUT has not sent any SPATEM yet		
ensure that		
when		
the IUT receives an AppSPATEM_Start request from the application layer		
then		
the IUT sends a valid SPATEM		

Check the TLM egress lane queue and storage availability

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TP ld	TP_IS_TLM_GEN_EVGN_BV_02	
Summary	Check that TLM Service generates SPATEM are time ordered	
Reference	ETSI TS 103 301 [1], clause 5.4.2	
PICS Selection	PICS_SPATEM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "SP	ATEM initial state"	
and the IUT has sent	and the IUT has sent a SPATEM	
ensure that		
when		
several SPATEM are generated		
then		
the IUT sends SPATEM in time order		

TP ld	TP_IS_TLM_GEN_EVGN_BV_03
Summary	Check that TLM Service terminates on reception of a valid AppSPATEM_Stop request
Reference	ETSI TS 103 301 [1], clause 5.4.2
PICS Selection	PICS_SPATEM_GENERATION
	Expected behaviour
with	
the IUT being in the "initial state" and the IUT sending SPATEM	
ensure that	
when	
the IUT receives an AppSPATEM_Stop request from the application layer	
then	
the IUT stops sendir	ng SPATEM

TP ld	TP_IS_TLM_GEN_EVGN_BV_04
Current on a	Check that TLM Service generates a new SPATEM on reception of a valid
Summary	AppSPATEM_Trigger request
Reference	ETSI TS 103 301 [1], clause 5.4.2
PICS Selection	PICS_SPATEM_GENERATION
	Expected behaviour
with	
the IUT being in the "ini	tial state"
ensure that	
when	
the IUT receives an	AppSPATEM_Trigger request from the application layer
then	
the IUT sends a vali	d SPATEM

5.2.1.4 Check presence of destination area

TP ld	TP_IS_TLM_GEN_COM_BV_01		
Summary	Check that TLM Service provides the destination area in SPATEM		
Reference	ETSI TS 103 301 [1], clause 5.4.3.2		
PICS Selection	PICS_SPATEM_GENERATION AND PICS_SHORT_RANGE		
	Expected behaviour		
with			
the IUT being in the "init	the IUT being in the "initial state"		
and the IUT sending SPATEM			
ensure that			
when	when		
a SPATEM is genera	ated		
then			
the IUT sends a valid SPATEM			
containing spat			
containing regional			
containing at least on region			
indicat	indicating a regionId		
and indication a regExtValue			

TP ld	TP_IS_TLM_GEN_COM_BV_02	
Summary	Check that SPATEM uses BTP_B packet	
	Check that the destination port for SPATEM is set to 2004	
Reference	ETSI TS 103 301 [1], clauses 10.2 and 5.4.3.2	
PICS Selection	PICS_SPATEM_GENERATION AND PICS_SHORT_RANGE	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT sending SPATEM		
ensure that	ensure that	
when		
a SPATEM is generated		
then		
the IUT sends a valid SPATEM		
encapsulated in a BTP-B packet		
containing a destination port value set to 2004		
and containing a destination port info value set to 0		

5.2.1.5 Check BTP type and port number

5.2.1.6 Check destination type

5.2.1.7 TLM security parameters

5.2.1.7.1 Check TLM ITS AID value

TP ld	TP_IS_TLM_GEN_SEC_BV_01
Summary	Check that TLM service uses certificate containing valid ITS AID to sign SPATEM
	messages
Reference	ETSI TS 103 301 [1], clause 5.4.3.2
PICS Selection	PICS_SPATEM_GENERATION AND PICS_IS_IUT_SECURED
	Expected behaviour
with	
the IUT being in the "SP	ATEM initial state"
and the IUT is operating	in secured mode
and the IUT sending SPATEM	
ensure that	
when	
a SPATEM is genera	ated
then	
the IUT sends a valid SPATEM	
containing a corr	ectly formatted Security Header as a EtsiTs103097Data structure
containing sig	jnedData.tbsData.headerInfo
containing	j psid
indicat	

TP ld	TP_IS_TLM_GEN_SEC_BV_02	
Summary	Check that TLM service uses generic security profile to sign SPATEM message and does	
	not include additional security header elements	
Reference	ETSI TS 103 301 [1], clause 12	
PICS Selection	PICS_SPATEM_GENERATION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "SPATEM initial state"		
and the IUT is operating in secured mode		
and the IUT sending SPATEM		
ensure that		
when		
a SPATEM is generated		
then	then	
the IUT sends a valid SPATEM		
containing a correctly formatted Security Header as a EtsiTs103097Data structure		
containing signedData.tbsData.headerInfo		
containing psid		
indicating ITS_AID_SPATEM		
and containing generationTime		
indicating realistic generation time		
and optionally containing generationLocation		
and not co	ontaining other header items	

TP ld	TP_IS_TLM_GEN_SSP_BV_01
Summary	Check that TLM service uses certificate containing valid Service Specific Permissions of
	type BitmapSsp to sign SPATEM messages and the SSP version is set to 1
Reference	ETSI TS 103 301 [1], clause 4.5.1
PICS Selection	PICS_SPATEM_GENERATION AND PICS_IS_IUT_SECURED
	Expected behaviour
with	
the IUT being in the "SP	ATEM initial state"
and the IUT is operating	in secured mode
and the IUT is authorize	d to sign SPATEM with the certificate CERT_SPAT_SSP_NONE
containing appPermi	ssion item
containing psid	
indicating ITS AID SPATEM	
containing bitmapSSP	
indicating octet at position 0 set to 0x01	
and indicating other bits set to 0	
ensure that	
when	
the IUT is requested to generate a SPATEM	
not containing intersection states	
and not containing prioritization	
and not containing manoeuvre assist information	
then	
the IUT sends a SPA	NTEM
signed with the C	ERT_SPAT_SSP_NONE

5.2.1.7.2 Check TLM SSP version

5.2.1.7.3 Check TLM Service specific parameters

5.2.1.7.3.1 SSP IntersectionState

TP ld	TP_IS_TLM_GEN_SSP_BV_02
	Check that TLM service sends a SPAT message containing IntersectionState without
Summary	prioritization and manoeuvre assist information when it is permitted by the signing
-	certificate
Reference	ETSI TS 103 301 [1], clause 5.4.3.2
PICS Selection	PICS_SPATEM_GENERATION AND PICS_IS_IUT_SECURED
	Expected behaviour
with	
the IUT being in the "SP	ATEM initial state"
and the IUT is operating in secured mode	
and the IUT is authorized to sign SPATEM with the certificate CERT_SPAT_SSP_ALL	
containing appPermission item	
containing psid	
indicating ITS_AID_SPATEM	
containing bitmapSSP	
indicating octet at position 0 set to 0x01	
and indicating bit at position 8 set to 1	
ensure that	
when	
the IUT is requested to generate a SPATEM	
not containing prioritization and manoeuvre assist information	
then	
the IUT sends a SPA	ATEM
signed with the C	ERT_SPAT_SSP_ALL

TP ld	TP_IS_TLM_GEN_SSP_BO_03
Summary	Check that TLM service does not send a SPAT message containing IntersectionState if it is
	not permitted by the certificate
Reference	ETSI TS 103 301 [1], clause 5.4.3.2
PICS Selection	PICS_SPATEM_GENERATION AND PICS_IS_IUT_SECURED
	Expected behaviour
with	
the IUT being in the "S	PATEM initial state"
and the IUT is operatir	ng in secured mode
and the IUT is authoriz	ed to sign SPATEM with the certificate CERT_SPAT_NONE
containing appPermission item	
containing psid	
indicating ITS_AID_SPATEM	
containing bitmapSSP	
indicating octet at position 0 set to 0x01	
and indicating other bits set to 0	
ensure that	
when	
the IUT is requested to generate a SPATEM	
containing inter	sections state
then	
the IUT does not se	end a SPATEM

5.2.1.7.3.2 Public transport prioritization status response SSP

TP Id	TP_IS_TLM_GEN_SSP_BV_04	
Summary	Check that TLM service sends a SPAT message containing public transport prioritization	
	response when it is permitted by the signing certificate	
Reference	ETSI TS 103 301 [1], clause 5.4.3.2	
PICS Selection	PICS_SPATEM_GENERATION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "SP	ATEM initial state"	
and the IUT is operating	in secured mode	
and the IUT is authorize	and the IUT is authorized to sign SPATEM with the certificate CERT_SPAT_SSP_ALL	
containing appPermi	ssion item	
containing psid	containing psid	
indicating ITS_AID_SPATEM		
containing bitmapSSP		
indicating octet at position 0 set to 0x01		
and indicating bit at position 9 set to 1		
ensure that		
when		
the IUT is requested to generate a SPATEM		
containing public transport prioritization respond		
then		
the IUT sends a SPATEM		
signed with the C	ERT_SPAT_SSP_ALL	

TP ld	TP_IS_TLM_GEN_SSP_BO_05	
Summary	Check that TLM service does not send a SPAT message containing IntersectionState if it is	
	not permitted by the certificate	
Reference	ETSI TS 103 301 [1], clause 5.4.3.2	
PICS Selection	PICS_SPATEM_GENERATION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "S	PATEM initial state"	
and the IUT is operatin	ig in secured mode	
and the IUT is authorized to sign SPATEM with the certificate CERT_SPAT_SSP_NONE		
containing appPerr	containing appPermission item	
containing psid		
indicating ITS_AID_SPATEM		
containing bitmapSSP		
indicating octet at position 0 set to 0x01		
and indicating bit at position 9 set to 0		
ensure that		
when		
the IUT is requested to generate a SPATEM		
containing public transport prioritization respond		
then		
the IUT does not se	ends a SPATEM	

5.2.1.7.3.3 Maneuver assisting information SSP

TP ld	TP_IS_TLM_GEN_SSP_BV_06	
Summary	Check that TLM service sends a SPAT message containing Intersection maneuver	
	assisting information when it is permitted by the signing certificate	
Reference	ETSI TS 103 301 [1], clause 5.4.3.2	
PICS Selection	PICS_SPATEM_GENERATION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "SP	ATEM initial state"	
and the IUT is operating	in secured mode	
and the IUT is authorized to sign SPATEM with the certificate CERT_SPAT_SSP_ALL		
containing appPermission item		
containing psid	containing psid	
indicating ITS_AID_SPATEM		
containing bitmapSSP		
indicating octet at position 0 set to 0x01		
and indicating bit at position 10 set to 1		
ensure that		
when		
the IUT is requested to generate a SPATEM		
containing spat.intersections.IntersectionState.maneuverAssistList		
then		
the IUT sends a SPATEM		
signed with the C	ERT_SPAT_SSP_ALL	

TP ld	TP_IS_TLM_GEN_SSP_BV_07	
Summary	Check that TLM service sends a SPAT message containing movement state maneuver	
	assisting information when it is permitted by the signing certificate	
Reference	ETSI TS 103 301 [1], clause 5.4.3.2	
PICS Selection	PICS_SPATEM_GENERATION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "SP	ATEM initial state"	
and the IUT is operating	in secured mode	
and the IUT is authorized to sign SPATEM with the certificate CERT_SPAT_SSP_ALL		
containing appPermi	containing appPermission item	
containing psid		
indicating ITS_AID_SPATEM		
containing bitmapSSP		
indicating octet at position 0 set to 0x01		
and indicating bit at position 10 set to 1		
ensure that		
when		
the IUT is requested to generate a SPATEM		
containing spat.intersections.IntersectionState.states.MovementState.maneuverAssistList		
then		
the IUT sends a SPA	ATEM	
signed with the C	ERT_SPAT_SSP_ALL	

TP ld	TP_IS_TLM_GEN_SSP_BO_08	
Summary	Check that TLM service does not send a SPAT message containing intersection maneuver	
	assisting information if it is not permitted by the certificate	
Reference	ETSI TS 103 301 [1], clause 5.4.3.2	
PICS Selection	PICS_SPATEM_GENERATION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "S	PATEM initial state"	
and the IUT is operatin	and the IUT is operating in secured mode	
and the IUT is authorized to sign SPATEM with the certificate CERT_SPAT_SSP_NONE		
containing appPermission item		
containing psid		
indicating ITS_AID_SPATEM		
containing bitmapSSP		
indicating octet at position 0 set to 0x01		
and indicating bit at position 10 set to 0		
ensure that		
when		
the IUT is requested to generate a SPATEM		
containing spat.intersections.IntersectionState.maneuverAssistList		
then		
the IUT does not se	ends a SPATEM	

TP ld	TP_IS_TLM_GEN_SSP_BO_09		
Summary	Check that TLM service does not send a SPAT message containing movement state		
	maneuver assisting information if it is not permitted by the certificate		
Reference	ETSI TS 103 301 [1], clause 5.4.3.2		
PICS Selection	PICS_SPATEM_GENERATION AND PICS_IS_IUT_SECURED		
	Expected behaviour		
with			
the IUT being in the "S	PATEM initial state"		
and the IUT is operatin	ig in secured mode		
and the IUT is authoriz	ed to sign SPATEM with the certificate CERT_SPAT_SSP_NONE		
containing appPerr	containing appPermission item		
containing psid			
indicating IT	S_AID_SPATEM		
containing bitmapSSP			
indicating octet at position 0 set to 0x01			
and indicating bit at position 10 set to 0			
ensure that			
when			
the IUT is requeste	d to generate a SPATEM		
containing spat	.intersections.IntersectionState.states.MovementState.maneuverAssistList		
then			
the IUT does not se	ends a SPATEM		

5.2.1.8 Check the TLM message transmission rate requirements

TP ld	TP_IS_TLM_GEN_RATE_BV_01	
Summary	Check that the IUT transmits SPATEM with valid transmission rate	
Reference	CEN ISO/TS 19091 [3], clauses 6.17	
PICS Selection	PICS_SPATEM_GENERTION AND PICS_SPATEM_TRANSMISSION_RATE	
	Expected behaviour	
with		
the IUT being in the "SP	ATEM initial state"	
the IUT has sent SPATE	the IUT has sent SPATEM message at TIME_1	
ensure that	ensure that	
when		
IUT is triggered to se	end a next SPATEM	
then		
the IUT sends SPAT	EM at TIME_2	
indicating DELTA = TIME_2 - TIME_1		
where DELTA	A is less than 2 second and more then 100 ms	

5.2.1.9 Check TLM message reception

TP ld	TP_IS_TLM_RCV_MSGF_BV_01	
Summary	Check that the IUT can successfully process all mandatory fields of SPATEM received	
Reference	ETSI TS 103 301 [1], clause 5.3	
PICS Selection	PICS_SPATEM_RECEPTION	
	Expected behaviour	
with		
the IUT being in the "init	the IUT being in the "initial state"	
ensure that	ensure that	
when		
the IUT receives a valid SPATEM		
then		
the IUT forwards the SPATEM content to upper layers		
and the IUT forwards	and the IUT forwards the SPATEM content to other facilities	

TP ld	TP_IS_TLM_RCV_SEC_BV_01	
Summary	Check that the IUT accepts the SPATEM message permitted by the signing certificate	
Reference	ETSI TS 103 301 [1], clause 5.4.3.2	
PICS Selection	PICS_SPATEM_RECEPTION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "in	itial state"	
and the IUT is operatin	ig in secured mode	
ensure that		
when		
the IUT receives a	the IUT receives a SPATEM	
containing spat		
not containii	not containing intersections	
containir	ng any elements of type IntersectionState	
conta	aining states	
not containing any element		
and not containing regional		
and signed with the certificate		
containing appPermission item		
containing psid		
indicating ITS_AID_SPATEM		
then		
the IUT accepts the	e received SPATEM	

TP ld	TP_IS_TLM_RCV_SEC_BO_01	
Summary	Check that the IUT discards the SPATEM message not permitted by the signing certificate	
Reference	ETSI TS 103 301 [1], clause 5.4.3.2	
PICS Selection	PICS_SPATEM_RECEPTION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "in	itial state"	
and the IUT is operatin	ng in secured mode	
ensure that		
when		
the IUT receives a	SPATEM	
containing spat		
containing intersections		
containir	ng elements of type IntersectionState	
conta	containing states	
not containing any element		
and not containing regional		
and signed with the certificate		
not containing appPermission item		
containing psid		
indicating ITS_AID_SPATEM		
then		
the IUT discards th	e received SPATEM	

TPId	TE IS TIM POV SED BY 01	
	IF_IO_I LIVI_NOV_OOF_DV_UI	
Summary	Check that the IUI accepts the SPATEM message containing IntersectionState without	
	additional information permitted by the signing certificate	
Reference	ETSI TS 103 301 [1], clause 5.4.3.2	
PICS Selection	PICS_SPATEM_RECEPTION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT is operating	in secured mode	
ensure that		
when		
the IUT receives a S	PATEM	
containing spat		
containing int	ersections	
containing	g elements of type IntersectionState	
contai	ning states	
no	t containing elements of type MovementState	
containing maneuverAssistList		
and signed with the certificate		
containing appPermission item		
containing psid		
indicating ITS AID SPATEM		
containing bitmapSSP		
indicating octet at position 0 set to 0x01		
and in	dicating bit at position 8 set to 1	
then		
the IUT accepts the	received SPATEM	

TP ld	TP_IS_TLM_RCV_SSP_BO_02	
Summony	Check that the IUT discards the SPATEM message containing IntersectionState without	
Summary	additional information not permitted by the signing certificate	
Reference	ETSI TS 103 301 [1], clause 5.4.3.2	
PICS Selection	PICS_SPATEM_RECEPTION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "in	itial state"	
and the IUT is operatin	ig in secured mode	
ensure that		
when		
the IUT receives a	SPATEM	
containing spat		
containing in	ntersections	
containir	ng elements of type IntersectionState	
conta	aining states	
n	ot containing elements of type MovementState	
	containing maneuverAssistList	
and	not containing maneuverAssistList	
and	and not containing regional	
and signed with	and signed with the certificate	
containing a	containing appPermission item	
containing psid		
indicating ITS_AID_SPATEM		
and containing bitmapSSP		
indicating octet at position 0 set to 0x01		
and indicating bit at position 8 set to 0		
then		
the IUT discards th	e received SPATEM	

TP ld	TP_IS_TLM_RCV_SSP_BV_03	
Summary	Check that the IUT accepts the SPATEM message containing IntersectionState with public	
	transport prioritization response permitted by the signing certificate	
Reference	ETSI TS 103 301 [1], clause 5.4.3.2	
PICS Selection	PICS_SPATEM_RECEPTION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT is operating	in secured mode	
ensure that		
when		
the IUT receives a S	PATEM	
containing spat		
containing int	ersections	
containing	gelements of type IntersectionState	
contai	containing states	
not containing elements of type MovementState		
containing maneuverAssistList		
and or	and not containing maneuverAssistList	
and containing element of type InterportionState aggCrpC		
and signed with the certificate		
containing appPermission item		
containing approximetion term		
indicating ITS AID SPATEM		
and containing bitmapSSP		
indicating octet at position 0 set to 0x01		
and in	dicating bit at position 9 set to 1	
then		
the IUT accepts the	received SPATEM	

the IUT acce	pts the received SPATEM

TP Id TP_IS_TLM_RCV_SSP_BO_04 Summary Check that the IUT discards the SPATEM message containing IntersectionState with public transport prioritization response not permitted by the signing certificate Reference ETSI TS 103 301 [1], clause 5.4.3.2 PICS Selection PICS_SPATEM_RECEPTION AND PICS_IS_IUT_SECURED Expected behaviour Expected behaviour with the IUT is operating in secured mode ensure that ontaining intersections containing intersections containing intersections containing intersections containing elements of type IntersectionState containing maneuverAssistList and not containing maneuverAssistList and not containing anneuverAssistList and containing activePrioritizations and signed with the certificate containing activePrioritizations and signed with the certificate containing apPErmission item containing apPErmission item containing psid indicating DCH SPATEM and containing bid indicating tot position 9 set to 0 the IUT discards the received SPATEM				
Summary Check that the IUT discards the SPATEM message containing IntersectionState with public transport prioritization response not permitted by the signing certificate Reference ETSI TS 103 301 [1], clause 5.4.3.2 PICS Selection PICS_SPATEM_RECEPTION AND PICS_IS_IUT_SECURED with Expected behaviour with Expected behaviour with the IUT being in the "initial state" and the IUT is operating in secured mode ensure that when the IUT receives a SPATEM containing spat containing elements of type IntersectionState containing intersections containing elements of type IntersectionState containing elements of type MovementState containing maneuverAssistList and containing maneuverAssistList and containing element of type IntersectionState-aggGrpC containing apPermission item containing apPErmission item containing appErmission item containing appErmission item containing psid indicating trS_AID_SPATEM and containing bit at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	TP ld	TP_IS_TLM_RCV_SSP_BO_04		
Summary public transport prioritization response not permitted by the signing certificate Reference ETSI TS 103 301 [1], clause 5.4.3.2 PICS Selection PICS_SPATEM_RECEPTION AND PICS_IS_IUT_SECURED Expected behaviour with the IUT being in the "initial state" and the IUT is operating in secured mode ensure that when the IUT receives a SPATEM containing pat containing elements of type IntersectionState containing maneuverAssistList and not containing maneuverAssistList and not containing element of type IntersectionState-aggGrpC containing activePrioritizations and signed with the certificate containing apPermission item containing psid indicating Octet at position 0 set to 0x01 and indicating bit at position 9 set to 0	Summary	Check that the IUT discards the SPATEM message containing IntersectionState with		
Reference ETSI TS 103 301 [1], clause 5.4.3.2 PICS_Selection PICS_SPATEM_RECEPTION AND PICS_IS_IUT_SECURED Expected behaviour with the IUT being in the "initial state" and the IUT is operating in secured mode ensure that when the IUT receives a SPATEM containing spat containing intersections containing elements of type IntersectionState containing intersections containing maneuverAssistList and not containing element of type IntersectionState-aggGrpC containing apPermission item containing activePrioritizations and signed with the certificate containing pid containing pid indicating ITS_AID_SPATEM and containing bit indicating bit at position 0 set to 0x01 and indicating bit at position 9 set to 0 then		public transport prioritization response not permitted by the signing certificate		
PICS Selection PICS_SPATEM_RECEPTION AND PICS_IS_IUT_SECURED Expected behaviour with the IUT being in the "initial state" and the IUT is operating in secured mode ensure that when the IUT receives a SPATEM containing spat containing intersections containing intersections containing elements of type IntersectionState containing menuverAssistList and not containing menuverAssistList and containing element of type IntersectionState-aggGrpC containing activePrioritizations containing activePrioritizations and signed with the certificate containing pid indicating pid indicating the position 0 set to 0x01 and indicating bit at position 0 set to 0x01 and indicating bit at position 9 set to 0	Reference	ference ETSI TS 103 301 [1], clause 5.4.3.2		
Expected behaviour with the IUT being in the "initial state" and the IUT is operating in secured mode ensure that when the IUT receives a SPATEM containing spat containing intersections containing lements of type IntersectionState containing states not containing elements of type MovementState containing maneuverAssistList and not containing maneuverAssistList and containing regional containing element of type IntersectionState-aggGrpC containing element of type IntersectionState-aggGrpC containing pelement of type IntersectionState-aggGrpC containing states and signed with the certificate containing activePrioritizations and signed with the certificate containing ppPermission item containing psid indicating ITS_AD_SPATEM and containing bitmapSSP indicating bit at position 0 set to 0x01 and indicating bit at position 9 set to 0 then then the IUT discards the received SPATEM	PICS Selection	PICS_SPATEM_RECEPTION AND PICS_IS_IUT_SECURED		
<pre>with the IUT being in the "initial state" and the IUT is operating in secured mode ensure that when the IUT receives a SPATEM containing spat containing intersections containing elements of type IntersectionState containing states not containing maneuverAssistList and not containing maneuverAssistList and containing activePrioritizations containing appPermission item containing appPermission item containing bitmapSSP indicating ITS_AID_SPATEM and containing bit at position 0 set to 0x01 and indicating bit at position 0 set to 0x01 and indicating bit at position 0 set to 0x01 the IUT discards the received SPATEM </pre>		Expected behaviour		
the IUT being in the "initial state" and the IUT is operating in secured mode ensure that when the IUT receives a SPATEM containing spat containing intersections containing elements of type IntersectionState containing states not containing elements of type MovementState containing maneuverAssistList and not containing maneuverAssistList and containing regional containing element of type IntersectionState-aggGrpC containing apPermission item containing psid indicating ITS_AID_SPATEM and containing bit at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	with			
and the IUT is operating in secured mode ensure that when the IUT receives a SPATEM containing spat containing elements of type IntersectionState containing elements of type MovementState containing maneuverAssistList and not containing maneuverAssistList and containing maneuverAssistList and containing regional containing element of type IntersectionState-aggGrpC containing activePrioritizations and signed with the certificate containing psid indicating ITS_AID_SPATEM and containing bitmapSSP indicating octet at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	the IUT being in the "init	ial state"		
ensure that when the IUT receives a SPATEM containing intersections containing elements of type IntersectionState containing states not containing elements of type MovementState containing maneuverAssistList and containing maneuverAssistList and containing regional containing element of type IntersectionState-aggGrpC containing activePrioritizations and signed with the certificate containing appPermission item containing psid indicating ITS_AID_SPATEM and containing bitmapSSP indicating bitmapSSP indicating bit at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	and the IUT is operating	in secured mode		
when the IUT receives a SPATEM containing spat containing intersections containing elements of type IntersectionState containing states not containing elements of type MovementState containing maneuverAssistList and not containing maneuverAssistList and containing regional containing element of type IntersectionState-aggGrpC containing activePrioritizations and signed with the certificate containing appPermission item containing psid indicating ITS_AID_SPATEM and containing bitmapSSP indicating octet at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	ensure that			
the IUT receives a SPATEM containing spat containing intersections containing elements of type IntersectionState containing states not containing elements of type MovementState containing maneuverAssistList and not containing maneuverAssistList and containing regional containing element of type IntersectionState-aggGrpC containing activePrioritizations and signed with the certificate containing ppPermission item containing psid indicating ITS_AID_SPATEM and containing bitmapSSP indicating octet at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	when			
containing spat containing intersections containing elements of type IntersectionState containing states not containing elements of type MovementState containing maneuverAssistList and not containing maneuverAssistList and containing regional containing element of type IntersectionState-aggGrpC containing activePrioritizations and signed with the certificate containing appPermission item containing pid indicating ITS_AID_SPATEM and containing bit at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	the IUT receives a S	PATEM		
containing intersections containing elements of type IntersectionState containing states not containing elements of type MovementState containing maneuverAssistList and not containing maneuverAssistList and containing regional containing element of type IntersectionState-aggGrpC containing activePrioritizations and signed with the certificate containing appPermission item containing psid indicating ITS_AID_SPATEM and containing bit mapSSP indicating bit at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	containing spat			
containing elements of type IntersectionState containing states not containing elements of type MovementState containing maneuverAssistList and not containing maneuverAssistList and containing regional containing element of type IntersectionState-aggGrpC containing activePrioritizations and signed with the certificate containing appPermission item containing psid indicating ITS_AID_SPATEM and containing bitmapSSP indicating octet at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	containing int	ersections		
containing states not containing elements of type MovementState containing maneuverAssistList and not containing maneuverAssistList and containing regional containing element of type IntersectionState-aggGrpC containing activePrioritizations and signed with the certificate containing appPermission item containing psid indicating ITS_AID_SPATEM and containing bitmapSSP indicating octet at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	containing	g elements of type IntersectionState		
not containing elements of type MovementState containing maneuverAssistList and not containing maneuverAssistList and containing regional containing element of type IntersectionState-aggGrpC containing activePrioritizations and signed with the certificate containing appPermission item containing psid indicating ITS_AID_SPATEM and containing bitmapSSP indicating octet at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	contai	containing states		
and not containing maneuverAssistList and containing regional containing element of type IntersectionState-aggGrpC containing activePrioritizations and signed with the certificate containing appPermission item containing psid indicating ITS_AID_SPATEM and containing bitmapSSP indicating octet at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	not containing elements of type MovementState			
and not containing maneuverAssistList and containing regional containing element of type IntersectionState-aggGrpC containing activePrioritizations and signed with the certificate containing appPermission item containing psid indicating ITS_AID_SPATEM and containing bitmapSSP indicating octet at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	and p	containing maneuverAssistList		
containing regional containing element of type IntersectionState-aggGrpC containing activePrioritizations and signed with the certificate containing appPermission item containing psid indicating ITS_AID_SPATEM and containing bitmapSSP indicating octet at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	and no	or containing maneuver Assistant		
and signed with the certificate containing appPermission item containing psid indicating ITS_AID_SPATEM and containing bitmapSSP indicating octet at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM		and containing regional		
and signed with the certificate containing appPermission item containing psid indicating ITS_AID_SPATEM and containing bitmapSSP indicating octet at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM		containing element of type intersectionstate-aggotpc		
containing appPermission item containing psid indicating ITS_AID_SPATEM and containing bitmapSSP indicating octet at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	and signed with the certificate			
containing psid indicating ITS_AID_SPATEM and containing bitmapSSP indicating octet at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	containing annPermission item			
indicating ITS_AID_SPATEM and containing bitmapSSP indicating octet at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	containing apprentitiosion term			
and containing bitmapSSP indicating octet at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	indicating ITS AID SPATEM			
indicating octet at position 0 set to 0x01 and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	and containing bitmapSSP			
and indicating bit at position 9 set to 0 then the IUT discards the received SPATEM	indicat	indicating octet at position 0 set to 0x01		
then the IUT discards the received SPATEM	and indicating bit at position 9 set to 0			
the IUT discards the received SPATEM	then			
	the IUT discards the received SPATEM			

TP ld	TP_IS_TLM_RCV_SSP_BV_05
Summary	Check that the IUT accepts the SPATEM message containing IntersectionState with
	manoeuvre assist information permitted by the signing certificate
Reference	ETSI TS 103 301 [1], clause 5.4.3.2
PICS Selection	PICS_SPATEM_RECEPTION AND PICS_IS_IUT_SECURED
	Expected behaviour
with	
the IUT being in the "initi	ial state"
and the IUT is operating	in secured mode
ensure that	
when	
the IUT receives a S	PATEM
containing spat	
containing intersections	
containing	elements of type IntersectionState
containing maneuverAssistList	
and not containing regional	
and signed with the certificate	
containing apprennission item	
indicating ITS AID SPATEM	
and containing hitmanSSP	
indicating octet at position 0 set to 0x01	
and inc	dicating bit at position 10 set to 1
then	
the IUT accepts the r	received SPATEM

TP ld	TP_IS_TLM_RCV_SSP_BO_06		
Summary	Check that the IUT discards the SPATEM message containing IntersectionState with		
	manoeuvre assist information permitted by the signing certificate		
Reference	ETSI TS 103 301 [1], clause 5.4.3.2		
PICS Selection	PICS_SPATEM_RECEPTION AND PICS_IS_IUT_SECURED		
	Expected behaviour		
with			
the IUT being in the "init	ial state"		
and the IUT is operating	in secured mode		
ensure that			
when			
the IUT receives a S	PATEM		
containing spat			
containing inte	containing intersections		
contair	and maneuverAssist ist		
and no	and not containing regional		
and not containing regional			
containing appPermission item			
containing	containing application term		
indicating ITS AID SPATEM			
and containing bitmapSSP			
indicating octet at position 0 set to 0x01			
and indicating bit at position 10 set to 0			
then			
the IUT discards the	received SPATEM		
5.2.2 Road and Lane Topology (RLT) service

5.2.2.1 Check that RLT message format

5.2.2.1.1 Check that RLT protocol version is set to 1

TP ld	TP_IS_RLT_GEN_MSGF_BV_01		
Summary	Check that protocolVersion is set to 1 and messageID is set to 5		
Reference	ETSI TS 103 301 [1], clause 6.3		
PICS Selection	PICS_MAPEM_GENERATION		
	Expected behaviour		
with			
the IUT being in the "init	ial state"		
and the IUT sending MA	and the IUT sending MAPEM		
ensure that			
when	when		
a MAPEM is generat	ied		
then			
the IUT sends a valid	the IUT sends a valid MAPEM		
containing ITS PDU header			
containing protocolVersion			
indicating value '1'			
and containin	and containing messageID		
indicating value '5'			

5.2.2.1.2 Check the RLT message content

5.2.2.1.2.1 Check the message revision number

TP ld	TP_IS_RLT_GEN_MSGF_BV_02	
Summary	Check that the intersection information revision number is changed when the intersection	
	configuration is changed	
Reference	CEN ISO/TS 19091 [3], clause 6.5.13	
PICS Selection	PICS_MAPEM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "MA	NPEM initial state"	
and the IUT already sen	and the IUT already sent MAPEM	
containing id of type	IntersectionReferenceID	
indicating ID		
and containing eleme	ents of type IntersectionGeometry	
containing revision		
indicating value R		
ensure that		
when		
the IUT is triggered to send the MAPEM		
containing new configuration of the intersection		
then		
the IUT sends MAPEM		
containing id of type IntersectionReferenceID		
indicating ID	indicating <i>ID</i>	
and containing th	e element of type IntersectionGeometry	
containing revision		
indicating	value R+1	

TP ld	TP_IS_RLT_GEN_MSGF_BV_03	
Summary	Check that the intersection information revision number is not changed when the	
	intersection configuration is still the same	
Reference	CEN ISO/TS 19091 [3], clause 6.5.13	
PICS Selection	PICS_MAPEM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "MA	PEM initial state"	
and the IUT already sen	t MAPEM	
containing id of type	containing id of type IntersectionReferenceID	
indicating <i>ID</i>		
and containing eleme	ents of type IntersectionGeometry	
containing revision		
indicating value R		
ensure that		
when		
the IUT is triggered to send the MAPEM		
containing the same configuration of the intersection		
then		
the IUT sends MAPEM		
containing id of type IntersectionReferenceID		
indicating <i>ID</i>		
and containing the element of type IntersectionGeometry		
containing rev	vision	
indicating	value R	

5.2.2.1.2.2 Check the message connection trajectories

TP ld	TP_IS_RLT_GEN_MSGF_BV_04		
Summary	Check that RLT Service transmits MAPEM with the valid connection trajectories		
Reference	CEN ISO/TS 19091 [3], clause G.8.2.3.4		
PICS Selection	PICS_MAPEM_GENERATION		
	Expected behaviour		
with			
the IUT being in the "initi	ial state"		
and the IUT sending MA	PEM		
ensure that	ensure that		
when			
a MAPEM is generated			
containing MapData data element			
containing intersections			
containing	elements of type IntersectionGeometry		
containing laneSet			
containing elements of type GenericLane			
containing regional			
containing elements of type ConnectionTrajectory			
then			
the first node of the trajectory			
indicate the position related to the node of ingress lane			
and the last node of	the trajectory		
indicate the posit	ion identical to the first node of the connected egress lane		

5.2.2.1.2.3 Ch	eck the altitude encoding
TP ld	TP_IS_RLT_GEN_MSGF_BV_05
Summary	Check that reference point altitude is encoded using regional extension
Reference	CEN ISO/TS 19091 [3], clause G.8.2.6
PICS Selection	PICS_MAPEM_GENERATION
	Expected behaviour
with the IUT being in the "MA ensure that when the IUT is triggered t containing refere containing alt then	PEM initial state" o send the MAPEM nce position itude information ALTITUDE
the IUT sends MAPE containing map.in containing the containing not co and co con	M htersections e element of type IntersectionGeometry g refPoint ntaining elevation ontaining regional htaining element of type Position3D-addGrpC containing altitude

indicating ALTITUDE

5.2.2.1.2.4 Check lanes configuration

TP ld	TP_IS_RLT_GEN_MSGF_BV_06
Summary	Check that each lane of the intersection contains a unique number
Reference	CEN ISO/TS 19091 [3], clause 6.5.8
PICS Selection	PICS_MAPEM_GENERATION
	Expected behaviour
with	
the IUT being in the "MA	PEM initial state"
ensure that	
when	
the IUT is triggered to	o send the MAPEM
containing intersections	
containing multiple lines	
then	
the IUT sends MAPE	M
containing map.intersections	
containing the element of type IntersectionGeometry	
containing laneSet	
containing elements of type GenericLane	
cor	ntaining laneID
	indicating unique value

TP ld	TP_IS_RLT_GEN_MSGF_BV_07
	Check that the number of nodes needed to represent the path of a lane is selected such
Summary	that the perpendicular distance between the lane centre line and the straight line
	connecting the two consecutive nodes is less than 1 m
Reference	CEN ISO/TS 19091 [3], clause 6.5.9
PICS Selection	PICS_MAPEM_GENERATION
	Expected behaviour
with	
the IUT being in the "MA	APEM initial state"
ensure that	
when	
the IUT is triggered t	o send the MAPEM
containing intersections	
containing multiple lines	
then	
the IUT sends MAPE	EM
containing map.intersections	
containing the element of type IntersectionGeometry	
containing laneSet	
containing elements of type GenericLane	
containing nodeList	
	containing nodes
	containing enough elements
	indicating precise lane path

5.2.2.1.2.5 Check valid manoeuvres and user types for various lanes

TP ld	TP IS RLT GEN MSGF BV 08		
	Check that each vehicular lane of the intersection includes only allowed manoeuvres and		
Summary	vehicle types		
Reference	CEN ISO/TS 19091 [3], clause 6.5.10		
PICS Selection	PICS MAPEM GENERATION		
	Expected behaviour		
with			
the IUT being in the "MA	PFM initial state"		
ensure that			
when			
the IUT is triggered to	o send the MAPEM		
containing interse			
containing vel	hicle lane		
containing	InnelD (LANE ID)		
then			
the IUT sends MAPE	Μ		
containing map.ir	ntersections		
containing the	element of type IntersectionGeometry		
containing	laneSet		
contair	ning elements of type GenericLane		
cor	ntaining laneID		
	indicating LANE_ID		
and	d containing laneAttributes		
	containing laneType		
	containing vehicle		
	not indicating any flags		
	or indicating isVehicleFlyOverLane		
	or indicating hovLaneUseOnly		
	and containing sharedWith		
	not indicating any flags		
indicating otherNonMotorizedTrafficTypes (2)			
and/or indicating pedestriansTraffic (6)			
and/or indicating cyclistVehicleTraffic (7)			
and/or indicating pedestrianTraffic (9)			
and/or containing connectsTo			
containing elements of type Connection			
containing connectingLane			
	containing maneuver		
	indicating maneuverStraightAllowed		
	or indicating maneuverLeftAllowed		
	or indicating maneuverRightAllowed		
or indicating maneuverUTurnAllowed			
	or indicating maneuverLeft LurnOnRedAllowed		
	or indicating maneuverkight i urnUnRedAllowed		
	or not containing maneuvre		
or cont	aning element of type GenericLane		
cor			
	Indicating LANE_ID		
and	a containing overlays		
	Indicating list of lanes to be used for the present TP		

триа	TD IS DIT CEN MSCE DV 00		
	[IF_IO_NLI_GEN_WOOF_DV_VV		
Summary	Check that each pedestrian lane of the intersection includes only allowed manoeuvres and		
	user types		
Reference	[CEN ISO/ I S 19091 [3], clause 6.5.11		
PICS Selection	PICS_MAPEM_GENERATION AND PICS_PEDESTRIAN_MANOEUVRES		
	Expected behaviour		
with			
the IUT being in the "MA	APEM initial state"		
ensure that			
when			
the IUT is triggered t	io send the MAPEM		
containing interse	ection		
containing pe	destrian lane		
containing	ا aneID (<i>LANE_ID</i>)		
then			
the IUT sends MAPE	EM		
containing map.in	ntersections		
containing the	e element of type IntersectionGeometry		
containing	j laneSet		
contai	ning elements of type GenericLane		
CO	ntaining laneID		
	indicating LANE_ID		
an	d containing laneAttributes		
containing laneType			
	containing crosswalk		
	or containing bikeLane		
	or containing sidewalk		
and containing sharedWith			
indicating otherNonMotorizedTrafficTypes (2)			
or indicating pedestriansTraffic (6)			
or indicating cyclistVehicleTraffic (7)			
or indicating pedestrianTraffic (9)			
	or not indicating any value		
and containing connectsTo			
	containing elements of type Connection		
	containing connectingLane		
containing maneuver			
	indicating maneuverStraightAllowed		
	or not containing maneuver		
or con	taining element of type GenericLane		
CO	ntaining lanelD		
	indicating LANE_ID		
an	d containing overlays		
	indicating list of lanes to be used for the present TP		

TP ld	TP_IS_RLT_GEN_MSGF_BV_10		
Summary	Check that each special lane of the intersection includes only allowed manoeuvres and		
	user types		
Reference	CEN ISO/TS 19091 [3], clause 6.5.12		
PICS Selection	PICS_MAPEM_GENERATION AND PICS_SPECIALIZED_CARS_MANOEUVRES		
	Expected behaviour		
with			
the IUT being in the "MA	NPEM initial state"		
ensure that			
when			
the IUT is triggered t	o send the MAPEM		
containing interse	ection		
containing sp	ecial transport lane		
containing	anelD (<i>LANE_ID</i>)		
then			
the IUT sends MAPE	EM		
containing map.ir	ntersections		
containing the	e element of type IntersectionGeometry		
containing	laneSet		
contai	ning elements of type GenericLane		
COI	ntaining lanelD		
	indicating LANE_ID		
an	d containing laneAttributes		
	containing laneType		
	containing vehicle		
indicating hovLaneUseOnly			
or indicating restrictedToBusUse			
or indicating restrictedFromPublicUse			
or containing trackedVehicle			
and containing connectsTo			
containing elements of type Connection			
containing connectingLane			
containing maneuver			
indicating maneuverStraightAllowed			
or indicating goWithHalt			
or not containing maneuver			
or con	taining element of type GenericLane		
COI			
	Indicating LANE_ID		
an	a containing overlays		
indicating list of lanes to be used for the present TP			

TP ld	TP_IS_RLT_GEN_MSGF_BV_11		
Summary	Check that each crosswalk lane of the intersection does not have ingress or egress		
	approaches and includes only valid user types		
Reference	CEN ISO/TS 19091 [3], clause 6.5.14		
PICS Selection	PICS_MAPEM_GENERATION		
	Expected behaviour		
with			
the IUT being in the "MA	APEM initial state"		
ensure that			
when			
the IUT is triggered t	o send the MAPEM		
containing interse	ection		
containing cro	osswalk lane		
containing	containing laneID (<i>LANE_ID</i>)		
then			
the IUT sends MAPE	EM		
containing map.ii	ntersections		
containing the	element of type IntersectionGeometry		
containing	J lane Set		
contai	containing element of type GenericLane		
CO			
20	Indicating Lane_ID		
an	and containing laneAttributes		
containing range resewalk			
and containing shared.With			
	indicating otherNonMotorizedTrafficTypes (2)		
	or indicating edestriansTraffic (6)		
or indicating cyclist/ehicleTraffic (7)			
or indicating trackedVehicleTraffic (8)			
or indicating pedestrianTraffic (9)			
or not indicating any value			
and not containing ingress Approach			
an	d not containing egressApproach		
or con	taining element of type GenericLane		
CO	ntaining lanelD		
	indicating LANE_ID		
an	d containing overlays		
	indicating list of lanes to be used for the present TP		

5.2.2.1.2.6	Check the lane width	
TP ld	TP_IS_RLT_GEN_MSGF_BV_12	
Summary	Check that each lane information contain lane width or default lane width is provided	
Reference	CEN ISO/TS 19091 [3], clause 6.5.15	
PICS Selection	PICS_MAPEM_GENERATION AND PICS_MAPEM_HAS_LANE_WIDTH	
	Expected behaviour	
with		
the IUT being in the "N	IAPEM initial state"	
ensure that		
when		
the IUT is triggered	d to send the MAPEM	
containing inter	rsection	
containing I	anes	
then		
the IUT sends MAI		
containing map	D.Intersections	
containing a	all elements of type intersection deometry	
containing ranewidth		
indicating default falle with		
containing all elements of type Constict and		
containing nodes		
	containing all elements of type NodeXY	
	containing attributes	
	containing dWidth	
	indicating lane with at the point	

TP ld	TP_IS_RLT_GEN_MSGF_BV_13		
Summary	Check that default lane width is not included in the RTL message if each lane information		
	contains lane width		
eference CEN ISO/TS 19091 [3], clause 6.5.16			
PICS Selection	PICS_MAPEM_GENERATION AND PICS_MAPEM_HAS_LANE_WIDTH		
	Expected behaviour		
with			
the IUT being in the "MA	PEM initial state"		
ensure that			
when			
the IUT is triggered to	the IUI is triggered to send the MAPEM		
containing map.ir	ntersections		
containing all elements of type intersectionGeometry			
containing all elements of type Ceneric ane			
containing an elements of type GenericLalle			
containing nodes			
containing all elements of type NodeXY			
containing attributes			
containing dWidth			
indicating lane with at the point			
then			
the IUT sends MAPE	M		
containing map.ir	ntersections		
containing all	elements of type IntersectionGeometry		
not contai	ning laneWidth		

ETSI

TP ld	TP_IS_RLT_GEN_MSGF_BV_14	
Summary	Check that possible manoevers are encoded in connectsTo data element	
Reference	CEN ISO/TS 19091 [3], clauses 6.5.17 and G.8.2.3.2	
PICS Selection	PICS_MAPEM_GENERATION	
Expected behaviour		
with		
the IUT being in the "initial state"		
and the IUT sending MAPEM		
ensure that		
when		
the RLT service is requested to send a MAPEM		
containing possible manoevers information		
then		
the IUT sends a MAPEM		
containing elements of type IntersectionGeometry		
containing laneSet		
containing	elements of type GenericLane	
contair	ning DE connectsTo	
cor	ntaining information about possible manoeuvers	

TP ld	TP_IS_RLT_GEN_MSGF_BV_15		
Summany	An IUT shall broadcast the signal group identifier, the lanes/approaches associated with		
Summary	the signal group, and the lanes/approaches' allowable manoeuvres		
Reference	CEN ISO/TS 19091 [3], clause 6.5.21		
PICS Selection	CS Selection PICS_MAPEM_GENERATION		
	Expected behaviour		
with			
the IUT being in the "MA	APEM initial state"		
ensure that			
when			
the IUT is triggered t	o send the MAPEM		
containing interse	ection		
containing lar	containing lanes		
containing signalGroup			
then			
the IUT sends MAPE			
containing map.ir	ntersections		
containing all	elements of type intersection Geometry		
containing	Jianeser ning all alements of time Constictions		
contail	containing all elements of type GenericLane		
containing connects I o			
	containing elements of type Connection		
containing signal coup			
	and containing connectingliana		
	and containing connecting_ane		
	indicating possible maneuver		
L	indicating possible maneuver		

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	-		
TP ld	TP_IS_RLT_GEN_MSGF_BV_16		
Summary Reference	Check that lanes which are crossed by a crosswalk shall use the same ingressApproach /		
	egressApproach identifier		
Reference	CEN ISO/TS 19091 [3], clause G.8.2.3.1		
PICS Selection	PICS_MAPEM_GENERATION		
	Expected behaviour		
with			
the IUT being in the "init	ial state"		
and the IUT sending MA	\PEM		
ensure that			
when			
a MAPEM is generat	ted		
containing MapData data element			
containing elements of type IntersectionGeometry			
containing more then one element of type GenericLane			
crossed by the same crosswalk lane			
then			
the IUT sends a MAR	PEM		
containing these	containing these lements of type GenericLane		
containing ingressApproach			
indicating the same value			
or containing egressApproach			
indicating the same value			
TP Id	IP_IS_RLI_GEN_MSGF_BV_17		
	Check that RLT Service transmits MAPEM without data elements not used in ETSI		
Summary	architecture:		
Cumury	layerType		
	dataParameters		
Reference	CEN ISO/TS 19091 [3], clauses G.8.1.1 and G.8.2.1		

PICS Selection PICS_MAPEM_GENERATION Expected behaviour with the IUT being in the "initial state" and the IUT sending MAPEM ensure that when a MAPEM is generated containing a new content indicating a value which is not exceeding the allowed message length then the IUT sends a MAPEM containing MapData data element not containing layerType and not containing layerID and not containing dataParameters containing elements of type IntersectionGeometry containing elements of type GenericLane not containing preemptPriorityData and not containing maneuvers and containing connectsTo containing elements of type Connection containing connectingLane not containing maneuver

TP ld	TP_IS_RLT_GEN_FRAG_BV_01		
Summary	Check that RLT Service transmits non-fragmented MAPEM without the Layer ID		
Reference	ETSI TS 103 301 [1], clause 6.4.1		
	CEN ISO/TS 19091 [3], clause G.8.3.1		
PICS Selection	PICS_MAPEM_GENERATION		
	Expected behaviour		
with			
the IUT being in the "in	itial state"		
and the IUT sending M	APEM		
ensure that			
when	when		
the IUT is requested	d to send a MAPEM		
indicating a map structure which fits the allowed message length			
then			
the IUT sends a first MAPEM			
containing map			
not containing LayerID			

5.2.2.2 Check the RLT message fragmenting

TP ld	TP_IS_RLT_GEN_FRA	AG_BV_02	
Summary	Check that RLT Service	e transmits fragmented MAPEM	when the message size exceeds
	the allowed message le	ength	-
Reference	ETSI TS 103 301 [1], c	ause 6.4.1	
	CEN ISO/TS 19091 [3]	, clause G.8.3.1	
PICS Selection	PICS_MAPEM_GENER	RATION	
	Ex	pected behaviour	
with			
the IUT being in the "init	ial state"		
and the IUT sending MA	PEM		
ensure that			
when			
the IUT is requested	to send a MAPEM		
indicating a map	structure which exceeds	s the allowed message length ar	nd shall be sent using N fragments
then			
the IUT sends a first	valid MAPEM		
containing map			
containing La	yerID		
indication	a value $LID_1 = \mathbf{N} * 10 +$	1	
and the IUT sends n	ext MAPEM		
containing map	15		
containing La	yerID		
Indication	a value $LID_n = LID_{n-1} + 1$	1 Manianta	
		variants	
Fragments count (N)	LID ₁	LID ₂	LID _N
2	21	22	22
3	31	32	33
4	41	42	44

TP ld	TP_IS_RLT_GEN_COM_BV_01	
Summary	Check that the IUT transmits continuously both MAPEM and SPATEM	
Reference	ETSI TS 103 301 [1], clause 6.4.3.1	
PICS Selection	PICS_SPATEM_GENERATION AND PICS_MAPEM_GENERATION	
Expected behaviour		
with the IUT being in the "init and the IUT sending MA and the IUT has not sen ensure that when	ial state" .PEM t any SPATEM yet	
the IUT receives an AppSPATEM_Start request from the application layer		
then		
the IUT sends a valid	d SPATEM	
and the IUT sends a	valid MAPEM	

5.2.2.3 Check continuous transmission with the SPATEM messages

TP ld	TP_IS_RLT_GEN_COM_BV_02		
Summary	Check that RLT service generates a MAP message with the revision data element		
	synchronized with the revision data element of correspondent SPATEM message		
Reference	ference CEN ISO/TS 19091 [3], clause G.8.2.5.1		
PICS Selection	PICS_SPATEM_GENERATION AND PICS_MAPEM_GENERATION		
Expected behaviour			
with			
the IUT being in the "in	itial state"		
and the IUT already se	ent MAPEM		
containing id of typ	containing id of type IntersectionReferenceID		
indicating ID			
and containing eler	nents of type IntersectionGeometry		
containing revision			
indicating value R			
and the IUT has sent SPATEM			
containing id of type IntersectionReferenceID			
indicating <i>ID</i>			
and containing eler	and containing elements of type IntersectionState		
containing revis	containing revision		
indicating value R+1			
ensure that			
when the ILIT is triggered	to cond the MADEM		
the for is triggered	the IUT is the same configuration of the interpretion		
then			
the ILIT sends MAE			
containing the	LINI		
indicatin	a value R+1		
indicatin	y 1000 / 11 /		

TP ld	TP IS RLT GEN COM BV 03	
Summary	Check that MAPEM uses BTP B packet	
	Check that the destination port for MAPEM is set to 2003	
Reference	ETSI TS 103 301 [1], clauses 10.2 and 6.4.3.2	
PICS Selection	PICS_MAPEM_GENERATION	
	Expected behaviour	
with	· · · · · · · · · · · · · · · · · · ·	
the IUT being in the "init	ial state"	
and the IUT sending MAPEM		
ensure that		
when		
a MAPEM is generated		
then		
the IUT sends a valid MAPEM		
encapsulated in a BTP-B packet		
containing a destination port value set to '2003'		
and containing a destination port info value set to '0'		

5.2.2.4 Check BTP type and port number

5.2.2.5 Check destination type

TP ld	TP_IS_RLT_GEN_COM_BV_04		
Summary	Check that TLM service encapsulates MAPEM in a GBC with the HeaderType field set to		
	the value of 4		
Reference	ETSI TS 103 301 [1], clause 6.4.3.2		
PICS Selection	PICS_MAPEM_GENERATION AND PICS_SHORT_RANGE		
	Expected behaviour		
with			
the IUT being in the "init	tial state"		
and the IUT sending MAPEM			
ensure that			
when			
a MAPEM is generated			
then			
the IUT sends a vali	the IUT sends a valid MAPEM		
encapsulated in a GBC packet			
containing a	containing a correctly formatted Common Header		
containing	g HeaderType field		
indicating the value '4'			

5.2.2.6 RLT security parameters

5.2.2.6.1 Check RLT ITS AID value

TP ld	TP_IS_RLT_GEN_SEC_BV_01
Summany	Check that RLT service uses certificate containing valid ITS AID to sign MAPEM
Summary	messages
Reference	ETSI TS 103 301 [1], clause 6.4.3.2
PICS Selection	PICS_MAPEM_GENERATION AND PICS_IS_IUT_SECURED
	Expected behaviour
with	
the IUT being in the "MA	vPEM initial state"
and the IUT is operating	in secured mode
and the IUT sending MA	PEM
ensure that	
when	
an IUT is triggered to) send a MAPEM
then	
the IUT sends a valid	JMAPEM
containing a corre	ectly formatted Security Header as a EtsiTs103097Data structure
containing sig	jnedData.tbsData.headerInfo
containing) psid
indicat	

TP ld	TP_IS_RLT_GEN_SEC_BV_02		
Summary	Check that TLM service uses generic security profile to sign MAPEM message and does		
Summary	not include additional security header elements		
Reference	ETSI TS 103 301 [1], clause 12		
PICS Selection	PICS_MAPEM_GENERATION AND PICS_IS_IUT_SECURED		
	Expected behaviour		
with			
the IUT being in the "MA	VPEM initial state"		
and the IUT is operating	in secured mode		
and the IUT sending MA	PEM		
ensure that			
when			
a SPATEM is generated			
then	then		
the IUT sends a valid	the IUT sends a valid MAPEM		
containing a corre	containing a correctly formatted Security Header as a EtsiTs103097Data structure		
containing sig	containing signedData.tbsData.headerInfo		
containing	containing psid		
indicating ITS_AID_MAPEM			
and containing generationTime			
indicat	indicating realistic generation time		
and optior	nally containing generationLocation		
and not co	ontaining other header items		

TP ld	TP_IS_RLT_GEN_SSP_BV_01	
Summary	Check that RLT service uses certificate containing valid Service Specific Permissions of	
	type BitmapSsp to sign MAPEM messages and the SSP version is set to 1	
Reference	ETSI TS 103 301 [1], clause 4.5.1	
PICS Selection	PICS_MAPEM_GENERATION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "N	IAPEM initial state"	
and the IUT is operatin	ig in secured mode	
and the IUT is authoriz	ed to sign MAPEM with the certificate CERT_MAP_SSP_NONE	
containing appPerr	nission item	
containing psid		
indicating ITS_AID_MAPEM		
containing bitmapSSP		
indicating octet at position 0 set to 0x01		
and indicatin	ng other bits set to 0	
ensure that		
when		
the IUT is requeste	d to generate a MAPEM	
containing map		
not containing intersections		
and not con	taining roadSegments	
then		
the IUT sends a M	APEM	
signed with the	CERT SPAT SSP NONE	

5.2.2.6.2 Check RLT SSP version

5.2.2.6.3 Check RLT Service specific parameters

TP ld	TP_IS_RLT_GEN_SSP_BV_02
Summary	Check that RLT service sends a MAPEM message containing intersections when it is
	permitted by the signing certificate
Reference ETSI TS 103 301 [1], clause 6.4.3.2	
PICS Selection	PICS_MAPEM_GENERATION AND PICS_IS_IUT_SECURED
	Expected behaviour
with	
the IUT being in the "MA	PEM initial state"
and the IUT is operating	in secured mode
and the IUT is authorized	d to sign MAPEM with the certificate CERT_MAP_SSP_1
containing appPermi	ssion item
containing psid	
indicating ITS	
containing bitmapSSP	
indicating octet at position 0 set to 0x01	
and indicating bit at position 0 of octet 1 set to 1	
and indicating other bits set to 0	
ensure that	
when	
the IUT is requested to generate a MAPEM	
containing map	oractions
containing inte	eiseullulis
and not conta	ining roadsegments
the ILIT sends a MAG	DEW
signed with the C	ERT SPAT SSP 1

TP Id	TP_IS_RLT_GEN_SSP_BO_03	
Summary	Check that RLT service does not send a MAPEM message containing intersections if it is not	
	permitted by the certificate	
Reference	ETSI TS 103 301 [1], clause 6.4.3.2	
PICS Selection	PICS_MAPEM_GENERATION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "M	IAPEM initial state"	
and the IUT is operatin	g in secured mode	
and the IUT is authoriz	ed to sign MAPEM with the certificate CERT_MAP_SSP_NONE	
containing appPern	nission item	
containing psid		
indicating ITS_AID_MAPEM		
containing bitmapSSP		
indicating octet at position 0 set to 0x01		
and indicating other bits set to 0		
ensure that		
when		
the IUT is requested to generate a MAPEM		
containing map		
containing intersections		
and not containing roadSegments		
the IUT does not se	and a MAPEM	

TP ld	TP_IS_RLT_GEN_SSP_BV_04	
Summary	Check that RLT service sends a MAPEM message containing roadSegments when it is	
Summary	permitted by the signing certificate	
Reference	ETSI TS 103 301 [1], clause 5.4.3.2	
PICS Selection	PICS_MAPEM_GENERATION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "MA	VPEM initial state"	
and the IUT is operating	in secured mode	
and the IUT is authorize	d to sign MAPEM with the certificate CERT_MAP_SSP_2	
containing appPermi	ssion item	
containing psid		
indicating ITS	S_AID_MAPEM	
containing bitmap	DSSP	
indicating octet at position 0 set to 0x01		
and indicating bit at position 1 of octet 1 set to 1		
and indicating other bits set to 0		
ensure that		
when		
the IUT is requested to generate a MAPEM		
containing map		
containing roadSegments		
and not conta	ining intersections	
then		
the IUT sends a MAR	PEM	
signed with the C	ERT_SPAT_SSP_2	

TP ld	TP_IS_RLT_GEN_SSP_BO_05		
Summary	Check that RLT service does not send a MAPEM message containing roadSegments if it is		
	not permitted by the certificate		
Reference	ETSI TS 103 301 [1], clause 6.4.3.2		
PICS Selection	PICS_MAPEM_GENERATION AND PICS_IS_IUT_SECURED		
	Expected behaviour		
with			
the IUT being in the "M	IAPEM initial state"		
and the IUT is operatin	ng in secured mode		
and the IUT is authoriz	and the IUT is authorized to sign MAPEM with the certificate CERT_MAP_SSP_NONE		
containing appPerr	nission item		
containing psid			
indicating IT	indicating ITS_AID_MAPEM		
containing bitma	apSSP		
indicating of	indicating octet at position 0 set to 0x01		
and indicatin	and indicating other bits set to 0		
ensure that			
when			
the IUT is requested to generate a MAPEM			
containing map			
containing roadSegments			
and not con	taining intersections		
then			
the IUT does not se	end a MAPEM		

5.2.2.7 Check the RLT message transmission rate requirements

TP ld	TP_IS_RLT_GEN_RATE_BV_01	
Summary	Check that the IUT transmits MAPEM with valid transmission rate	
Reference	CEN ISO/TS 19091 [3], clause 6.15	
PICS Selection	PICS_MAPEM_GENERATION AND PICS_MAPEM_TRANSMISSION_RATE	
	Expected behaviour	
with		
the IUT being in the "MA	APEM initial state"	
the IUT has sent MAPE	the IUT has sent MAPEM message at TIME_1	
ensure that		
when		
IUT is triggered to se	end a next MAPEM	
then		
the IUT sends MAPE	EM at TIME_2	
indicating DELTA	A = TIME_2 - TIME_1	
where DELTA	A is less than 2 second and more then 500 ms	

5.2.2.8 Check the RLT message reception

TP ld	TP_IS_RLT_GEN_RCV_BV_03		
Summary	Check that the IUT can successfully process all mandatory fields of MAPEM received		
Reference	ETSI TS 103 301 [1], clause 6.3		
PICS Selection	PICS_MAPEM_RECEPTION		
	Expected behaviour		
with			
the IUT being in the "init	the IUT being in the "initial state"		
and the IUT hav	and the IUT having receive a valid MAPEM		
ensure that			
when			
the IUT receives a valid MAPEM			
then			
the IUT forwards the MAPEM content to upper layers			
and the IUT forwards	s the MAPEM content to other facilities		

TP ld	TP_IS_RLT_RCV_SEC_BV_01	
Summary	Check that the IUT accepts the MAPEM signed with valid certificate	
Reference	ETSI TS 103 301 [1], clause 6.4.3.2	
PICS Selection	PICS_MAPEM_RECEPTION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT is operating	in secured mode	
ensure that		
when		
the IUT receives a M	IAPEM	
containing spat		
not containing	g intersections	
and not conta	ining roadSegments	
and signed with t	he certificate	
containing ap	pPermission item	
containing	containing psid	
indicating ITS_AID_MAPEM		
containing bitmapSSP		
indicat	ing octet at position 0 set to 0x01	
and in	dicating other bits set to 0	
then		
the IUT accepts the	received MAPEM	

TDU			
1 P Id	IP_IS_RLI_RCV_SEC_BO_02		
Summary	Check that the IUT discards the MAPEM signed with certificate without permissions to sign		
Summary	МАРЕМ		
Reference	ETSI TS 103 301 [1], clause 6.4.3.2		
PICS Selection	PICS_MAPEM_RECEPTION AND PICS_IS_IUT_SECURED		
	Expected behaviour		
with			
the IUT being in the "init	the IUT being in the "initial state"		
and the IUT is operating	in secured mode		
ensure that			
when			
the IUT receives a M	IAPEM		
containing spat			
not containing	not containing intersections		
and not containing roadSegments			
and signed with the certificate			
not containing appPermission item			
containing psid			
indicating ITS_AID_MAPEM			
then			
the IUT discards the	received MAPEM		
the IUT discards the	received MAPEM		

TP ld	TP_IS_RLT_RCV_SSP_BO_03		
Summary	Check that the IUT discards the MAPEM containing intersections signed with certificate		
	without service specific permissions (SSP) to sign such a MAPEM		
Reference	ETSI TS 103 301 [1], clause 6.4.3.2		
PICS Selection	PICS_MAPEM_RECEPTION AND PICS_IS_IUT_SECURED		
	Expected behaviour		
with			
the IUT being in the "init	ial state"		
and the IUT is operating	in secured mode		
ensure that			
when			
the IUT receives a M	the IUT receives a MAPEM		
containing spat			
containing intersections			
and not containing roadSegments			
and signed with the certificate			
containing appPermission item			
containing psid			
indicating ITS_AID_MAPEM			
containing bitmapSSP			
indicating octet at position 0 set to 0x01			
and indicating other bits set to 0			
then			
the IUT discards the	received MAPEM		

TP ld	TP_IS_RLT_RCV_SSP_BO_04		
Summary	Check that the IUT discards the MAPEM containing roadSegments signed with certificate		
	without service specific permissions (SSP) to sign such a MAPEM		
Reference	ETSI TS 103 301 [1], clause 6.4.3.2		
PICS Selection	PICS_MAPEM_RECEPTION AND PICS_IS_IUT_SECURED		
	Expected behaviour		
with			
the IUT being in the "init	ial state"		
and the IUT is operating	in secured mode		
ensure that			
when			
the IUT receives a N	the IUT receives a MAPEM		
containing spat			
containing roa	adSegments		
and not conta	ining intersections		
and signed with t	he certificate		
containing ap	pPermission item		
containing psid			
indicating ITS_AID_MAPEM			
containing bitmapSSP			
indicating octet at position 0 set to 0x01			
and in	dicating other bits set to 0		
then			
the IUT discards the	received MAPEM		

ETSI

5.2.3 Infrastructure to Vehicle Information (IVI) service

TP ld	TP_IS_IVI_GEN_MSGF_BV_01		
Summary	Check that protocolVersion is set to 1 and messageID is set to 6		
Reference	ETSI TS 103 301 [1], clause 7.3		
PICS Selection	PICS_IVIM_GENERATION		
	Expected behaviour		
with			
the IUT being in the "init	ial state"		
and the IUT sending IVIM			
ensure that	ensure that		
when			
a IVIM is generated			
then			
the IUT sends a valid IVIM			
containing ITS PDU header			
containing protocolVersion			
indicating value '1'			
and containin	g messagelD		
indicating	value '6'		

5.2.3.1 Check that IVIM protocol version is set to 1

5.2.3.2 Check Location Container and location references

TP ld	TP_IS_IVI_GEN_LOC_BV_01	
Summary	Check that all Application Containers references existing items in one or more Location	
	Containers	
Reference	CEN ISO/TS 19321 [4], clauses 5.1.1 and 6.2.2.2	
PICS Selection	PICS_IVIM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT sending IVII	M	
ensure that		
when		
the IUT is requested to generate an IVIM		
containing ivi		
containing optional		
containing	any element of other types than GeographicLocationContainer	
containing any reference to zones (Z_ID)		
then		
the IUT sends a valid		
containing ivi		
containing optional		
containing elements of type GeographicLocationContainer		
containing parts		
containing elements of type GicPart		
	indicating Z ID	

TP ld	TP_IS_IVI_GEN_LOC_BV_02	
Summary	Check that application container information of the same type does not refer to overlapping	
	RZs	
Reference	CEN ISO/TS 19321 [4], clause 5.1.1	
PICS Selection	PICS_IVIM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT sending IVI	M	
ensure that		
when		
the IUT is requested to generate an IVIM		
containing ivi		
containing op	tional	
containing	an element of any other type (1) than GeographicLocationContainer	
containing relevanceZonelds		
inc	licating reference to zone (Z_IU_1)	
and containing another element of type T		
containing relevanceZonelds		
Inc	licating reference to zone (Z_IU_2)	
then IIIT condo on IV/	Μ	
the IUT sends an IVINI		
containing ivi		
containing optional		
containing parts		
containing elements of type OldFalt (ZUNE_1)		
indicating Z ID 1		
and containing element of type Geographic locationContainer		
contai	containing element of type debgraphicEdeationOontainer	
CO	ntaining elements of type GlcPart (ZONE 2)	
	containing zoneld	
	indicating Z_ID_2	
and ZONE_1 does n	ot overlap ZONE_2	

TP ld	TP_IS_IVI_GEN_LOC_BV_03	
	Check that all definitions of zones that are based on the same Reference Position, be it	
Summary	that they are connected or not interconnected, should be included in the same Geographic	
	Location Container	
Reference	CEN ISO/TS 19321 [4], clause 6.2.2.2	
PICS Selection	PICS_IVIM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT sending IVII	M	
ensure that		
when		
the IUT is requested	to generate an IVIM	
containing ivi		
containing op	tional	
containing	more then one element of type GeographicLocationContainer	
then		
the IUT sends an IVI	M	
containing IVI	tion of	
containing op	tional	
containing element of type GeographicLocationContainer		
containing referencePosition		
	Induity FUSITION	
and not co	and not containing another element of type GeographicLocationContainer	
Ind		

TP ld	TP_IS_IVI_GEN_LOC_BV_04
Summary	Check that the IUT includes the component laneNumber for each zone if the zone definition
	is restricted to specific lane(s)
Reference	CEN ISO/TS 19321 [4], clause 6.2.2.2
PICS Selection	PICS_IVIM_GENERATION
	Expected behaviour
with	
the IUT being in the "init	tial state"
and the IUT sending IVI	M
ensure that	
when	
the IUT is requested	to generate an IVIM
containing zone	definitions (ZONE_1)
restricted to s	specific lane (LANE_1)
then	
the IUT sends an IV	IM
containing ivi	
containing op	otional
containing	g element of type GeographicLocationContainer
contai	ning parts
со	ntaining elements of type GlcPart
	containing zone
	indicating ZONE_1
	and containing laneNumber
	indicating LANE_1

TP ld	TP_IS_IVI_GEN_LOC_BV_05	
Summary	Check that If the zone definition applies to the entire carriageway (all lanes), the	
	component laneNumber shall be absent	
Reference	CEN ISO/TS 19321 [4], clause 6.2.2.2	
PICS Selection	PICS_IVIM_GENERATION	
Expected behaviour		
with		
the IUT being in the "initi	al state"	
and the IUT sending IVI	М	
ensure that		
when		
the IUT is requested to generate an IVIM		
containing zone definitions (ZONE_1)		
applies to the entire carriageway		
then		
the IUT sends an IVIM		
containing ivi		
containing optional		
containing element of type GeographicLocationContainer		
containing parts		
containing elements of type GicPart		
containing zone		
	Indicating ZUNE_1	
	and not containing laneNumber	

TP ld	TP_IS_IVI_GEN_LOC_BV_06	
	Check that IUT includes, for each zone, one or more of the following optional components	
Summary	to define the zone: the component zoneExtension and/or the component zoneHeading or,	
	alternatively, the component zone	
Reference	CEN ISO/TS 19321 [4], clause 6.2.2.2	
PICS Selection	PICS_IVIM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT sending IVIM		
ensure that		
when		
the IUT is requested to generate an IVIM		
containing zone of	definitions	
then		
the IUT sends an IVIM		
containing ivi		
containing optional		
containing	any elements of type GeographicLocationContainer	
contai	ning parts	
containing any elements of type GlcPart		
	containing zoneExtension	
or containing zoneHeading		
	or containing zone	

5.2.3.3 IVI Management Container

TP ld	TP_IS_IVI_GEN_MANC_BV_01		
Summary	Check that management container contains a country code according to		
	ISO/TS 3166-1 [i.6] Numbers shall be assigned on national basis		
Reference	CEN ISO/TS 19321 [4], clause 6.1.1		
PICS Selection	PICS_IVIM_GENERATION		
	Expected behaviour		
with			
the IUT being in the "init	the IUT being in the "initial state"		
and the IUT sending IVIM			
ensure that			
when			
the IUT is requested	the IUT is requested to generate an IVIM		
then			
the IUT sends an IVIM			
containing ivi			
containing mandatory			
containing serviceProviderId			
containing countryCode			
ind	licating valid country code according to ISO 3166-1		

TP ld	TP IS IVI GEN MANC BV 02
	Check that an IUT can split an IVI Structure to multiple messages if it exceeds the
	maximum PDU size.
Summary	Check that the IVIM contains the component connectedIviStructures to connect the IVI
-	Structure to other IVI Structures provided by the same Service Provider that have been
	transmitted previously or by other ITS-S.
Reference	CEN ISO/TS 19321 [4], clause 6.1.2
PICS Selection	PICS_IVIM_GENERATION PICS_IVIM_FRAGMENTATION
	Expected behaviour
with	
the IUT being in the "ini	tial state"
and the IUT sending IV	M
ensure that	
when	
the IUT is requested	I to generate an IVIM
exceeding the m	aximum PDU size
then	
the IUI sends the fill	'st IVIM (IVI_1)
containing ivi	
containing m	andatory
containin	y ividentificationNumber (IVI_1_ID)
and conta	anny connectedivistructures
Conta	dicating ide of other IV/L structures: IVI. 2. ID IVI. N. ID
and the ILIT sends a	ubsequent IV/IM
containing m	andatory
containing individuoly	
and conta	aining connected/viStructures
conta	ining elements of type IvildentificationNumber
ind	dicating ids of other IVI structures: IVI_1_ID,

5.2.3.4 Check IVIM status and identification number

5.2.3.4.1 Check that new ivildentificationNumber value is generated for each new request

TP ld	TP_IS_IVI_GEN_EVGN_BV_01
Summary	Check that IVI Service generates a new IVIM on reception of a valid AppIVIM_Trigger
	request
Reference	ETSI TS 103 301 [1], clause 7.4.1
PICS Selection	PICS_IVIM_GENERATION
	Expected behaviour
with	
the IUT being in the	"initial state"
ensure that	
when	
the IUT receives a	n AppIVIM_Trigger request from the application layer
then	
the IUT sends a v	alid IVIM

TP ld	TP_IS_IVI_GEN_EVGN_BV_02	
Summary	Check that a new ivildentificationNumber value is assigned for each newly generated IVIM	
Reference	ETSI TS 103 301 [1], clause 7.4.1	
PICS Selection	PICS_IVIM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT having generated several IVIM		
ensure that		
when		
the IUT is requested	to generate an IVIM	
containing new d	ata	
then		
the IUT sends a valid	MIVIE	
containing ivi		
containing ma	andatory	
containing	j ivildentificationNumber	
indicat	ing an unused value	

5.2.3.4.2 Check that the value of ivildentificationNumber is not used recently

TP ld	TP_IS_IVI_GEN_EVGN_BV_03
Summony	Check that ivildentificationNumber value is set to a next unused value each time an IVIM is
Summary	detected
Reference	ETSI TS 103 301 [1], clause 7.4.1
PICS Selection	PICS_IVIM_GENERATION
	Expected behaviour
with	
the IUT being in the "init	ial state"
and the IUT having gene	erated several IVIM
and the IUT having gene	erated its last IVIM
containing ivi	
containing manda	atory
containing ivil	IdentificationNumber
indicating	IVI_ID_1
and no active IviID being	g associated with ivildentificationNumber IVI_ID_1 + 1
ensure that	
when	
the IUT is requested	to generate a new IVIM
then	
the IUT sends a valid	MIVIE
containing ivi	
containing ma	andatory
containing	j ivildentificationNumber
indicat	ing IVI_ID_1 + 1

ł
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TP ld	TP_IS_IVI_GEN_EVGN_BV_04	
Summary	Check that a new generated IVIM contains an iviStatus set to 'new'	
Reference	ETSI TS 103 301 [1], clause 7.4.2	
PICS Selection	PICS_IVIM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
ensure that		
when		
the IUT is requested to generate a new IVIM		
then		
the IUT sends a valid IVIM		
containing ivi		
containing mandatory		
containing	y iviStatus	
indicating 'new'		

5.2.3.4.4 Check that an updated IVIM contains an iviStatus set to 'update'

TP ld	TP_IS_IVI_GEN_EVUP_BV_01	
Summary	ummary Check that an updated IVIM contains an iviStatus set to 'update'	
Reference	ETSI TS 103 301 [1], clause 7.4.2	
PICS Selection	PICS_IVIM_GENERATION AND PICS_IVIM_UPDATE	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT having gene	erated an event	
containing ivi		
containing manda	atory	
containing ivi	IdentificationNumber	
indicating	IVIM_ID_1	
containing ivi	Status	
indicating 'new'		
ensure that		
when		
the IUT receives an	AppIVIM_update request associated with IVIM_ID_1	
then		
the IUT sends a valid	MIVIE	
containing ivi		
containing ma	andatory	
containing	j iviStatus	
indicat	ing 'update'	

TP ld	Id TP_IS_IVI_GEN_EVUP_BV_02		
Summary	Check that an update can change the validity time to the IVIM - validTo information field		
Reference	ETSI TS 103 301 [1], clause 7.4.2		
PICS Selection	PICS_IVIM_UPDATE		
	Expected behaviour		
with			
the IUT being in the "init	ial state"		
and the IUT having gene	erated an event		
containing ivi			
containing manda	atory		
not containing	g validTo		
and containin	g iviStatus		
indicating	'update'		
ensure that			
when			
the IUT receives an A	AppIVIM_update indicating a validTo value VT_1		
then			
the IUT sends a valid			
containing ivi			
containing ma	andatory		
containing	j validTo		
indicat	ing VT_1		
and conta	ining iviStatus		
indicat	ing 'update'		

5.2.3.4.5 Check that an update can change or add the end time to the IVIM

TP ld	TP_IS_IVI_GEN_EVUP_BV_03	
Summary	Check that an update can change the validity time to the IVIM - validFrom information field	
Reference ETSI TS 103 301 [1], clause 7.4.2		
PICS Selection	PICS_IVIM_UPDATE	
	Expected behaviour	
with		
the IUT being in the "initi	al state"	
and the IUT having gene	erated an event	
containing ivi		
containing manda	atory	
containing val	idFrom	
indicating	VT_1	
containing ivis	Status	
indicating	'update'	
ensure that		
when		
the IUT receives an A	AppIVIM_update indicating a validTo value VT_2	
then		
the IUT sends a valid		
containing ivi		
containing mandatory		
containing validFrom		
indicat	indicating VT_2	
containing	iviStatus	
indicat	ing 'update'	
· · · · · · · · · · · · · · · · · · ·		

5.2.3.4.7 Check that the timeStamp is set to the current time when generating a new IVM or last change of information content (if iviStatus set to update)

TP ld	TP IS IVI GEN EVGN BV 05		
Summary	Check that the timeStamp is set to the current time when generating a new IVM		
Reference	ETSI TS 103 301 [1], clause 7.4.2		
PICS Selection	PICS_IVIM_GENERATION		
	Expected behaviour		
with			
the IUT being in the "init	ial state"		
ensure that			
when			
the IUT is requested	to generate a new IVIM		
then			
the IUT sends a valid	the IUT sends a valid IVIM		
containing ivi			
containing ma	andatory		
containing	j timeStamp		
indicat	ting CLT		
containing	j iviStatus		
indicat	ting 'new'		
TPId	TP IS IVI GEN EVILP BV 04		
Check that the timeStamp is set to the current time when depending an undate with			
Summary change of information content			
Reference	eference FTSLTS 103 301 [1] dause 7.4.2		
PICS Selection	ICS Selection PICS IVIM UPDATE		
	Expected behaviour		
with	·		
the IUT being in the "init	ial state"		
and the IUT having gene	erated an event		

containing ivi

ensure that when

then

containing mandatory

the IUT sends a valid IVIM containing ivi

and containing iviStatus indicating 'new'

the IUT receives an AppIVIM_update

containing mandatory containing timeStamp indicating CLT containing iviStatus indicating 'update'

containing timeStamp

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TP ld	P Id TP_IS_IVI_GEN_EVUP_BV_05		
Check that the ivildentificationNumber remains unchanged IVIM is updated			
Reference ETSI TS 103 301 [1], clause 7.4.2			
PICS Selection	PICS_IVIM_UPDATE		
	Expected behaviour		
with			
the IUT being in the "init	ial state"		
and the IUT having gene	erated an event		
containing ivi	containing ivi		
containing manda	atory		
containing ivil	dentificationNumber		
indicating	IVIM_ID_1		
containing ivis	containing iviStatus		
indicating 'new'			
ensure that			
when			
the IUT receives an AppIVIM_update request associated with IVIM_ID_1			
then			
the IUT sends a valid IVIM			
containing ivi			
containing mandatory			
containing ivildentificationNumber			
indicat	ing IVIM_ID_1		
and conta	ining iviStatus		
indicating 'update'			

5.2.3.4.8 Check that the ivildentificationNumber remains unchanged when IVIM is updated

5.2.3.5 IVI General Application Container

TP ld	TP_IS_IVI_GEN_GENAPP_BV_01
Summary	The IUT shall, at minimum, include the identifier(s) of a Relevance Zone in the component
	relevanceZoneIds or of an ITS Regulatory Region in the component its-Rrid.
Reference CEN ISO/TS 19321 [4], clause 6.3.2.2	
PICS Selection	PICS_IVIM_GENERATION AND PICS_IVIM_HAS_GENERAL_CONTAINER
	Expected behaviour
with	
the IUT being in the "init	ial state"
and the IUT sending IVI	M
ensure that	
when	
the IUT is requested	to generate an IVIM
containing General Application Containers	
then	
the IUT sends a valid	MIVI E
containing ivi	
containing optional	
containing elements of type GenerallviContainer	
contai	ning elements of type GicPart
COI	ntaining relevanceZoneIds
or containing its-Rrid	

TP ld	TP_IS_IVI_GEN_GENAPP_BV_02
Summany	Check that all zone IDs in the General Application Container references existing items in
Summary	the Location Container of the same IVIM Structure
Reference	CEN ISO/TS 19321 [4], clause 6.3.2.2
PICS Selection	PICS_IVIM_GENERATION AND PICS_IVIM_HAS_GENERAL_CONTAINER
	Expected behaviour
with	
the IUT being in the "init	ial state"
and the IUT sending IVII	M
ensure that	
when	
the IUT is requested	to generate an IVIM
containing one or	more General Application Containers
containing ele	ements of types GicPart
optionally	containing relevanceZonelds
contair	ning RZ_IDs
and option	ally containing detectionZoneIds
contair	ning DZ_IDs
and option	ally containing driverAwarenessZonelds
contair	ning DAZ_IDs
then	
the IUT sends a valid	
containing ivi	
containing op	tional
containing	elements of types GeographicLocationContainer
contair	ning all zones referenced from <i>RZ_IDs</i> , <i>DZ_IDs</i> and <i>DAZ_IDs</i>

TP ld	TP_IS_IVI_GEN_GENAPP_BV_03
Summary	The IUT shall include the component direction to describe the direction of relevance within a Relevance Zone representing a road segment.
Reference CEN ISO/TS 19321 [4], clause 6.3.2.2	
PICS Selection	PICS_IVIM_GENERATION PICS_IVIM_HAS_GENERAL_CONTAINER
	Expected behaviour
with	
the IUT being in the "init	ial state"
and the IUT sending IVI	M
ensure that	
when	
the IUT is requested	to generate an IVIM
containing General Application Containers	
containing relevanceZonelds	
then	
the IUT sends a value	
containing ivi	
containing op	tional
containing element of type GenerallviContainer	
contai	ning element of type GicPart
COI	ntaining relevance∠oneids
an	d containing direction

TP ld	TP_IS_IVI_GEN_GENA	PP_BV_04
	The IUT shall include at	least one element in the roadSignCodes container.
Summary	The IUT shall include at	least one element in the component roadSignCode to specify
Summary	which road signs are ap	blicable for a Relevance Zone. A sending ITS-S should select the
	road sign from a catalog	ue which is known to be supported by a receiving ITS-S.
Reference	CEN ISO/TS 19321 [4],	clause 6.3.2.2
PICS Selection	PICS_IVIM_GENERATI PICS_X	ON AND PICS_IVIM_HAS_GENERAL_CONTAINER AND
	Exp	ected behaviour
vith		
the IUT being in the	"initial state"	
and the IUT sending	g IVIM	
Insure that		
when		
the IUT is reque	sted to generate an IVIM	
containing G	eneral Application Containers	
the II IT sends a	valid IVIM	
containing iv	i	
containin	a optional	
conta	ining element of type Genera	IlviContainer
CC	ontaining element of type GicF	Part
	containing roadSignCodes	
	containing at least 1 ele	ment of type RSCode
	containing code	
	containing COM	PONENT_X
		Variants
	PICS_X	COMPONENT_X
PICS_IVIM_RSCODE_	VIENNACONV	viennaConvention
	ISO14823	ISO14823Code
PICS_IVIM_RSCODE_		
PICS_IVIM_RSCODE_ PICS_IVIM_RSCODE_	SAEJ2540	itisCodes

I P Id	TP_IS_IVI_GEN_GENAPP_BV_05
Summary	Check that all layoutID of the General Application Containers references existing layouts in
	the Layout Containers of the same IVIM Structure
Reference	CEN ISO/TS 19321 [4], clause 6.3.4.2
PICS Selection	PICS_IVIM_GENERATION AND PICS_IVIM_HAS_GENERAL_CONTAINER AND
PICS Selection	PICS_IVIM_HAS_LAYOUT_CONTAINER
	Expected behaviour
with	
the IUT being in the "init	tial state"
and the IUT sending IVIM	
ensure that	
when	
the IUT is generating an IVIM	
containing ivi	
containing op	otional
containing	g elements of type GenerallviContainer
contai	ning element of type GicPart
CO	ntaining layoutId (<i>LID</i>)
then	
the IUT sends an IV	IM
containing ivi	
containing optional	
containing elements of type LayoutContainer	
containing layoutId	
inc	dicating <i>LID</i>

TP ld	TP_IS_IVI_GEN_RCC_BV_01	
Summary	Check that all zone IDs in the Road Configuration Container references existing items in	
Summary	the Location Container of the same IVIM Structure	
Reference	CEN ISO/TS 19321 [4], clause 6.3.3.2	
PICS Selection	PICS_IVIM_GENERATION PICS_IVIM_HAS_ROAD_CFG_CONTAINER	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT sending IVI	M	
ensure that		
when	· · · · · · · · · · · · · · · · · · ·	
the IUI is requested	to generate an IVIM	
containing ivi	the set	
containing op	tional nales en tractitudes Desideren finnenties Oranteinen	
containing	j elements of types RoadConfigurationContainer	
contai	ning elements of types RCCPart	
COI		
then		
the ILIT sends a valid	4 I//IM	
containing ivi		
containing on	tional	
containing	telements of types Geographic locationContainer	
contai	ning all zones referenced from RZ IDs	
TP ld	TP_IS_IVI_GEN_RCC_BV_02	
Summary	Check that all Parts that relate to the same Location Container are included in the same	
Summary	Road Configuration Container	
Reference	CEN ISO/TS 19321 [4], clause 6.3.3.2	
PICS Selection	PICS_IVIM_GENERATION PICS_IVIM_HAS_ROAD_CFG_CONTAINER	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT sending IVI	M	
ensure that		
when		
the IUT is requested	to generate an IVIM	
containing multiple RoadConfigurationContainer		
and containing m	iuitiple GeographicLocationContainer	
the IIIT condo o voli		
containing ivi	tional	
containing op	containing optional	
containing elements of types RoadConfigurationContainer		
contai	g elements of types RoadConfigurationContainer	
contai	g elements of types RoadConfigurationContainer ning elements of types RccPart ataining relevanceZonelds	
containing	g elements of types RoadConfigurationContainer ning elements of types RccPart ntaining relevanceZoneIds	

5.2.3.6 IVI Road Configuration Container

and not containing other elements of types RoadConfigurationContainer containing elements of types RccPart containing relevanceZonelds referencing the same GeographicLocationContainer (*GLC*)

TP ld	TP_IS_IVI_GEN_RCC_BV_03	
Summary	Check that Road Configuration Container contains description of all present lanes	
Reference	CEN ISO/TS 19321 [4], clause 6.3.3.2	
PICS Selection	PICS_IVIM_GENERATION PICS_IVIM_HAS_ROAD_CFG_CONTAINER	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT sending IVIM		
and the IUT has sent or received MAPEM		
containing description of the target road		
ensure that		
when		
the IUT is requested	to generate an IVIM	
containing Road	ConfigurationContainer	
containing de	containing description of the target road	
then		
the IUT sends a valid	1 IVIM	
containing ivi		
containing optional		
containing element of types RoadConfigurationContainer		
contair	ning element of types RccPart	
COR	ntaining laneConfiguration	
containing elements of type LaneInformation		
	describing all existing lanes of the target road	

5.2.3.7 IVI Text Container

TP ld	TP_IS_IVI_GEN_TEXT_BV_01	
Summary	Check that all zone IDs in the Text Container references existing items in the Location	
	Container of the same IVIM Structure	
Reference	CEN ISO/TS 19321 [4], clause 6.3.4.2	
PICS Selection	PICS_IVIM_GENERATION AND PICS_IVIM_HAS_TEXT_CONTAINER	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT sending IVI	M	
ensure that		
when		
the IUT is requested	to generate an IVIM	
containing one or	r more TextContainer	
containing ele	ements of types TcPart	
containing	relevanceZonelds	
contail		
and option	ally containing detectionZonelds	
contail	containing DZ_IDs	
and option	nally containing driverAwarenessZonelds	
contai	ning DAZ_IDs	
then		
the IUI sends a value		
containing ivi		
containing op	tional	
containing elements of types GeographicLocationContainer		
contai	ning all zones referenced from <i>RZ_IDs</i> , <i>DZ_IDs</i> and <i>DAZ_IDs</i>	

TP ld	TP_IS_IVI_GEN_TEXT_BV_02	
Summany	The sending ITS-S shall include the component direction to describe the direction of	
Summary	relevance within a Relevance Zone representing a road segment	
Reference	CEN ISO/TS 19321 [4], clause 6.3.4.2	
PICS Selection	PICS_IVIM_GENERATION PICS_IVIM_HAS_TEXT_CONTAINER	
	Expected behaviour	
with		
the IUT being in the "initial state"		
and the IUT sending IVII	M	
ensure that		
when		
the IUT is requested to generate an IVIM		
containing Text C	containing Text Containers	
then		
the IUT sends a valid		
containing ivi		
containing op	tional	
containing	elements of type TextContainer	
contair	ning element of type TcPart	
COr	ntaining direction	

TP Id	TP_IS_IVI_GEN_TEXT_BV_03
	The IUT can include either the component text and/or the component data. The IUT can
Summary	repeat the text in the component text in different languages with the appropriate unique
	language code
Reference	CEN ISO/TS 19321 [4], clause 6.3.4.2
PICS Selection	PICS_IVIM_GENERATION PICS_IVIM_HAS_TEXT_CONTAINER
	Expected behaviour
with	
the IUT being in the "init	ial state"
and the IUT sending IVI	M
ensure that	
when	
the IUT is requested	to generate an IVIM
containing Text C	Containers
then	
the IUT sends a valid	d IVIM
containing ivi	
containing op	tional
containing	g elements of type TextContainer
contai	ning element of type TcPart
COI	ntaining non-empty data
and	d/or containing text
	containing elements of type Text
	containing language
	indicating unique language code

TP ld	TP_IS_IVI_GEN_TEXT_BV_04	
Summers/	Check that all layoutID of the Text Containers references existing layouts in the Layout	
Summary	Containers of the same IVIM Structure	
Reference	CEN ISO/TS 19321 [4], clause 6.3.4.2	
BICS Soloction	PICS_IVIM_GENERATION AND PICS_IVIM_HAS_TEXT_CONTAINER AND	
PICS Selection	PICS_IVIM_HAS_LAYOUT_CONTAINER	
	Expected behaviour	
with		
the IUT being in the "	initial state"	
and the IUT sending I	VIM	
ensure that		
when		
the IUT is generating an IVIM		
containing ivi		
containing	optional	
containing elements of type TextContainer		
containing element of type TcPart		
	containing layoutId (<i>LID</i>)	
then		
the IUT sends an	IVIM	
containing ivi		
containing	containing optional	
contain	ing elements of type LayoutContainer	
containing layoutId		
	indicating LID	

5.2.3.8 IVI repetition

5.2.3.8.1 Check that IVIM are generated in respect of a pre-defined repetition interval

TP ld	TP_IS_IVI_GEN_GFQ_TI_01
Summary	Check that IVIMs are not generated more frequently than T_GenIvimMin
Reference	ETSI TS 103 301 [1], clause 7.4.2
PICS Selection	PICS_T_GENIVIMMIN AND PICS_IVIM_GENERATION
Expected behaviour	
with	
the IUT being in the "initial state"	
and the IUT having generated several IVIM	
ensure that	
when	
the IUT sends a IVIM	
then	
the IUT does not send any IVIM before expiry of T GenIvimMin	

TP ld	TP_IS_IVI_GEN_GFQ_TI_02
Summary	Check that IVIMs are not generated less frequently than T_GenIvimMax
Reference	ETSI TS 103 301 [1], clause 7.4.2
PICS Selection	PICS_T_GENIVIMMAX AND PICS_IVIM_GENERATION
Expected behaviour	
with	
the IUT being in the "init	ial state"
and the IUT having generated several IVIM	
ensure that	
when	
the IUT sends a IVIN	1
then	
the IUT sends another IVIM before expiry of T_GenIvimMax	
5.2.3.8.2 Check that the IVI Service activates repetition under the request from the ITS-S application

TP ld	TP_IS_IVI_GEN_EVRP_BV_01
Summary	Check that the IUT activates repetition on reception of a valid AppIVIM_Update request
Reference	ETSI TS 103 301 [1], clause 7.4.2
PICS Selection	PICS_IVIM_UPDATE
	Expected behaviour
with	
the IUT being in the "init	ial state"
and the IUT having generated several IVIM	
containing ivi	
containing mandatory	
containing ivildentificationNumber	
indicating IVIM_ID_1	
lensure that	
when	
the IUT receives an AppIVIM_Update indicating 'repetition interval' RI_1	
then	
the IUT sends IVIM with respect to the 'repetition interval' RI_1	
containing ivi	
containing mandatory	
containing ivildentificationNumber	
indicating IVIM_ID_1	

TP ld	TP_IS_IVI_GEN_EVRP_BV_02	
Summary	Check that the IUT deactivates repetition on reception of a valid AppIVIM_Update request	
Reference	ETSI TS 103 301 [1], clause 7.4.2	
PICS Selection	PICS_IVIM_UPDATE	
	Expected behaviour	
with		
the IUT being in the "initial state"		
and the IUT having generated several IVIM		
containing ivi		
containing mandatory		
containing ivildentificationNumber		
indicating IVIM_ID_1		
ensure that		
when		
the IUT receives an AppIVIM_Update indicating 'repetition interval' 0		
then		
the IUT stops sendir	the IUT stops sending IVIM associated with IVIM_ID_1	

5.2.3.9 Check the IVI termination

5.2.3.9.1 Check that the IVI Service terminates IVM generation on validity duration expiry or on termination request

TP ld	TP_IS_IVI_GEN_EVTR_BV_01
Summary	Check that the IUT terminates IVM generation on validity duration expiry
Reference	ETSI TS 103 301 [1], clause 7.4.2
PICS Selection	PICS_IVIM_GENERATION
	Expected behaviour
with	
the IUT being in the "init	ial state"
and the IUT having generated an IVIM	
containing ivi	
containing mandatory	
containing ivildentificationNumber	
indicating IVIM_ID_1	
and containing validTo	
indicating CLT + 10 seconds	
and containing iviStatus	
indicating 'new'	
ensure that	
when	
the IUT is alerted of expiration of the time associated with validTo	
then	
the IUT stops ending IVIM associated with IVIM_ID_1	

TP Id	TP_IS_IVI_GEN_EVTR_BV_02	
Summary	Check that the IUT terminates IVM generation on termination request	
Reference	ETSI TS 103 301 [1], clause 7.4.2	
PICS Selection	PICS_IVIM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "initial state"		
and the IUT having generated an IVIM		
containing ivi	containing ivi	
containing manda	atory	
containing ivildentificationNumber		
indicating	IVIM_ID_1	
and containing iviStatus		
indicating 'new'		
ensure that		
when		
the IUT receives an AppIVIM_termination request associated with IVIM_ID_1		
then		
the IUT sends a valid IVIM		
containing ivi		
containing mandatory		
containing ivildentificationNumber		
indicating IVIM_ID_1		
containing	containing iviStatus	
indicat	ing 'termination'	

IP Id	[IP_IS_IVI_GEN_EVIR_BV_03
Summary	Check that the IUT terminates IVM generation on cancellation request
Reference	ETSI TS 103 301 [1], clause 7.4.2
PICS Selection	PICS_IVI_CANCELLATION
	Expected behaviour
with	
the IUT being in the "init	ial state"
and the IUT having generated an IVIM	
containing ivi	
containing manda	atory
containing ivildentificationNumber	
indicating IVIM_ID_1	
and containing serviceProviderId	
indicating IVIM_SP_1	
and containing iviStatus	
indicating 'new'	
ensure that	
when	
the IUT receives an AppIVIM_cancellation request associated with IVIM_ID_1	
then	
the IUT sends a valid IVIM	
containing ivi	
containing mandatory	
containing ivildentificationNumber	
indicating IVIM_ID_1	
and containing timeStamp	
indication IVM_CLT_1	
and containing iviStatus	
indicating 'cancellation'	

5.2.3.9.2 Check that the IVI Service terminates IVM generation on cancellation request

TP ld	TP_IS_IVI_GEN_EVTR_BV_04	
Summary	Check that the IUT terminates IVM generation on negation request	
Reference	ETSI TS 103 301 [1], clause 7.4.2	
PICS Selection	PICS_IVI_NEGATION	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT having gene	erated an event	
containing ivi		
containing mandatory		
containing ivil	dentificationNumber	
indicating IVIM_ID_1		
and containing serviceProviderId		
indicating	indicating IVIM_SP_1	
and containing iviStatus		
indicating 'update'		
ensure that		
when	Ann IV/INA to main attice required according with IV/INA ID 4	
the IUT receives an AppIVIM_termination request associated with IVIM_ID_1		
the II IT sends a valid IV/IM		
containing mandatory		
containing ivildentificationNumber		
indicating IVIM ID 1		
and containing serviceProviderId		
indicating IVIM_SP_1		
and containing iviStatus		
indicating 'negation'		
<u>.</u>		

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TP ld	TP_IS_IVI_GEN_COM_BV_01
Summary	Check that IVIM uses BTP_B packet
	Check that the destination port for IVIM is set to 2006
Reference	ETSI TS 103 301 [1], clauses 10.2 and 7.4.3.2
PICS Selection	PICS_IVIM_GENERATION
	Expected behaviour
with	
the IUT being in the "initial state"	
and the IUT sending IVIM	
ensure that	
when	
an IVIM is generated	
then	
the IUT sends a valid IVIM	
encapsulated in a BTP-B packet	
containing a destination port value set to '2006'	
and containing a destination port info value set to '0'	

5.2.3.10 Check BTP type and port number

5.2.3.11 Check destination type

5.2.3.12 IVI security parameters

5.2.3.12.1 Check IVI ITS AID value

TP ld	TP_IS_IVI_GEN_SEC_BV_01		
Summary	Check that IVI service uses certificate containing valid ITS AID to sign IVIM		
Reference	ETSI TS 103 301 [1], clause 6.4.3.2		
PICS Selection	PICS_IVIM_GENERATION AND PICS_IS_IUT_SECURED		
	Expected behaviour		
with			
the IUT being in the "init	ial state"		
and the IUT is operating in secured mode			
and the IUT sending IVIM			
ensure that			
when			
the IUT is requested to generate an IVIM			
then			
the IUT sends an IVI	M		
containing a corre	ectly formatted Security Header as a EtsiTs103097Data structure		
containing signedData.tbsData.headerInfo			
containing psid			
indicating ITS_AID_IVIM			

TP ld	TP_IS_IVI_GEN_SEC_BV_02
Summary	Check that IVI service uses generic security profile to sign IVIM and does not include
	additional security header elements
Reference	ETSI TS 103 301 [1], clause 12
PICS Selection	PICS_IVIM_GENERATION AND PICS_IS_IUT_SECURED
	Expected behaviour
with	
the IUT being in the "initial state"	
and the IUT is operating in secured mode	
and the IUT sending IVIM	
ensure that	
when	
a IVIM is generated	
then	
the IUT sends a valid IVIM	
containing a correctly formatted Security Header as a EtsiTs103097Data structure	
containing signedData.tbsData.headerInfo	
containing psid	
indicating ITS_AID_IVIM	
and containing generationTime	
indicating realistic generation time	
and optionally containing generationLocation	
and not containing other header items	

TP ld	TP_IS_IVI_GEN_SSP_BV_01	
	Check that IVI service uses certificate containing valid Service Specific Permissions of	
Summary	type BitmapSsp to sign IVIM from the given service provider and the SSP version is set to	
	1	
Reference	ETSI TS 103 301 [1], clause 4.5.1	
PICS Selection	PICS_IVIM_GENERATION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT is operating	in secured mode	
and the IUT is authorize	d to sign IVIM with the certificate CERT_IVI_SSP_NONE	
containing appPermi	ission item	
containing psid	containing psid	
indicating ITS_AID_IVIM		
containing bitmap	containing bitmapSSP	
indicating octet at position 0 set to 0x01		
and indicating	and indicating octets at positions 1-3 set to IVI_SP_VALUE	
and indicating	j other bits set to U	
ensure that		
when the ULT is requested	to concrete on IV/IM	
	to generate an tylini	
containing M	andatory	
containing ma	a luatory	
indicating IVI SP VALUE		
and containing iviStatus		
indicating 'new'		
and not containing optional		
then		
the IUT sends an IVI	Μ	
signed with the C	ERT IVI SSP NONE	

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5.2.3.12.2 Check IVI SSP version

TP ld	TP_IS_IVI_GEN_SSP_BO_01	
Summary	Check that IVI service does not send an IVIM if service provider value is not authorized by	
Summary	the signing certificate	
Reference	ETSI TS 103 301 [1], clause 4.5.1	
PICS Selection	PICS_IVIM_GENERATION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT is operating	in secured mode	
and the IUT is authorize	d to sign IVIM with the certificate CERT_IVI_SSP_NONE	
containing appPermi	ission item	
containing psid		
indicating ITS	S_AID_IVIM	
and containing bitmapSSP		
indicating oct	ets at positions 1-3 set to IVI_SP_VALUE	
ensure that		
when		
the IUT is requested	to generate an IVIM	
containing ivi		
containing ma	andatory	
containing	g serviceProviderId	
indicat	ting other value than IVI_SP_VALUE	
then		
the IUT does not ser	nd an IVIM	
signed with the C	ERT_IVI_SSP_NONE	
NOTE: Other SSP bits n	ot defined explicitly in the TP shall be set accordingly to the TP_IS_IVI_GEN_SSP_BV_01.	

TP ld	TP_IS_IVI_G	SEN_SSP_BV_02			
Summany	Check that IV	/I service sends an IV	/IM containing	g differen	t road signs schema when it is
Summary	permitted by	the signing certificate	9		-
Reference	ETSI TS 103	301 [1], clause 6.4.3	.2		
PICS Selection	PICS_IVIM_	GENERATION AND	PICS_IS_IUT	_SECUR	ED AND PICS_X
		Expected be	haviour		
with					
the IUT being in the "init	ial state"				
and the IUT is operating	in secured m	ode			
and the IUT is authorize	d to sign IVIN	I with the certificate C	ERT_IVI_SS	P_X	
containing appPerm	ission item				
containing psid					
indicating ITS	_AID_IVIM				
and containing b	itmapSSP				
indicating bit	BIT_X of octe	et OCTET_X set to 1			
ensure that					
when					
the IUT is requested to generate an IVIM					
containing ivi	containing ivi				
containing op	otional				
containing	g element of ty	ype GenerallviContai	ner		
contai	ning element	of type GicPart			
со	ntaining road	SignCodes			
	containing el	lements of type RSCo	ode		
	containin	g code			
	conta	ining COMPONENT_	_X		
then					
the IUT sends an IV					
signed with the C	ERI_IVI_SS	P_X	4		
PICS_X		COMPONENT_X	OCIEI_X	RII_X	CERI_IVI_SSP_X
PICS_IVIM_RSCODE_VIE	NNACONV	viennaConvention	4	0	CERI_IVI_SSP_VIENNACONV
PICS_IVIM_RSCODE_SAE	J2540	itisCodes	4	7	CERT_IVI_SSP_SAEJ2540
NOTE: Other SSP bits not defined explicitly in the TP shall be set accordingly to the TP_IS_IVI_GEN_SSP_BV_01.					

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5.2.3.12.3 Check IVI Service specific parameters

TP ld	TP_IS_IVI_GEN_SSP_BV_03			
Summory	Check that IVI service sends an	IVIM containi	ng ISO/TS	14823 [i.7] road signs codes of
Summary	different service categories when	n it is permitte	d by the si	gning certificate
Reference	ETSI TS 103 301 [1], clause 6.4	.3.2		
PICS Selection	PICS_IVIM_GENERATION AND	PICS_IS_IU	T_SECUR	ED AND
PICS_IVIM_RSCODE_ISO14823				
	Expected I	benaviour		
with				
the IUT being in the "Init	lial state"			
and the IUT is operating	In secured mode		en v	
containing appPerm	ission item	CERI_IVI_5	57_7	
containing apprenti				
indicating ITS				
and containing b	itmapSSP			
indicating bit	BIT_X of octet OCTET_X set to 1			
ensure that				
when				
the IUT is requested	to generate an IVIM			
containing ivi				
containing op	containing optional			
containing element of type GenerallviContainer				
contai	ning element of type GicPart			
CO	ntaining roadSignCodes	No. dia		
	containing elements of type RSU	-ode		
	containing code	aramCada a	n vice Ceter	
	containing ISO 14623.picit	granicoue.se	erviceCale	JoryCode
then				
the IUT sends an IV	IM			
signed with the C	CERT_IVI_SSP_X			
	Varia	ants		
COMP	PONENT_X	OCTET_X	BIT_X	CERT_IVI_SSP_X
trafficSignPictogram.dange	rWarning	4	1	CERT_IVI_SSP_ISO14823_1
trafficSignPictogram.regulat	rafficSignPictogram.regulatory 4 2 CERT_IVI_SSP_ISO14823_2			CERT_IVI_SSP_ISO14823_2
trafficSignPictogram.information	ative	4	3	CERT_IVI_SSP_ISO14823_3
publicFacilitiesPictogram		4	4	CERT_IVI_SSP_ISO14823_4
ambientOrRoadContitionPic	ctogram.ambientCondition	4	5	CERT_IVI_SSP_ISO14823_5
ambientOrRoadContitionPictogram.roadCondition 4 6 CERT_IVI_SSP_ISO14823_6				
NOTE: Other SSP bits n	ot defined explicitly in the TP sha	Il be set acco	rdingly to th	ne TP_IS_IVI_GEN_SSP_BV_01.

TP ld	TP IS IVI GEN SSP BV 04		
C	Check that IVI service sends an IVIM containing lane status when it is permitted by the		
Summary	signing certificate		
Reference	ETSI TS 103 301 [1], clause 6.4.3.2		
BICS Selection	PICS_IVIM_GENERATION AND PICS_IS_IUT_SECURED AND		
FICS Selection	PICS_IVIM_RSCODE_ISO14823		
	Expected behaviour		
with			
the IUT being in the "init	ial state"		
and the IUT is operating	in secured mode		
and the IUT is authorize	d to sign IVIM with the certificate CERT_IVI_SSP_LS		
containing appPermi	ission item		
containing psid			
indicating ITS	S_AID_IVIM		
and containing bi	and containing bitmapSSP		
indicating bit	indicating bit 0 of octet 5 set to 1		
ensure that			
when			
the IUT is requested	to generate an IVIM		
containing ivi			
containing op	tional		
containing	element of type General IviContainer		
contai	ning element of type GicPart		
COI	ntaining laneStatus		
then			
the IUT sends an IVI			
signed with the C			
NOTE: Other SSP bits n	ot defined explicitly in the TP shall be set accordingly to the TP_IS_IVI_GEN_SSP_BV_01.		

TP ld	TP_IS_IVI_GEN_S	SSP_BV_05				
0	Check that IVI serv	/ice sends an IVIM containir	ng different c	ontainers	when it is permitted	
Summary	by the signing certificate					
Reference	ETSI TS 103 301 [1], clause 6.4.3.2				
PICS Selection	PICS_IVIM_GENE	RATION AND PICS_IS_IU	T_SECURED) and PI	CS_X	
		Expected behaviour				
with						
the IUT being in the "init	ial state"					
and the IUT is operating	in secured mode					
and the IUT is authorize	d to sign IVIM with	the certificate CERT_IVI_S	SP_X			
containing appPermi	ssion item					
containing psid						
indicating ITS	_AID_IVIM					
and containing bi	tmapSSP					
indicating bit	BIT_X of octet OCT	ET_X set to 1				
ensure that						
when						
the IUT is requested	the IUT is requested to generate an IVIM					
containing ivi						
containing op	tional					
containing	g element of type C	ONTAINER_X				
then						
the IUT sends an IVI	M					
signed with the C	SERT_IVI_SSP_X					
		Variants				
PICS_X		CONTAINER_X	OCT_X	BIT_X	CERT_IVI_SSP_X	
PICS_IVIM_HAS_ROAD_C	FG_CONTAINER	RoadConfigurationContai ner	5	1	CERT_IVI_SSP_RCC	
PICS_IVIM_HAS_TEXT_CO	ONTAINER	TextContainer	5	2	CERT_IVI_SSP_TC	
PICS_IVIM_HAS_LAYOUT_CONTAINER LayoutContainer CERT_IVI_SSP_LC						
NOTE: Other SSP bits not defined explicitly in the TP shall be set accordingly to the TP_IS_IVI_GEN_SSP_BV_01.						

TP ld	TP_IS_IVI_GEN_SSP_BV_06		
Summary	Check that IVI service sends an IVI negation when it is permitted by the signing certificate		
Reference	ETSI TS 103 301 [1], clause 6.4.3.2		
PICS Selection	PICS_IVIM_GENERATION AND PICS_IS_IUT_SECURED		
	Expected behaviour		
with			
the IUT being in the "ir	nitial state"		
and the IUT is operatir	ng in secured mode		
and the IUT is authoriz	zed to sign IVIM with the certificate CERT_IVI_SSP_NEG		
containing appPer	nission item		
containing psid			
indicating I	rs_aid_ivim		
and containing	and containing bitmapSSP		
indicating b	it 4 of octet 5 set to 1		
ensure that			
when			
the IUT is requeste	ed to generate an IVIM		
containing ivi			
containing r	nandatory		
containi	ng iviStatus		
indni	icating 'negation'		
then			
the IUT sends an I	VIM		
signed with the	CERT_IVI_SSP_NEG		
NOTE: Other SSP bits	not defined explicitly in the TP shall be set accordingly to the TP_IS_IVI_GEN_SSP_BV_01.		

TP Id	TP IS IVI GEN S	SP BO 02		
-	Check that IVI serv	ice does not send an IVIM containin	a different road si	ans schema when
Summary	it is not permitted b	v the signing certificate	ig allioronic roda of	glio cononia whom
Reference	ETSI TS 103 301 [11 clause 6 4 3 2		
PICS Selection	PICS IVIM GENE	RATION AND PICS IS JUT SECU	RED AND PICS	x
	<u> </u>	Expected behaviour		-
with		•		
the IUT being in the "init	ial state"			
and the IUT is operating	in secured mode			
and the IUT is authorize	d to sign IVIM with t	he certificate CERT_IVI_SSP_NON	E	
containing appPermi	ssion item			
containing psid				
indicating ITS	_AID_IVIM			
and containing bi	tmapSSP			
indicating bit	BIT_X of octet OCT	ET_X set to 0		
ensure that				
when				
the IUT is requested to generate an IVIM				
containing ivi				
containing op		a a rally i Cantainan		
containing	ing element of type Ge			
Contain	toping read sign C			
COI	containing roadSigned	nues is of type PSCode		
	containing element			
	containing cout	OMPONENT Y		
then		COMPONENT_X		
the IUT does not ser	d an IVIM			
signed with the C	ERT IVI SSP NO	NE		
	Variants			
PICS_X		COMPONENT_X	OCTET_X	BIT_X
PICS_IVIM_RSCODE_VIEN	NACONV	viennaConvention	4	0
PICS_IVIM_RSCODE_SAE	PICS_IVIM_RSCODE_SAEJ2540 itisCodes 4 7			7
NOTE: Other SSP bits n	ot defined explicitly	in the TP shall be set accordingly to	the TP_IS_IVI_G	EN_SSP_BV_01.

TP ld	TP_IS_IVI_GEN_SSP_BO_03			
Summony	Check that IVI service does not send an IVIM contain	ing ISO/TS 14823 [i.7	7] road signs	
Summary	codes of different service categories when it is not pe	rmitted by the signing	g certificate	
Reference	ETSI TS 103 301 [1], clause 6.4.3.2			
PICS Selection	PICS_IVIM_GENERATION AND PICS_IS_IUT_SEC	URED AND		
PICS_IVIM_RSCODE_ISO14823				
	Expected behaviour			
with				
the IUT being in the "init	tial state"			
and the IUT is operating	in secured mode			
and the IUT is authorize	to sign IVIM with the certificate CERI_IVI_SSP_NO	NE		
containing appPerm	ission item			
containing psid				
indicating II a	S_AID_IVIN			
indicating bit	RIT V of actat OCTET V sat to 0			
ensure that				
when				
the IUT is requested	to generate an IVIM			
containing ivi				
containing or	otional			
containing element of type GenerallyiContainer				
containing element of type GicPart				
СО	containing roadSignCodes			
	containing elements of type RSCode			
	containing code			
	containing iso14823.pictogramCode.serviceC	ategorvCode		
and containing COMPONENT X				
then	·			
the IUT sends a IVI	Л			
signed with the C	CERT_IVI_SSP_NONE			
	Variants			
	COMPONENT_X OCTET_X BIT_X			
trafficSignPictogram.dange	rafficSignPictogram.dangerWarning 4 1			
trafficSignPictogram.regulatory 4 2			2	
trafficSignPictogram.inform	trafficSignPictogram.informative 4 3			
publicFacilitiesPictogram 4 4			4	
ambientOrRoadContitionPictogram.ambientCondition 4 5			5	
ambientOrRoadContitionPictogram.roadCondition 4 6				
NOTE: Other SSP bits r	ot defined explicitly in the TP shall be set accordingly	the TP_IS_IVI_GE	N_SSP_BV_01.	

TP ld	TP IS IVI GEN SSP BO 04	
C	Check that IVI service does not send an IVIM containing lane status when it is not permitted	
Summary	by the signing certificate	
Reference	ETSI TS 103 301 [1], clause 6.4.3.2	
DICE Solastian	PICS_IVIM_GENERATION AND PICS_IS_IUT_SECURED AND	
PICS Selection	PICS_IVIM_RSCODE_ISO14823	
	Expected behaviour	
with		
the IUT being in the "	initial state"	
and the IUT is operat	ing in secured mode	
and the IUT is author	ized to sign IVIM with the certificate CERT_IVI_SSP_NONE	
containing appPe	rmission item	
containing psi	d	
indicating	ITS_AID_IVIM	
and containing bitmapSSP		
indicating bit 0 of octet 5 set to 0		
ensure that		
when		
the IUT is request	ed to generate an IVIM	
containing ivi		
containing	optional	
contair	ing element of type GeneraliviContainer	
cor	taining element of type GicPart	
then		
	aanda an IV/IM	
cianod with th		
NOTE: Other SSP hit	s not defined explicitly in the TD shall be set accordingly to the TD IS IV/L GEN SSD BV 01	
	s not defined explicitly in the Trishan be set accordingly to the TF_13_1V1_6EN_33F_6V_01.	
TDIA		

1 - 10	1P_15_1VI_GEN_55P_BO	_05				
Summary	Check that IVI service does	s not send an IVIM containing different	containers who	en it is not		
Summary	permitted by the signing certificate					
Reference	ETSI TS 103 301 [1], claus	e 6.4.3.2				
PICS Selection	PICS_IVIM_GENERATION	AND PICS_IS_IUT_SECURED AND	PICS_X			
	Expe	cted behaviour				
with						
the IUT being in the "init	ial state"					
and the IUT is operating	in secured mode					
and the IUT is authorize	d to sign IVIM with the certi	ficate CERT_IVI_SSP_NONE				
containing appPermi	ssion item					
containing psid						
indicating IIS						
containing bitmap						
Indicating bit	BIL_X OF OCTET_X S					
ensure that						
the ILIT is requested	to generate an IV/IM					
containing ivi	to generate an ivini					
containing ontional						
containing	containing element of type CONTAINER X					
then	,	^				
the IUT does not ser	nd an IVIM					
signed with the C	ERT_IVI_SSP_NONE					
Variants						
PICS	5_X	CONTAINER_X	OCT_X	BIT_X		
PICS_IVIM_HAS_ROAD_C	FG_CONTAINER	RoadConfigurationContainer	5	1		
PICS_IVIM_HAS_TEXT_CO	ONTAINER	TextContainer	5	2		
PICS_IVIM_HAS_LAYOUT_CONTAINER LayoutContainer						
NOTE: Other SSP bits not defined explicitly in the TP shall be set accordingly to the TP_IS_IVI_GEN_SSP_BV_01.			P_BV_01.			

TP ld	TP_IS_IVI_GEN_SSP_BO_06	
Summany	Check that IVI service does not send an IVI negation when it is not permitted by the signing	
Summary	certificate	
Reference	ETSI TS 103 301 [1], clause 6.4.3.2	
PICS Selection	PICS_IVIM_GENERATION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "i	nitial state"	
and the IUT is operation	ng in secured mode	
and the IUT is authorize	zed to sign IVIM with the certificate CERT_IVI_SSP_NONE	
containing appPer	mission item	
containing psic		
indicating I	TS_AID_IVIM	
and containing bitmapSSP		
indicating b	it 4 of octet 5 set to 0	
ensure that		
when		
the IUT is requeste	ed to generate an IVIM	
containing ivi		
containing	mandatory	
containi	ing iviStatus	
indn	icating 'negation'	
then		
the IUT does not s	end an IVIM	
signed with the	CERT_IVI_SSP_NONE	
NOTE: Other SSP bits	not defined explicitly in the TP shall be set accordingly to the TP_IS_IVI_GEN_SSP_BV_01.	

5.2.3.13 Check IVI reception

5.2.3.13.1 Check IVI reception – Basic tests

TP ld	TP_IS_IVI_RCV_MSGF_BV_01			
Summary	Check that the IUT can successfully process IVIM been received when the IUT was in the			
Summary	Relevance Zone			
Reference	ETSI TS 103 301 [1], clause 7.3			
PICS Selection	PICS_IVIM_RECEPTION			
	Expected behaviour			
with				
the IUT being in the "init	ial state"			
the IUT position is in the	R_ZONE			
the IUT is approaching t	he relevance zone			
ensure that				
when				
the IUT receives a va				
containing IVI	tional			
containing op	containing optional			
contai	an elements of types GirPart			
Contain	ning elements of types old art			
	containing R7 ID			
and conta	and containing an element of type Geographic locationContainer			
contai	ning parts			
COI	containing elements of types GlcPart			
	containing zoneld			
	indicating RZ_ID			
	and containing zone			
	indicating R_ZONE			
then				
the IUT forwards the	IVIM content to upper layers			
and the IUT forwards	s the IVIM content to other facilities			

TP ld	TP_IS_IVI_RCV_DATA_BV_01		
Summany	Check that the IUT can successfully process IVIM been received when the IUT was in the		
Summary	Detection Zone approaching the Relevance Zone		
Reference	CEN ISO/TS 19321 [4], clause 5.1.2		
PICS Selection	PICS_IVIM_RECEPTION		
	Expected behaviour		
with			
the IUT being in the "init	ial state"		
the IUT position is in the	D_ZONE		
the IUT is approaching t	he relevance zone		
ensure that			
when			
the IUT receives a valid IVIM			
containing ivi	containing ivi		
containing op	tional		
containing	an element of type GenerallviContainer		
contai	ning elements of types GicPart		
COI	ntaining detection Zonelds		
	containing DZ_ID		
and containing relevanceZonelds			
	containing <i>RZ_ID</i>		
and containing direction			
and conto	indicating direction to the K_ZUNE		
and containing an element of type GeographicLocationContainer			
containing plans			
containing elements of types GIUPall			
indicating D7 ID			
	and containing zone		
indicating D ZONE			
an	and containing elements of types GlcPart		
	containing		
indicating RZ /D			
	and containing zone		
	indicating R ZONE		
then	• -		
the IUT forwards the	IVIM content to upper layers		
and the IUT forwards	s the IVIM content to other facilities		

TP ld	TP_IS_IVI_RCV_DATA_BV_02		
Summary	Check that an IUT detects the applicability of a Relevance Zone defined as a polygonal lie		
Reference	CEN ISO/TS 19321 [4], clause 5.2.2		
PICS Selection	PICS_IVIM_RECEPTION		
	Expected behaviour		
with			
the IUT being in the "init	ial state"		
the IUT position is in the	R_ZONE		
the IUT is approaching t	he relevance zone		
ensure that	ensure that		
when			
the IUT receives a valid IVIM			
containing ivi	containing ivi		
containing op	tional		
containing an element of type GenerallviContainer			
contai	ning elements of types GicPart		
containing relevanceZonelds			
containing RZ_ID			
and containing an element of type GeographicLocationContainer			
containing parts			
containing elements of types GlcPart			
containing zoneld			
indicating RZ_ID			
and containing zone			
containing segment			
	indicating R_ZONE		
then			
the IUT forwards the IVIM content to upper layers			
and the IUT forwards	the IVIM content to other facilities		

TP ld	TP_IS_IVI_RCV_DATA_BV_03		
Summary	Check that an IUT detects the applicability of a Relevance Zone defined as an area		
Reference	CEN ISO/TS 19321 [4], clause 5.2.2		
PICS Selection	PICS_IVIM_RECEPTION		
	Expected behaviour		
with			
the IUT being in the "init	ial state"		
the IUT position is in the	R_ZONE		
the IUT is approaching t	he relevance zone		
ensure that	ensure that		
when			
the IUT receives a va	alid IVIM		
containing ivi			
containing op	tional		
containing) an element of type GeneraliviContainer		
contair	ning elements of types GicPart		
containing relevance∠oneids			
$\frac{\mathbf{K}\mathbf{L}_{\mathbf{I}}\mathbf{U}}{\mathbf{K}\mathbf{L}_{\mathbf{I}}\mathbf{U}}$			
and containing an element of type GeographicLocationContainer			
containing parts			
containing cienterits of types out all			
indicating R7 ID			
and containing zone			
containing zerio			
indicating R ZONE			
then	v –		
the IUT forwards the	IVIM content to upper layers		
and the IUT forwards	s the IVIM content to other facilities		

TP ld	TP_IS_IVI_RCV_DATA_BV_04
Summony	Check that an IUT detects the applicability of a Relevance Zone defined as a distance
Summary	value
Reference	CEN ISO/TS 19321 [4], clause 5.2.2
PICS Selection	PICS_IVIM_RECEPTION
	Expected behaviour
with	
the IUT being in the "init	ial state"
the IUT position is in the	R_ZONE
the IUT is approaching t	he relevance zone
ensure that	
when	
the IUT receives a va	alid IVIM
containing ivi	
containing op	tional
containing	an element of type GenerallviContainer
contai	ning elements of types GicPart
CO	ntaining relevanceZonelds
	containing RZ_ID
and conta	ining an element of type GeographicLocationContainer
contai	ning parts
CO	ntaining elements of types GlcPart
	containing zoneld
	indicating RZ_ID
	and containing zoneExtension
	indicating distance
	and indicating R_ZONE
then	
the IUT forwards the	IVIM content to upper layers
and the IUT forwards	s the IVIM content to other facilities

and the IUT forwards the IVIM content to other facilities

TP ld	TP_IS_IVI_RCV_DATA_BV_05	
Summary	Check that an IUT detects the applicability of a Relevance Zone by matching its path with	
	the relevance zone (path) of the moving IVI object.	
Reference	CEN ISO/TS 19321 [4], clause 5.2.2	
PICS Selection	PICS_IVIM_RECEPTION	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
the IUT position is in the	R_ZONE	
the IUT is approaching t	he relevance zone	
ensure that		
when		
the IUT receives a va	alid IVIM	
containing ivi		
containing op	tional	
containing an element of type GenerallviContainer		
contai	ning elements of types GicPart	
containing relevance∠onelds		
containing κ_{\perp} in μ_{\perp}		
and containing an element of type GeographicLocationContainer		
containing parts		
COL	containing conclude	
indicating P7 ID		
inucaling KZ_ID		
indicating distance		
and indicating R ZONE		
then		
the IUT forwards the	IVIM content to upper layers	
and the IUT forwards	s the IVIM content to other facilities	

TP ld	TP_IS_IVI_RCV_EVUP_BV_01	
Summary	Check that a received IVIM is considered as new if iviStatus is "new"	
Reference	CEN ISO/TS 19321 [4], clause 6.1.2	
PICS Selection	PICS_IVIM_RECEPTION	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
the IUT is in the relevance zone		
the IUT has already rece	the IUT has already received IVIM	
ensure that		
when		
the IUT receives a va	the IUT receives a valid IVIM	
containing ivi		
containing mandatory		
containing iviStatus		
indicating 'new'		
then	IV/IM content to upper lovero	
the IUT forwards the	TVIM content to upper layers	
and the IUT consider	s the rylivi as new	
TP ld	TP_IS_IVI_RCV_EVUP_BV_02	
	Check that a received IVIM is considered as new if iviStatus is "new" and/or if the	
Summary	combination of serviceProviderId and ivildentificationNumber is different from other	
	received messages	

5.2.3.13.2 Check IVI reception – Status

1 P Id	IP_IS_IVI_RCV_EVUP_BV_02		
	Check that a received IVIM is considered as new if iviStatus is "new" and/or if the		
Summary	combination of serviceProviderId and ivildentificationNumber is different from other		
	received messages		
Reference	CEN ISO/TS 19321 [4], clause 6.1.2		
PICS Selection	PICS_IVIM_RECEPTION		
	Expected behaviour		
with			
the IUT being in the "init	ial state"		
the IUT is in the the rele	vance zone		
the IUT has <u>never</u> recei	ved IVIM		
containing ivi	containing ivi		
containing manda	atory		
containing se			
Indicating	SF_IU a irildantificationNumber		
and containin			
indicating			
when			
the ILIT receives a v	alid IVIM		
containing ivi			
containing m	andatory		
containing	u iviStatus		
indicat	ing 'update'		
and containing serviceProviderId			
indicat	ting SP_ID		
and containing ivildentificationNumber			
indicat	ing IVI_ID		
then			
the IUT forwards the	IVIM content to upper layers		
and the IUT conside	rs the IVIM as new		

TP ld	TP IS IVI RCV EVUP BV 03
	Check that a received IVIM is considered as update if the iviStatus is "update" and/or if the
Summary	combination of serviceProviderId and ivildentificationNumber equals to those from another
-	received structure and the timestamp is more recent
Reference	CEN ISO/TS 19321 [4], clause 6.1.2
PICS Selection	PICS_IVIM_RECEPTION AND PICS_IVIM_UPDATE
	Expected behaviour
with	
the IUT being in the "init	ial state"
the IUT is in the relevant	ce zone
the IUT has already rece	eived IVIM
containing ivi	
containing manda	atory
containing se	rviceProviderId
indicating	SP_ID
and containin	givildentificationNumber
indicating	IVI_ID
and containin	g timeStamp
indicating TIME_1	
ensure that	
when	
the IUT receives a va	alid IVIM
containing ivi	
containing mandatory	
containing iviStatus	
indicating 'update'	
and containing serviceProviderId	
indicating SP_ID	
and containing ivildentificationNumber	
and containing timeStamp	
indicating	11WE_2 > 11WE_1
the UIT forwards the	IV/IM content to upper lovere
the IUT forwards the	I V IVI content to upper layers
and the IUT consider	rs the rv ivit as update

ld	TP_IS_IVI_RCV_EVUP_BV_04
mmary	Check that a received IVIM is considered as duplicate of a received structure if the combination of serviceProviderId and ivildentificationNumber equals to those from another received structure and the timestamp is the same
ference	CEN ISO/TS 19321 [4], clause 6.1.2
CS Selection	PICS_IVIM_RECEPTION AND PICS_IVIM_UPDATE
	Expected behaviour
h	
the IUT being in the "init	ial state"
the IUT is in the relevance zone	
he IUT has already received IVIM	

containing ivi containing mandatory containing serviceProviderId indicating SP_ID and containing ivildentificationNumber indicating IVI_ID and containing timeStamp indicating **TIME_1** ensure that when the IUT receives a valid IVIM containing ivi containing mandatory and containing serviceProviderId indicating **SP_ID** and containing ivildentificationNumber

then

TP Id

with

Summary

Reference **PICS Selection**

the IUT considers the IVIM as duplicate

indicating IVI_ID and containing timeStamp indicating TIME_1

TP ld	TP_IS_IVI_RCV_EVUP_BV_05	
Summary	Check that a received IVIM is considered as cancelation if the iviStatus is "cancellation"	
Reference	CEN ISO/TS 19321 [4], clause 6.1.2	
PICS Selection	PICS_IVIM_RECEPTION AND PICS_IVIM_CANELATION	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
the IUT is in the relevant	ce zone	
the IUT has already rece	eived IVIM	
containing ivi		
containing manda	atory	
containing se	rviceProviderId	
indicating		
and containing ivildentificationNumber		
when		
containing ivi		
containing initia mandatory		
containing individuory		
indicating 'cancelation'		
and containing serviceProviderId		
indicating SP_ID		
and containing ivildentificationNumber		
indicat	ing IVI_ID	
then		
the IUT considers the	e IVIM as cancelation	

TP ld	TP_IS_IVI_RCV_EVUP_BV_06		
Summary	Check that a received IVIM is considered as negation if the iviStatus is "negation"		
Reference	CEN ISO/TS 19321 [4], clause 6.1.2		
PICS Selection	PICS_IVIM_RECEPTION AND PICS_IVIM_NEGATION		
	Expected behaviour		
with			
the IUT being in the "init	ial state"		
the IUT is in the relevant	ce zone		
the IUT has already rece	eived IVIM		
containing ivi	containing ivi		
containing manda	atory		
containing serviceProviderId			
indicating	indicating SP_ID		
and containing ivildentificationNumber			
indicating IVI_ID			
ensure that			
when			
the IUT receives a va	alid IVIM		
containing ivi			
containing mandatory			
containing iviStatus			
Indicating 'negation'			
and conta	ining serviceProviderid		
	Ing SP_ID		
and conta			
then	ש <u>ו</u> וא און און און און און און און און און א		
the ILIT considers the	a IV/IM as pagation		
then the IUT considers the	e IVIM as negation		

5.2.3.13.3 Check IVI reception – Security parameters

TP ld	TP_IS_IVI_RCV_SSP_BV_01		
Summary	Check that the IUT accepts a received IVIM message permitted by the signing certificate		
Reference	ETSI TS 103 301 [1], clause 5.4.3.2		
PICS Selection	PICS_IVIM_RECEPTION AND PICS_IS_IUT_SECURED		
	Expected behaviour		
with			
the IUT being in the "initial state"			
and the IUT is operatir	ng in secured mode		
ensure that			
when			
the IUT receives ar	IVIM		
containing ivi			
containing n	nandatory		
containii	ng serviceProviderId		
Indic	Indicating IVI_SP_VALUE		
and containing iviStatus			
and not containing optional			
anu siyineu wilin ine CertifiiCale			
containing apprentition term			
indicating ITS AID IVIM			
and containing hitmanSSP			
indicating octet at position 0 set to 0x01			
and indicating octet 1-3 representing IVI SP VALUE			
and	indicating other bits set to 0		
then			
the IUT accepts the	e received IVIM		

	1P_IS_IVI_RCV_SSP_BO_01	
Summary	Check that the IUT discards a received IVIM message not permitted by the signing	
Summary	certificate	
Reference	ETSI TS 103 301 [1], clause 5.4.3.2	
PICS Selection	PICS_IVIM_RECEPTION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT is operating	in secured mode	
ensure that		
when		
the IUT receives an I	VIM	
containing ivi		
containing ma	andatory	
containing	serviceProviderId	
indicat	ing IVI SP VALUE	
and conta	ining iviStatus	
indicat	ing'new'	
and not conta	ining optional	
and signed with the cartificate		
not containing appRomission item		
containing appretitission term		
indicat		
then		
the IUT discards the	received IVIM	

TP ld	TP_IS_IVI_RCV_SSP_BO_02		
Summary	Check that the IUT discards a received IVIM message with service provider identifier not		
Summary	permitted by the signing certificate		
Reference	ETSI TS 103 301 [1], clause 5.4.3.2		
PICS Selection	PICS_IVIM_RECEPTION AND PICS_IS_IUT_SECURED		
	Expected behaviour		
with			
the IUT being in the "in	itial state"		
and the IUT is operatin	g in secured mode		
ensure that			
when			
the IUT receives ar	n IVIM		
containing ivi			
containing n	nandatory		
containir	ng serviceProviderId		
indic	ating IVI_SP_VALUE		
and cont	aining iviStatus		
indic	ating'new'		
and not con	taining optional		
and signed with	the certificate		
containing a	ppPermission item		
containir	ng psid		
indic	ating ITS_AID_IVIM		
and cont	and containing bitmapSSP		
indic	indicating octet at position 0 set to 0x01		
and i	ndicating octet 1-3 not representing IVI_SP_VALUE		
and i	ndicating other bits set to 0		
then			
the IUT discards th	e received IVIM		

TP ld	TP_IS_IVI_RCV_S	SP_BO_03			
Summary	Check that IVI service skips a received IVIM containing different road signs schema when it				
i i	s not permitted by	the signing certificate			
Reference	ETSI TS 103 301 ['	1], clause 6.4.3.2			
PICS Selection	PICS_IVIM_RECE	PTION AND PICS_IS_IUT_SEC	URED AND PICS_X		
		Expected behaviour			
with					
the IUT being in the "initia	al state"				
and the IUT is operating i	n secured mode				
ensure that					
when					
the IUT receives an IN	/IM				
containing ivi					
containing opti	onal				
containing	element of type Ge	enerallviContainer			
contain	ing element of type	GicPart			
containing roadSignCodes					
containing elements of type RSCode					
	containing code				
	containing COMPONENT_X				
and signed with th	e certificate				
containing psic					
and containing	appPermission ite	em			
containing	DitmapSSP				
then					
the UIT discords the r	agained IV/IM then				
Une IOT discards the received IVINI them					
PICS X			OCTET X	BIT X	
PICS IVIM RSCODE VIEN	NACONV	viennaConvention	4	0	
PICS IVIM RSCODE SAF	2540	itisCodes	4	7	
NOTE: Other SSP hits of	signing certificate	not defined explicitly in the TP	hall be set accordingly	/ to the	

TP_IS_IVI_RCV_SSP_BV_01.

TP ld	TP_IS_IVI_RCV_SSP_BO_04				
Summary	Check that IVI service skips a received IVIM containing	ISO/TS 14823 [i.7]	road signs		
	codes of different service categories when it is not perm	nitted by the signing	certificate		
Reference	ETSI TS 103 301 [1], clause 6.4.3.2				
PICS Selection	PICS_IVIM_RECEPTION AND PICS_IS_IUT_SECURE	ED AND			
	PICS_IVIM_RSCODE_ISO14823				
	Expected behaviour				
with	i-l state"				
the IUT being in the Init	iai state				
and the forms operating	In secured mode				
when					
the IUT receives an	IVIM				
containing ivi					
containing op	tional				
containing	g element of type GenerallviContainer				
contai	ning element of type GicPart				
со	ntaining roadSignCodes				
	containing elements of type RSCode				
containing code					
	containing iso14823.pictogramCode.serviceCate containing COMPONENT_X	egoryCode			
and signed with t	he certificate				
containing ps	id				
indicating	indicating ITS_AID_IVIM				
and containin	and containing appPermission item				
containing bitmapSSP					
and in	dicating bit BIT_X of octet OCTET_X set to 0				
then	received IV/IM				
	Variante				
			BIT Y		
COMPONENT_X OCTET_X					
trafficSignPictogram.dangervVarning 4			1		
trafficSignPictogram.regulatory 4 2			2		
trafficSignPictogram.informative 4			3		
publicFacilitiesPictogram 4 4			4		
ambientOrRoadContitionPie	ambientOrRoadContitionPictogram.ambientCondition 4 5				
ambientOrRoadContitionPictogram.roadCondition 4 6					
NOTE: Other SSP bits n	ot defined explicitly in the TP shall be set accordingly to	the TP_IS_IVI_RC	V SSP BV 01.		

TP ld	TP_IS_IVI_RCV_SSP_BO_05			
Summony	Check that IVI service skips a received IVIM containing lane status when it is not permitted			
Summary	by the signing certificate			
Reference	ETSI TS 103 301 [1], clause 6.4.3.2			
	PICS IVIM RECEPTION AND PICS IS IUT SECURED AND			
PICS Selection	PICS_IVIM_RSCODE_ISO14823			
	Expected behaviour			
with				
the IUT being in the "init	ial state"			
and the IUT is operating	in secured mode			
ensure that				
when				
the IUT receives an	IVIM			
containing ivi				
containing op	tional			
containing element of type GenerallviContainer				
containing element of type GicPart				
containing laneStatus				
and signed with t	he certificate			
containing ps	id			
indicating	ITS_AID_IVIM			
and containin	g appPermission item			
containing	bitmapSSP			
indica	indicating bit 0 of octet 5 set to 0			
then				
the IUT discards rec				
NOTE: Other SSP bits n	ot defined explicitly in the TP shall be set accordingly to the TP_IS_IVI_RCV_SSP_BV_01.			
TP ld	TP_IS_IVI_RCV_SSP_BO_06			
Summony	Check that IVI service skips a received IVIM containing different containers when it is not			
Summary	permitted by the signing certificate			
Reference ETSI TS 103 301 [1], clause 6.4.3.2				

PICS Selection	PICS_IVIM_RECEPTION AND PICS_IS_IUT_SECURED AND PICS_X			
	Expe	cted behaviour		
with				
the IUT being in the "initi	ial state"			
and the IUT is operating	in secured mode			
ensure that				
when				
the IUT receives an I	IVIM			
containing ivi				
containing op	tional			
containing	element of type CONTAIN	ER_X		
and signed with t	he certificate			
containing psid				
indicating ITS_AID_IVIM				
and containing	g appPermission item			
containing bitmapSSP				
indicat	ting bit BIT_X of octet OCTI	ET_X set to 0		
then				
the IUT discards the	received IVIM			
Variants				
PICS	X	CONTAINER X		BIT X

1.00_/		•••- <u></u> ^	
PICS_IVIM_HAS_ROAD_CFG_CONTAINER	RoadConfigurationContainer	5	1
PICS_IVIM_HAS_TEXT_CONTAINER	TextContainer	5	2
PICS_IVIM_HAS_LAYOUT_CONTAINER	LayoutContainer	5	3
NOTE: Other SSP bits not defined explicitly in the T	P shall be set accordingly to the TP_IS	S_IVI_RCV_SS	P_BV_01.

TP ld	TP_IS_IVI_RCV_SSP_BO_07		
Summary	Check that IVI service skips a received IVI negation when it is not permitted by the signing		
Summary	certificate		
Reference	ETSI TS 103 301 [1], clause 6.4.3.2		
PICS Selection	PICS_IVIM_RECEPTION AND PICS_IS_IUT_SECURED		
	Expected behaviour		
with			
the IUT being in the "ir	nitial state"		
and the IUT is operatir	ng in secured mode		
ensure that			
when			
the IUT receives a	n IVIM		
containing ivi			
containing mandatory			
containi	ng iviStatus		
indnicating 'negation'			
and signed with the certificate			
containing p	bsid		
indicatin	indicating ITS_AID_IVIM		
and contain	ing appPermission item		
containing bitmapSSP			
indic	ating bit 4 of octet 5 set to 0		
then			
the IUT discards th	ne received IVIM		
NOTE: Other SSP bits	not defined explicitly in the TP shall be set accordingly to the TP_IS_IVI_RCV_SSP_BV_01.		

5.2.4 Traffic Light Control (TLC) service

5.2.4.1 Check the SREM generation behaviour

5.2.4.1.1 Initial conditions

According to CEN ISO/TS 19091 [3], clauses 6.4.1 and 6.2.1, the IUT shall conform to the following initial conditions:

These conditions constitute the "SREM initial state".

TP Id	TP_IS_TLCR_GEN_EVGN_BV_01		
Summary	Check that TLC Service generates a SREM on reception of a valid AppSREM_Trigger		
Summary	request (ITS-S)		
Reference	ETSI TS 103 301 [1], clause 8.4.1		
Kelelence	CEN ISO/TS 19091 [3], clause 6.4		
PICS Selection	PICS_SREM_GENERATION		
	Expected behaviour		
with			
the IUT being in the "SR	EM initial state"		
ensure that			
when			
the IUT receives an AppSREM_Trigger request from the application layer			
then			
the IUT sends a valid SREM			
containing srm			
containing red	quests		
containing	containing an item of type SignalRequestPackage		
containing request			
containing id			
	indicating the target intersection TI		
an	d containing inBoundLane		
	indicating the approach information AI		

5.2.4.1.2 Check the SREM generation

5.2.4.1.3 Check the SREM format

5.2.4.1.3.1 Check the SREM PDU header

TP ld	TP_IS_TLCR_GEN_MSGF_BV_01		
Summary	Check that protocolVersion is set to 1 and messageID is set to 9 (ITS-S)		
Reference	ETSI TS 103 301 [1], clause 8.3		
PICS Selection	PICS_SREM_GENERATION		
	Expected behaviour		
with			
the IUT being in the "SR	EM initial state"		
ensure that			
when			
the IUT is requested	to generate a SREM		
then			
the IUT sends a mes	sage		
containing ITS PI	DU header		
containing protocolVersion			
indicating value '1'			
and containin	and containing messageID		
indicating	value '9'		

5.	2.	4.	1.	3.	2	
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Check the SREM conformance

TP ld	TP_IS_TLCR_GEN_EVGN_BV_02
Summary	Check that the IUT generates SREM containing requestor information
Deference	ETSI TS 103 301 [1], clause 8.4.1
Reference	CEN ISO/TS 19091 [3], clauses 6.2.7, 6.2.9, 6.2.10, 6.4.6, 6.4.8 and 6.4.9
PICS Selection	PICS_SREM_GENERATION
	Expected behaviour
with	
the IUT being in the "SR	EM initial state"
ensure that	
when	
the IUT is requested	to generate a SREM
then	
the IUT sends a SRE	EM
containing srm	
containing red	questor
contai	ning type
COI	ntaining role
	indicating the IUT role
contai	ning position
COI	ntaining position
	indicating the current IUT position



TP ld	TP_IS_TLCR_GEN_EVGN_BV_04	
Summary	Check that the IUT generates SREM containing timing information	
Reference	ETSI TS 103 301 [1], clause 8.4.1	
	CEN ISO/TS 19091 [3], clauses 6.2.8, 6.2.13, 6.4.7 and 14	
PICS Selection	PICS_SREM_GENERATION AND PICS_SREM_HAS_TIMING	
	Expected behaviour	
with		
the IUT being in the "SR	.EM initial state"	
ensure that		
when		
the IUT is requested	to generate a SREM	
then		
the IUT sends a SREM		
containing srm		
containing requests		
containing	an item of type SignalRequestPackage	
containing minute and second		
indicating the estimated duration between the current time and the moment		
	when IUT arrives to the intersection stopping point (TIME_1)	
and co	Intaining duration	
inc	licating the duration as seconds	
	when the request remains active after the TIME_1	

5.2.4.1.4 Check that the IUT identifies SREM with a unique request identifier

TP ld	PId TP_IS_TLCR_GEN_EVGN_BV_05	
Summary	Check that the IUT identifies SREM with a unique request identifier (ITS-S)	
Reference	ETSI TS 103 301 [1], clause 8.4.1	
	CEN ISO/TS 19091 [3], clause 6.4.2	
PICS Selection	PICS_SREM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "SR	EM initial state"	
and the IUT having gene	erated several SREM	
ensure that		
when		
the IUT is requested to generate a new SREM		
then		
the IUT sends a valid SREM		
containing srm		
containing requests		
containing an item of type SignalRequestPackage		
containing request		
containing id		
indicating the target intersection TI		
containing requestID		
indicating an unused value		

TP ld	TP_IS_TLCR_GEN_EVUP_BV_01	
Summary	Check that the IUT increments the sequenceNumber when a SREM update is generated	
Reference	ETSI TS 103 301 [1], clause 8.4.1	
PICS Selection	PICS_SREM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "SR	EM initial state"	
and the IUT having gene	erate a SREM	
containing srm		
containing seque	nceNumber	
indicating SR	EM_SN_1	
containing reque	sts	
containing an item of type SignalRequestPackage		
containing request		
containing requestID		
indicating SREM_RID_1		
ensure that		
when		
the IUT receives an AppSREM_update request		
then		
the IUT sends a valid SREM		
containing ssm		
containing sequenceNumber		
indicating SREM_SN_1+ 1		
containing requests		
containing an item of type SignalRequestPackage		
contai	ning request	
CO	ntaining requestID	
indicating SREM_RID_1		

5.2.4.1.5 Check that the IUT increments the sequenceNumber when a SREM update is generated

5.2.4.1.6 Check BTP type and port number

TP ld	TP_IS_TLCR_GEN_COM_BV_01	
Summary	Check that SREM uses BTP_B packet	
	Check that the destination port for IVIM is set to 2007	
Reference	ETSI TS 103 301 [1], clauses 10.2 and 8.4.3.3	
PICS Selection	PICS_SREM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "SR	REM initial state"	
ensure that		
when		
the IUT receives an AppSREM_Trigger request from the application layer		
then		
the IUT sends a valid SREM		
encapsulated in a BTP-B packet		
containing a destination port value set to '2007'		
and containing a destination port info value set to '0'		

TP ld	TP_IS_TLCR_GEN_COM_BV_02	
Summary	Check that TLM service encapsulates SREM in a GBC with the HeaderType field set to the	
	value of 4	
Reference	ETSI TS 103 301 [1], clause 8.4.3.3	
PICS Selection	PICS_SREM_GENERATION AND PICS_SHORT_RANGE	
	Expected behaviour	
with		
the IUT being in the "SR	EM initial state"	
ensure that		
when		
the IUT receives an AppSREM_Trigger request from the application layer		
then		
the IUT sends a valid SREM		
encapsulated in a GBC packet		
containing a correctly formatted Common Header		
containing HeaderType field		
indicating the value '4'		

5.2.4.1.7 Check destination type

5.2.4.1.8 Check the SREM cancelation

TP ld	TP_IS_TLCR_GEN_CANC_BV_01	
Summary	Check that the IUT generates SREM cancelation	
Reference	ETSI TS 103 301 [1], clause 8.4.1	
	CEN ISO/TS 19091 [3], clauses 6.2.11 and 6.4.11	
PICS Selection	PICS_SREM_GENERATION AND PICS_SREM_CANCELATION	
	Expected behaviour	
with		
the IUT being in the "SF	EM initial state"	
and the IUT is recently h	naving sent SREM	
containing srm		
containing reque	stor	
containing id		
indicating	the vehicule ID (VID)	
and containing re	equests	
containing an	item of type SignalRequestPackage	
containing	j request	
contal	ning id	
inc	incating the target intersection 11	
and co	Intaining requestion	
inc	icaling value (ReqiD)	
when		
the ILIT receives an	AnnSPEM. Cancel request from the application layer	
then	Apponem_cancer request from the application layer	
the ILIT sends a SREM		
containing srm		
containing entre		
containing id		
indicating the vehicule ID (VID)		
and containing requests		
containing an item of type SignalRequestPackage		
containing request		
containing id		
indicating the target intersection TI		
and containing requestID		
	indicating value (<i>ReqID</i>)	
an	and containing requestType	
indicating 'priorityCancellation'		

5.2.4.1.9 Check the SREM security parameters

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TP ld	TP_IS_TLCR_GEN_SEC_BV_01	
Summary	Check that TLC service uses certificate containing valid ITS AID to sign SREM messages	
Reference	ETSI TS 103 301 [1], clause 8.4.3.2	
PICS Selection	PICS_SREM_GENERATION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "SR	EM initial state"	
and the IUT is operating in secured mode		
ensure that		
when		
the IUT is requested to generate a SREM		
then		
the IUT sends a SREM		
containing a correctly formatted Security Header as a EtsiTs103097Data structure		
containing signedData.tbsData.headerInfo		
containing	j psid	
indicating ITS_AID_SREM		

TP ld	TP_IS_TLCR_GEN_SEC_BV_02		
Summary	Check that TLC service uses generic security profile to sign SREM message and does not		
	include additional security header elements		
Reference	ETSI TS 103 301 [1], clause 12		
PICS Selection	PICS_SREM_GENERATION AND PICS_IS_IUT_SECURED		
	Expected behaviour		
with			
the IUT being in the "SR	EM initial state"		
and the IUT is operating	in secured mode		
and the IUT sending SR	EM		
ensure that	ensure that		
when			
the IUT is requested to generate a SREM			
then			
the IUT sends a valid SREM			
containing a correctly formatted Security Header as a EtsiTs103097Data structure			
containing signedData.tbsData.headerInfo			
Indicating ITS_AID_SREM			
and containing generation lime			
indical	Indicating realistic generation time		
and option	nally containing generationLocation		
and not containing other header items			

5	.2	.4	.1	.9	.2

Check the SREM Service Specific Permissions (SSP)

TP ld	TP_IS_TLCR_GEN_SSP_BV_01	
Summary	Check that TLC service uses certificate containing valid Service Specific Permissions of	
Summary	type BitmapSsp to sign SREM messages and the SSP version is set to 2	
Reference ETSI TS 103 301 [1], clause 4.5.1		
PICS Selection	PICS_SREM_GENERATION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "SR	EM initial state"	
and the IUT is operating	in secured mode	
and the IUT is authorize	d to sign SREM with the certificate CERT_SRM_SSP_NONE	
containing appPermi	ssion item	
containing psid		
indicating ITS	j_AID_SREM	
containing bitmapSSP		
indicating octet at position 0 set to 0x02		
and indicating other bits set to 0		
ensure that		
when		
the IUT is requested to generate a SREM		
containing srm		
containing requestor.type.role		
indicating 'basicVehicle'		
and not conta	ining requests	
then		
the IUT sends a SRE	M	
signed with the C	FRT SRM SSP NONF	

TP ld	TP_IS_TLCR_GEN_SSP_BV_02_00		
Summary	Check that TLC service uses certificate containing valid Service Specific Permissions to		
	sign SRM requests		
Reference	ETSI TS 103 301 [1], clause 4.5.1		
PICS Selection	PICS_SREM_GENERATION AND PICS_IS_IUT_SECURED		
	Expected behaviour		
with			
the IUT being in the "SR	EM initial state"		
and the IUT is operating	in secured mode		
and the IUT is authorize	d to sign SREM with the certificate CERT_SRM_SSP_REQ_NONE		
containing appPermi	ission item		
containing psid			
indicating ITS	S_AID_SREM		
containing bitmap	DSSP		
indicating octo	indicating octet at position 0 set to 0x02		
and indicating bit at position 0 of octet 1 set to 0x02			
and indicating other bits set to 0			
ensure that			
when			
the IUT is requested to generate a SREM			
containing srm			
containing requestor.type.role			
indicating 'basicVehicle'			
and containing requests			
containing	g at least one item of type SignalRequestPackage		
then			
the IUT sends a SRE	EM		
signed with the C	ERT_SRM_SSP_REQ_NONE		

TP Id	TP IS	TLCR GEN SS	CR GEN SSP BV 02 X		
Summary		Check that TLC service uses certificate containing valid SSP permissions to sign SREM			
n		messages from different role ITS-S			
Reference ETSI TS 10		TS 103 301 [1], cl	ause 8.4.3.	2	
PICS S	Selection PICS_	SREM_GENERA	TION AND	PICS_IS_IUT_SECURED	
with		Exp	bected ben	aviour	
the	IUT being in the "SREM ini	tial state"			
and	the IUT is operating in sec	ured mode			
and	d the IUT is authorized to sig	n SREM with the	certificate	CERTIFICATE_X	
	containing appPermission i	tem			
	indicating ITS AID	SREM			
	containing bitmapSSP				
	indicating octet at po	osition 0 set to 0x0	02		
	and indicating bit at	position 0 of octet	t 1 set to 1		
0.000.000	and indicating bit at	position SSP_BIT	_X set to 1		
wh	en				
	the IUT is requested to gen	erate a SREM			
	containing srm				
	containing requestor	r.type.role			
	indicating ROLE	_X ests			
	containing at lea	st one item of type	e SignalRe	questPackage	
the	n		g	1	
	the IUT sends a SREM				
	signed with the CERTIF	ICATE_X	Marianta		
		SSD 1			
х	CERTIFICATE X	Octet	Bit	Requestor role (ROLE X)	
	_	Position	Position		
01	CERT_IUT_SREM_SSP_	01 1	1 (40h)	Requestor role (public transport) {SREM.srm.requestor.type.role.publicTransport}	
02	CERT_IUT_SREM_SSP_	02 1	2 (20h)	Requestor role (special transport)	
	CERT IUT SREM SSP	03		Requestor role (dangerousGoods)	
03		1	3 (10h)	{SREM.srm.requestor.type.role.dangerousGoods}	
04	CERT_IUT_SREM_SSP_	04 1	4 (08h)	Requestor role (roadWork)	
04	0557 WIT 05514 005		+ (0011)	{SREM.srm.requestor.type.role.roadWork}	
05	CERT_IUT_SREM_SSP_	^{U5} 1	5 (04h)	Kequestor role (roadKescue)	
	CERT IUT SREM SSP	06		Requestor role (emergency)	
06	oooo	1	6 (02h)	{SREM.srm.requestor.type.role.emergency}	
07	CERT_IUT_SREM_SSP_	07 1	7 (01h)	Requestor role (safetyCar)	
51			, (011)	SREM.srm.requestor.type.role.safetyCar	
08	UERT_IUT_SKEM_SSP_	2	0 (80h)	SREM srm requestor type role truck	
	CERT IUT SREM SSP	09 _		Requestor role (motorcycle)	
09		2	1 (40h)	{SREM.srm.requestor.type.role.motorcycle}	
10	CERT_IUT_SREM_SSP_	10 2	2 (20h)	Requestor role (police)	
		11	- (-01)	{SREM.srm.requestor.type.role.police}	
11		2	3 (10h)	{SREM.srm.requestor.type.role.fire}	
12	CERT_IUT_SREM_SSP_	12 2	4 (08h)	Requestor role (ambulance)	
	CERT IUT SREM SSP 13				
13		2	5 (04h)	{SREM.srm.requestor.type.role.dot}	
14	CERT_IUT_SREM_SSP_	_14 2	6 (02h)	Requestor role (transit) {SREM.srm.requestor.type.role.transit}	
15	CERT_IUT_SREM_SSP_	15 2	7 (01h)	Requestor role (slowMoving) {SREM.srm.requestor.type.role.slowMoving}	

16	CERT_IUT_SREM_SSP_16	3	0 (80h)	Requestor role (cyclist) {SREM.srm.requestor.type.role.cyclist}
17	CERT_IUT_SREM_SSP_17	3	1 (40h)	Requestor role (pedestrian) {SREM.srm.requestor.type.role.pedestrian}
18	CERT_IUT_SREM_SSP_18	3	2 (20h)	Requestor role (military) {SREM.srm.requestor.type.role.military}

TP ld	TP_IS_TLCR_GEN_SEC_BO_03_00			
Summary	Check that TLC service does not send SREM without possession of the certificate with SREM signing permissions			
Reference	ETSI TS 103 301 [1], clause 8.4.3.2			
PICS Selection	PICS_SREM_GENERATION AND PICS_IS_IUT_SECURED			
	Expected behaviour			
with				
the IUT being in the "SR	EM initial state"			
and the IUT is operating	in secured mode			
and the IUT is authorize	d to sign SREM with the certificate CERT_SRM_SSP_NONE			
containing appPermi	ssion item			
containing psid				
indicating ITS	S_AID_SREM			
containing bitmap	containing bitmapSSP			
indicating oct	indicating octet at position 0 set to 0x02			
and indicating	and indicating bit at position 0 of octet 1 set to 0			
and indicating other bits set to 0				
ensure that				
when				
the IUT is requested to generate a SREM				
containing srm				
containing requestor.type.role				
indicating 'basic Vehicle'				
and containing requests				
containing at least one item of type SignalRequestPackage				
then				
the IUT does not ser	nds a SREM			

TP ld	TP_IS_TLCR_GEN_SEC_BO_03_X			
Summany	Check that TLC service does not send SREM with priority request without possession of			
Summary	the certificate with prioritized SREM signing permissions			
Reference	ETSI TS 103 301 [1], clause 8.4.3.2			
PICS Selection	PICS_SREM_GENERATION AND PICS_IS_IUT_SECURED			
	Expected behaviour			
with				
the IUT being in the "SR	the IUT being in the "SREM initial state"			
and the IUT is operating	in secured mode			
and the IUT is authorize	d to sign SREM with the certificate CERT_SRM_SSP_REQ			
containing appPermi	ission item			
containing psid				
indicating ITS	S_AID_SREM			
and containing bi	itmapSSP			
indicating bit	at position 0 of octet 1 set to 1			
and indicating	g other bits set to 0			
ensure that				
when				
the IUT is requested	the IUT is requested to generate a SREM			
containing srm	containing srm			
containing red	containing requests			
and containing requestor				
containing type				
containing role				
indicating ROLE_X				
then				
the IUT does not sends a SREM				
Variants				
The variants table defined in	n TP_IS_TLC_SEC_SND_BV_02_X shall apply for definition of ROLE_X.			
、				

TP ld	TP_IS_TLCR_GEN_SEC_BV_05		
Summary	Check that TLC service change the vehiculeID when certificate change is requested		
Reference	CEN ISO/TS 19091 [3], clause 6.12		
PICS Selection PICS_SREM_GENERATION AND PICS_IS_IUT_SECURED			
	Expected behaviour		
with			
the IUT being in the "SR	EM initial state"		
and the IUT is operating	in secured mode		
and the IUT is recently h	aving sent SREM		
containing a correctly	y formatted Security Header as a EtsiTs103097Data structure		
containing signed	IData.signer.certificate		
indicating (CE	indicating (CERTIFICATE_1)		
and containing srm			
containing reques	containing requestor		
containing id	containing id		
indicating	(VID)		
ensure that			
when			
the IUT is having received pseudonym change request			
and the IUI receives an AppSREM_request request from the application layer			
then			
the IUT sends a SKEM			
containing a correctly formatted Security Header as a Etsi I s10309/Data structure			
Indicating (CERTIFICATE_2)			
and containing sim			
containing requestor			
containing	ing other value then MD		
Indica			

Check the pseudonym change behaviour

5.2.4.1.9.3

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TP ld	TP_IS_TLCR_GEN_SEC_BV_06			
Summary	Check that TLC service keeps the vehiculeID when the request is active and certificate			
Summary	change is requested			
Reference	CEN ISO/TS 19091 [3], clauses 6.2.9, 6.4.8 and 6.12			
PICS Selection	PICS_SREM_GENERATION AND PICS_IS_IUT_SECURED			
	Expected behaviour			
with	· · · · · · · · · · · · · · · · · · ·			
the IUT being in the "SR	EM initial state"			
and the IUT is operating	in secured mode			
and the IUT is recently h	aving sent SREM			
containing a correctly	y formatted Security Header as a EtsiTs103097Data structure			
containing signed	Data.signer.certificate			
indicating (CL	ERTIFICATE 1)			
and containing srm	_ ,			
containing reque	stor			
containing id				
indicating	(VID)			
and containing re	quests			
containing an	item of type SignalRequestPackage			
containing	y request			
contai	ning id			
ind	licating the target intersection TI			
and co	ontaining requestID			
ind	licating (ReqID)			
and co	Intaining requestType			
ind	licating ' <i>priorityRequest</i> '			
ensure that				
when				
the IUT is having rec	eived pseudonym change request			
and the IUT receives	an AppSREM_updatel request from the application layer			
then				
the IUT sends a SRE	EM			
containing a corr	ectly formatted Security Header as a EtsiTs103097Data structure			
containing sig	containing signedData.signer.certificate			
indicating	CERTIFICATE_1			
and containing srm				
containing red	containing requestor			
containing id				
indicating VID				
and containing requests				
containing an item of type SignaiRequestPackage				
containing request				
containing id				
indicating the target intersection II				
and containing requestib				
indicating value (<i>Regin</i>)				
an	indicating request type			

5.2.4.1.10 Check the SREM transmission rate

TP ld	TP_IS_TLCR_GEN_RATE_TI_01		
Summary	Check that TLC service transmits the request with the valid rate		
Reference	CEN ISO/TS 19091 [3], clause 6.14.1		
PICS Selection	PICS_SREM_GENERATION AND PICS_SREM_TRANSMISSION_RATE		
	Expected behaviour		
with			
the IUT being in the "SR	the IUT being in the "SREM initial state"		
and the IUT has sent previous SREM message at TIME_SREM_1			
ensure that			
when			
the IUT is requested to repeat a SREM			
then			
the IUT sends SREM at TIME_SREM_2			
where TIME_SREM_2 - TIME_SREM_1 is not less than 500 ms			
5.2.4.2	Check the SREM reception behaviour		
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TP ld	TP_IS_TLCR_RCV_MSGF_BV_01	
Summany	Check that the IUT can successfully process all mandatory fields of SREM received	
Summary	(TLC-S)	
Reference	ETSI TS 103 301 [1], clause 8.3	
PICS Selection	PICS_SREM_RECEPTION	
	Expected behaviour	
with		
the IUT being in the "init	the IUT being in the "initial state"	
ensure that		
when		
the IUT having recei	ve a valid SREM	
then		
the IUT forwards the	SREM content to upper layers	

TP ld	TP_IS_TLCR_RCV_SSP_BV_01	
Summary	Check that the secured IUT accepts the SREM message without requests and without	
	specific requestor role	
Reference	ETSI TS 103 301 [1], clause 8.3	
PICS Selection	PICS_SREM_RECEPTION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT is operating	in secured mode	
ensure that		
when	when	
the IUT receives a S	the IUT receives a SREM	
containing srm		
containing red	questor.type.role	
indicating	'basicVehicle'	
and not conta	ining requests	
and signed with t	he certificate	
containing appPermission item		
containing	y psid	
indicat	ting ITS_AID_SREM	
then		
the IUT accepts the	received SREM	

TP ld	TP IS TICR RCV SSP BV 02		
	Check that the secured IUT accepts the SREM message with request and without specific		
Summary	requestor role		
Reference	ETSI TS 103 301 [1], clause 8.3		
PICS Selection	PICS_SREM_RECEPTION AND PICS_IS_IUT_SECURED		
	Expected behaviour		
with			
the IUT being in the "initi	al state"		
and the IUT is operating	in secured mode		
ensure that			
when			
the IUT receives a SI	REM		
containing srm			
containing rec	questor.type.role		
indicating	basic venicle		
and containing	and containing requests		
and signed with the	and signed with the certificate CERI_SKM_SSP_REQ		
containing ap			
indicat	indicating ITS AID SPEM		
and contai	Inducating II 5_AID_SKEW		
and containdicat	indicating ottat at position 0 act to 0x02		
and inc	ling local at position 0 so to to 1		
and indicating other hits set to 0			
then			
the IUT accepts the r	eceived SREM		
I			
TP ld	TP_IS_TLCR_GEN_SSP_BV_02_X		
Summary	Check that the secured IUT accepts the SREM message with specific requestor role		
Reference	ETSI TS 103 301 [1], clause 8.4.3.2		
PICS Selection	PICS_SREM_RECEPTION AND PICS_IS_IUT_SECURED		
	Expected behaviour		
with			
the IUT being in the "initial state"			
and the IUT is operating in secured mode			
the IUT being in the "ini and the IUT is operating	tial state" g in secured mode		

lensure that	
when	
the IUT receives a SREM	
containing srm	
containing requestor.type.role	
indicating ROLE_X	
and signed with the certificate CERT_SRM_SSP_X	
containing appPermission item	
containing appPermission item	
containing psid	
indicating ITS_AID_SREM	
and containing bitmapSSP	
indicating octet at position 0 set to 0x02	
and indicating bit at position SSP_BIT_X set to 1	
then	
the IUT accepts the received SREM	
Variants	
The variants table defined in TP_IS_TLC_SEC_SND_BV_02 shall apply.	

TP ld	TP_IS_TLCR_RCV_SSP_BO_01	
Summary	Check that the secured IUT discards the SREM message without requests and without	
	specific requestor role if signing certificate does not allow it	
Reference	ETSI TS 103 301 [1], clause 8.3	
PICS Selection	PICS_SREM_RECEPTION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT is operating	in secured mode	
ensure that		
when		
the IUT receives a S	the IUT receives a SREM	
containing srm		
containing red	questor.type.role	
indicating	'basicVehicle'	
and not conta	aining requests	
and signed with t	he certificate CERT_NONE	
not containing	g appPermission item	
and containin	g psid	
indicating	ITS_AID_SREM	
then		
the IUT discards the	received SREM	

TP ld	TP_IS_TLCR_RCV_SSP_BO_02
Summary	Check that the secured IUT skips the SREM message with request and without specific
Summary	requestor role if it is not allowed by the signing certificate
Reference	ETSI TS 103 301 [1], clause 8.3
PICS Selection	PICS_SREM_RECEPTION AND PICS_IS_IUT_SECURED
	Expected behaviour
with	
the IUT being in the "init	ial state"
and the IUT is operating	in secured mode
ensure that	
when	
the IUT receives a S	REM
containing srm	
containing red	questor.type.role
indicating	'basicVehicle'
and containin	g requests
and signed with t	he certificate CERT_SRM_SSP_NONE
containing ap	pPermission item
containing) psid
indicat	ing ITS_AID_SREM
and conta	ining bitmapSSP
indicat	ing octet at position 0 set to 0x02
and in	dicating other bits set to 0
then	
the IUT skips the rec	eived SREM

TP ld	TP_IS_TLCR_RCV_SSP_BO_03		
Summany	Check that the IUT discards the SREM message containing request without additional		
Summary	information not permitted by the signing certificate		
Reference	ETSI TS 103 301 [1], clause 8.3		
PICS Selection	PICS_SREM_RECEPTION AND PICS_IS_IUT_SECURED		
	Expected behaviour		
with			
the IUT being in the "init	ial state"		
and the IUT is operating	in secured mode		
ensure that			
when			
the IUT receives a S	the IUT receives a SREM		
containing srm	containing srm		
containing red	containing requestor.type.role		
indicating	ROLE_X		
and signed with t	he certificate CERT_SRM_SSP_NONE		
containing ap	pPermission item		
containing	g appPermission item		
contai	ning psid		
ind	licating ITS_AID_SREM		
and containing bitmapSSP			
indicating octet at position 0 set to 0x02			
an	d indicating other bits set to 0		
then			
the IUT discards the	received SREM		
Variants			
The variants table defined in	n TP_IS_TLC_SEC_SND_BV_02 shall apply.		

5.2.4.3 Check the SSEM generation behaviour

5.2.4.3.1 Initial conditions

According to CEN ISO/TS 19091 [3], clause 6.11, the IUT shall conform to the following initial conditions:

```
the IUT has MAP information
    containing the configuration of the target intersection (TI)
        containing the approach information (AI)
the IUT has SPaT information
    containing the state of signal phases on the target intersection TI
```

These conditions constitute the "SSEM initial state".

5.2.4.3.2 Check the SSEM generation

TP ld	TP_IS_TLCS_GEN_MSGF_BV_01	
Summary	Check that the IUT can generate the SSEM as a response to the received SREM	
Reference	ETSI TS 103 301 [1], clause 8.3	
PICS Selection	PICS_SREM_RECEPTION AND PICS_SSEM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "SS	the IUT being in the "SSEM initial state"	
ensure that		
when		
the IUT having receive a valid SREM		
then		
the IUT generates a SSEM		

5.2.4.3.3 Check that SSEM content

Check that SSEM protocol version is set to 1 5.2.4.3.3.1

TP ld	TP_IS_TLCS_GEN_MSGF_BV_02		
Summary	Check that protocolVersion is set to 1 and messageID is set to 10 (TLC-S)		
Reference	ETSI TS 103 301 [1], clause 8.3		
PICS Selection	PICS_SREM_RECEPTION AND PICS_SSEM_GENERATION		
	Expected behaviour		
with			
the IUT being in the "SS	EM initial state"		
ensure that			
when	when		
the IUT having receive	the IUT having receive a valid SREM		
then			
the IUT sends a valid SSEM			
containing ITS P	containing ITS PDU header		
containing protocolVersion			
indicating value '1'			
and containin	g messageID		
indicating	value '10'		

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5.2.4.3.3.2

Check the SSEM content

TP ld	TP_IS_TLCS_GEN_MSGF_BV_03	
Summary	Check that the IUT generates the SSEM containing SREM identifiers	
Reference	CEN ISO/TS 19091 [3], clauses 6.11.3 and 6.11.6	
PICS Selection	PICS_SREM_RECEPTION AND PICS_SSEM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "SS	EM initial state"	
ensure that		
when		
the IUT receives an S	SREM	
containing srm		
containing red	questor	
containing		
indicat		
and containing	g requests	
containing	an item of type SignaiRequestPackage	
Contair	ing request	
COL	indianting the torget intersection T	
00	d containing request D	
and	indicating BogID	
an	d containing requestType	
and containing request ype		
then	indicating phonynequest	
the IUT sends a valio	1 SSEM	
containing ssm		
containing status		
containing an item of type SignalStatus		
containing id		
indicating the target intersection 7		
and containing sigStatus		
contair	containing an item of type SignalStatusPackage	
cor	containing requester	
	containing requester	
	containing id	
	indicating VID	
	and containing request	
	indicating ReqID	
	and containing sequenceNumber	

TP ld	TP IS TLCS GEN COM BV 01	
Summary	Check that SSEM uses BTP_B packet	
	Check that the destination port for SSEM is set to 2008	
Reference	ETSI TS 103 301 [1], clauses 10.2 and 8.4.3.3	
PICS Selection	PICS_SREM_RECEPTION AND PICS_SSEM_GENERATION	
	Expected behaviour	
with		
the IUT being in th	ie "initial state"	
ensure that	ensure that	
when	when	
the IUT having	receive a valid SREM	
then		
the IUT sends	a valid SSEM	
encapsulat	ed in a BTP-B packet	
contain	ing a destination port value set to '2008'	
and containing a destination port info value set to '0'		

5.2.4.3.4 Check BTP type and port number

5.2.4.3.5 Check destination type

PId TP_IS_TLCS_GEN_COM_BV_02			
Summers/	Check that TLM service encapsulates SSEM in a GBC with the HeaderType field set to the		
Summary	value of 4		
Reference	ETSI TS 103 301 [1], clause 8.4.3.3		
PICS Selection	PICS_SSEM_GENERATION AND PICS_SHORT_RANGE		
Expected behaviour			
with			
the IUT being in the "init	ial state"		
ensure that	ensure that		
when			
the IUT having receive	the IUT having receive a valid SREM		
then			
the IUT sends a valid SSEM			
encapsulated in a GBC packet			
containing a correctly formatted Common Header			
containing HeaderType field			
indicating the value '4'			

5.2.4.3.6	Check that the IUT increments the sequenceNumber only when the SSEM
	content is changed

TP ld	TP_IS_TLCS_GEN_EVUP_BV_01		
Summary	Check that the IUT increments the sequenceNumber when a SSEM update is generated		
Reference	ETSI TS 103 301 [1], clause 8.4.1		
	CEN ISO/TS 19091 [3], clause 6.11.2		
PICS Selection	PICS_SREM_RECEPTION AND PICS_SSEM_GENERATION		
	Expected behaviour		
with			
the IUT being in the "SS	EM Initial state"		
and the IUT having gene	State a SSEM		
containing SSII	nceNumber		
indicating (SS	SEM SM		
and containing st	atus		
containing an	item of type SignalStatus		
containing	ı id		
indicat	, ing the target intersection T I		
and conta	ining sigStatus		
contai	ning an item of type SignalStatusPackage		
COI	ntaining requester		
	containing requester		
	containing id		
	indicating (<i>VID</i>)		
	and containing request		
	indicating (<i>ReqID</i>)		
	and sequence number		
oncure that	indicating (Regsin)		
when			
the IUT receives an	SREM		
containing srm			
containing red	questor		
containing	j id		
indicat	ing <i>VID</i>		
and containin	g requests		
containing	an item of type SignalRequestPackage		
contai	ning request		
COI	ntaining id		
	indicating the target intersection T		
and containing requestID			
Indicating KeqiD			
and containing request rype			
then	indicating phonynequestopuate		
the IUT sends a valid	d SSEM		
containing ssm			
containing se	containing sequenceNumber		
indicating SEM_SN + 1			
and containing status			
containing an item of type SignalStatus			
containing id			
indicating the target intersection TI			
and containing sigotatus			
containing an tient of type SignalStatusrackage			
containing requester			
containing requester			
indicating VID			
	and containing request		
	indicating <i>RealD</i>		
	and sequenceNumber		
	indicating RegSN + 1		

5.2.4.3.7 Check that the IUT does not increments the sequenceNumber when the SSEM content is not changed

IP Id TP_IS_TLCS_GEN_EVUP_BV_02		
Summary	Check that the IUT does not increments the sequenceNumber when a SSEM is not	
Summary	repeated without changes	
Peference	ETSI TS 103 301 [1], clause 8.4.1	
Reference	CEN ISO/TS 19091 [3], clause 6.11.2	
PICS Selection	PICS_SREM_RECEPTION AND PICS_SSEM_GENERATION	
	Expected behaviour	
with		
the IUT being in the "SS	EM initial state"	
and the IUT having gene	erate a SSEM	
containing ssm		
containing seque	enceNumber	
indicating (S	SEM_SN)	
and containing st	tatus	
indicating (SS	SEM_STATUS)	
ensure that		
when		
the IUT is triggered t	o repeat the SSEM	
then		
the IUT sends a valid	d SSEM	
containing ssm		
containing se	quenceNumber	
indicating	SSEM_SN	
and containing st	tatus	
indicating SS	EM STATUS	

5.2.4.3.8 Check the SSEM security parameters

5.2.4.3.8.1 Check the SSEM ITS AID

PId TP_IS_TLCS_GEN_SEC_BV_01			
Summary	ummary Check that TLC service uses certificate containing valid ITS AID to sign SSEM messages		
Reference	ETSI TS 103 301 [1], clause 8.4.3.2		
PICS_SSEM_GENERATION AND PICS_IS_IUT_SECURED			
	Expected behaviour		
with			
the IUT being in the "SS	EM initial state"		
and the IUT is operating	and the IUT is operating in secured mode		
ensure that	ensure that		
when			
the IUT is requested	to generate a SSEM		
then			
the IUT sends a SSEM			
containing a correctly formatted Security Header as a EtsiTs103097Data structure			
containing signedData.tbsData.headerInfo			
containing psid			
indicat	indicating ITS_AID_SSEM		

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TP ld	TP_IS_TLCS_GEN_SEC_BV_02	
Summeri	Check that TLC service uses generic security profile to sign SSEM message and does not	
Summary	include additional security header elements	
Reference	ETSI TS 103 301 [1], clause 12	
PICS Selection	PICS_SSEM_GENERATION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "SS	EM initial state"	
and the IUT is operating	in secured mode	
and the IUT sending SS	EM	
ensure that		
when		
the IUT is requested	to generate a SSEM	
then		
the IUT sends a valid	d SSEM	
containing a corr	ectly formatted Security Header as a EtsiTs103097Data structure	
containing sig	jnedData.tbsData.headerInfo	
containing	រ psid	
indicating ITS_AID_SSEM		
and containing generationTime		
indicating realistic generation time		
and option	nally containing generationLocation	
and not containing other header items		

5.2.4.3.8.2	
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Check the SSEM Service Specific Permissions (SSP)

TP ld	TP_IS_TLCS_GEN_SSP_BV_01		
Summarv	Check that TLC service uses certificate containing valid Service Specific Permissions of		
,	type BitmapSsp to sign SSEM messages and the SSP version is set to 2		
Reference	ETSI TS 103 301 [1], clause 4.5.1		
PICS Selection	PICS_SSEM_GENERATION AND PICS_IS_IUT_SECURED		
	Expected behaviour		
with			
the IUT being in the "SS	EM initial state"		
and the IUT is operating	in secured mode		
and the IUT is authorized to sign SSEM with the certificate CERT_SSM			
containing appPermission item			
containing psid			
indicating ITS	indicating ITS_AID_SSEM		
containing bitma	containing bitmapSSP		
indicating octet at position 0 set to 0x02			
and indicating other bits set to 0			
ensure that			
when			
the IUT is requested to generate a SSEM			
then			
the IUT sends a SSEM			
signed with the C	CERT_SSM		

lelay	
	lelay

TP ld	TP_IS_TLCS_GEN_RATE_TI_01		
Summers	Check that TLM service can process signal preferential treatment requests within the		
Summary	maximum response time		
Reference	CEN ISO/TS 19091 [3], clause 6.14.2		
PICS Selection	PICS Selection PICS_SSEM_GENERATION AND PICS_SSEM_TRATEMENT_DELAY		
	Expected behaviour		
with			
the IUT being in the "SS	EM initial state"		
ensure that			
when			
the IUT has received SREM message at TIME_SREM			
then			
the IUT sends SSEM at TIME_SSEM			
where TIME_SSEM - TIME_SREM is less than 100ms			

P Id TP_IS_TLCS_GEN_RATE_TI_02		
Check that TLM service broadcast the signal status message in response to a signal		
request message with the valid rate		
CEN ISO/TS 19091 [3], clause 6.14.3		
PICS_SSEM_GENERATION AND PICS_SSEM_TRANSMISSION_RATE		
Expected behaviour		
EM initial state"		
evious SSEM message at TIME_SSEM_1		
ensure that		
the IUT is requested to repeat a SSEM		
the IUT sends SSEM at TIME_SSEM_2		
where TIME_SSEM_2 - TIME_SSEM_1 is not less than 100 ms and not more than 2 s		

5.2.4.3.10	Check the SSEM	repetition period
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TP ld	TP_IS_TLCS_GEN_REP_01		
Summary	Check that TLM service broadcast the signal status message in response to a signal		
	request message until the requestor leaves the intersection		
Reference	CEN ISO/TS 19091 [3], clause 6.14.4		
PICS Selection	PICS_SSEM_GENERATION		
	Expected behaviour		
with			
the IUT being in the "SS	EM initial state"		
and the IUT has receive	d SREM		
containing srm.reque	estor.id		
indicating VID			
and the IUT has already sent SSEM			
ensure that	ensure that		
when			
the IUT received the SREM			
containing stationID			
indicating VID			
and indicating position inside or approaching the intersection			
then			
the IUT sends the SS	the IUT sends the SSEM		
containing srm.re	containing srm.requestor.id		
indicating VIL			

TP ld	TP_IS_TLCS_GEN_REP_02		
Summary	Check that TLM service stops to broadcast the signal status message in response to a		
	signal request message when the requestor left the intersection		
Reference	CEN ISO/TS 19091 [3], clause 6.14.4		
PICS Selection	PICS_SSEM_GENERATION		
	Expected behaviour		
with			
the IUT being in the "SS	EM initial state"		
and the IUT has receive	and the IUT has received SREM		
containing srm.reque	estor.id		
indicating VID	indicating VID		
and the IUT has already sent SSEM			
ensure that			
when			
the IUT during 2 sec has not received the SREM			
containing stationID			
indicating VID			
then			
the IUT stops sendin	ig the SSEM		
containing srm.re	equestor.id		
indicating VIL			

5.2.4.4 Check the SSEM reception behaviour

три		
	1F_IS_1LCS_KCV_WSGF_BV_04	
Summary	Check that the IUT can successfully process all mandatory fields of SSEM received	
	(ITS-S)	
Reference	ETSI TS 103 301 [1], clause 8.3	
PICS Selection	PICS_SSEM_RECEPTION	
	Expected behaviour	
with		
the IUT being in the "initial state"		
and the IUT having send a valid SREM		
ensure that		
when		
the IUT receives a valid SSEM		
then		
the IUT forwards the SSEM content to upper layers		
and the IUT forwards the SSEM content to other facilities		

TP ld	TP_IS_TLCS_RCV_SSP_BV_05	
Summary	Check that the IUT accepts the SSEM message permitted by the signing certificate	
Reference	ETSI TS 103 301 [1], clause 8.3	
PICS Selection	PICS_SSEM_RECEPTION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT having send	d a valid SREM	
and the IUT is operating in secured mode		
ensure that		
when		
the IUT receives a SSEM		
signed with the c	signed with the certificate	
containing appPermission item		
containing psid		
indicating ITS_AID_SSEM		
then		
the IUT accepts the	received SSEM	

TP ld	TP_IS_TLCS_RCV_SSP_BO_05	
Summary	Check that the IUT discards the SSEM message not permitted by the signing certificate	
Reference	ETSI TS 103 301 [1], clause 8.3	
PICS Selection	PICS_SSEM_RECEPTION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "init	tial state"	
and the IUT having send	d a valid SREM	
and the IUT is operating in secured mode		
ensure that		
when		
the IUT receives a S	SEM	
signed with the certificate CERT_NONE		
not containing appPermission item		
containing psid		
indicating ITS_AID_SSEM		
then		
the IUT discards the	received SSEM	

5.2.5 GNSS Positioning Correction (GPC) service

5.2.5.1 Check the RTCMEM format

5.2.5.1.1 Check the RTCMEM protocol version

TP ld	TP_IS_GPC_GEN_MSGF_BV_01		
Summary	Check that protocolVersion is set to 1 and messageID is set to 'rtcmem'(13)		
Reference	ETSI TS 103 301 [1], clause 9.3		
PICS Selection	PICS_RTCMEM_GENERATION		
	Expected behaviour		
with			
the IUT being in the "init	ial state"		
and the IUT sending RT	and the IUT sending RTCMEM		
ensure that	ensure that		
when			
the IUT is requested	the IUT is requested to send a RTCMEM		
then			
the IUT sends a valid RTCMEM			
containing ITS PDU header			
containing protocolVersion			
indicating value '1'			
and containing messageID			
indicating value 'rtcmem' (13)			

5.2.5.1.2 Check the RTCMEM content

Void.

5.2.5.2 GPC service trigger, update, repetition and termination

TP ld	TP_IS_GPC_GEN_EVGN_BV_01	
Summary	Check that GPC Service generates a new RTCMEM on reception of a valid	
	AppRTCMEM_Start request	
Reference	ETSI TS 103 301 [1], clause 9.4.2	
PICS Selection	PICS_RTCMEM_GENERATION	
Expected behaviour		
with		
the IUT being in the "RTCMEM initial state"		
and the IUT has not sent any RTCMEM yet		
ensure that		
when		
the ULT receives on Ann DTOMEN. Chart request from the employed in lover		

the IUT receives an AppRTCMEM_Start request from the application layer

then the IUT sends a valid RTCMEM

TP ld	TP_IS_GPC_GEN_EVGN_BV_02	
Summary	Check that GPC Service terminates on reception of a valid AppRTCMEM_Stop request	
Reference	ETSI TS 103 301 [1], clause 9.4.2	
PICS Selection	PICS_RTCMEM_GENERATION AND PICS_RTCMEM_CAN_STOP	
Expected behaviour		
with		
the IUT being in the "initial state"		
and the IUT sending RTCMEM		
ensure that		
when		
the IUT receives an AppRTCMEM_Stop request from the application layer		

then

the IUT stops sending RTCMEM

5.2.5.3 Check BTP type and port number

TP ld	TP_IS_GPC_GEN_COM_BV_02
Summary	Check that RTCMEM uses BTP_B packet
	Check that the destination port for RTCMEM is set to 2013
Reference	ETSI TS 103 301 [1], clauses 10.2 and 9.4.3.2
PICS Selection	PICS_RTCMEM_GENERATION
	Expected behaviour
with	
the IUT being in the "init	tial state"
and the IUT sending RTCMEM	
ensure that	
when	
a RTCMEM is generated	
then	
the IUT sends a valid RTCMEM	
encapsulated in a BTP-B packet	
containing a destination port value set to 2013	
and containing a destination port info value set to 0	

TP ld	TP_IS_GPC_GEN_COM_BV_03	
Summary	Check that GPC service encapsulates RTCMEM in a GBC with the HeaderType field set to	
	the value of 4	
Reference	ETSI TS 103 301 [1], clause 9.4.3.2	
PICS Selection	PICS_RTCMEM_GENERATION AND PICS_SHORT_RANGE	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT sending RTCMEM		
ensure that		
when		
a RTCMEM is generated		
then		
the IUT sends a valid RTCMEM		
encapsulated in a GBC packet		
containing a correctly formatted Common Header		
containing HeaderType field		
indicating the value '4'		

5.2.5.4 Check destination type

5.2.5.5 GPC security parameters

5.2.5.5.1 Check GPC ITS AID value

TP ld	TP_IS_GPC_GEN_SEC_BV_01		
Summary	Check that GPC service uses certificate containing valid ITS AID to sign RTCMEM		
	messages		
Reference	ETSI TS 103 301 [1], clause 9.4.3.2		
PICS Selection	PICS_RTCMEM_GENERATION AND PICS_IS_IUT_SECURED		
	Expected behaviour		
with			
the IUT being in the "initial state"			
and the IUT is operating in secured mode			
and the IUT sending RTCMEM			
ensure that			
when			
a RTCMEM is generated			
then			
the IUT sends a valid RTCMEM			
containing a correctly formatted Security Header as a EtsiTs103097Data structure			
containing signedData.tbsData.headerInfo			
containing psid			
indicat	ting ITS_AID_RTCMEM		

TP ld	TP_IS_GPC_GEN_SEC_BV_02	
Summary	Check that GPC service uses generic security profile to sign RTCMEM message and does	
	not include additional security header elements	
Reference	ETSI TS 103 301 [1], clause 12	
PICS Selection	PICS_RTCMEM_GENERATION AND PICS_IS_IUT_SECURED	
	Expected behaviour	
with		
the IUT being in the "init	ial state"	
and the IUT is operating	in secured mode	
and the IUT is sending RTCMEM		
ensure that		
when		
a RTCMEM is generated		
then		
the IUT sends a valid	d RTCMEM	
containing a correctly formatted Security Header as a EtsiTs103097Data structure		
containing signedData.tbsData.headerInfo		
containing psid		
indicating ITS_AID_RTCMEM		
and containing generationTime		
indicat	ting realistic generation time	
and option	and optionally containing generationLocation	
and not co	ontaining other header items	

5.2.5.5.2 Check GPC SSP version

TP ld	TP_IS_GPC_GEN_SSP_BV_01			
Summary	Check that GPC service uses certificate containing valid Service Specific Permissions to			
	sign RTCMEM messages and the SSP version is set to 1			
Reference	ETSI TS 103 301 [1], clause 4.5.1			
PICS Selection	PICS_RTCMEM_GENERATION AND PICS_IS_IUT_SECURED			
Expected behaviour				
with				
the IUT being in the "RTCMEM initial state"				
and the IUT is operating in secured mode				
and the IUT is authorized to sign RTCMEM with the certificate CERT_RTCM_SSP_NONE				
containing appPermi	ssion item			
containing psid				
indicating ITS_AID_RTCMEM				
and containing bi	tmapSSP			
indicating octet at position 0 set to 0x01				
and indicating other bits set to 0				
ensure that				
when				
the IUT is requested to generate a RTCMEM				
then				
the IUT sends a RTCMEM				
signed with the CERT_RTCM_SSP_NONE				

5.2.5.6 Check RTCMEM reception

TP ld	TP_IS_GPC_RCV_MSGF_BV_01			
Summary	Check that the IUT can successfully process all mandatory fields of RTCMEM received			
Reference	ETSI TS 103 301 [1], clause 9.3			
PICS Selection	PICS_RTCMEM_RECEPTION			
Expected behaviour				
with				
the IUT being in the "initial state"				
ensure that				
when				
the IUT receives a valid RTCMEM				
then				
the IUT forwards the RTCMEM content to upper layers				
and the IUT forwards	and the IUT forwards the RTCMEM content to other facilities			

TP ld	TP_IS_GPC_RCV_SSP_BV_01			
Summary	Check that the IUT accepts the RTCMEM message permitted by the signing certificate			
Reference	ETSI TS 103 301 [1], clause 9.3			
PICS Selection	PICS_RTCMEM_RECEPTION AND PICS_IS_IUT_SECURED			
Expected behaviour				
with				
the IUT being in the "initial state"				
and the IUT is operating in secured mode				
ensure that				
when				
the IUT receives a RTCMEM				
signed with the c	ertificate			
containing appPermission item				
containing psid				
indicating ITS_AID_RTCMEM				
then				
the IUT accepts the received RTCMEM				

TP ld	TP_IS_GPC_RCV_SSP_BO_02			
Summary	Check that the IUT discards the RTCMEM message not permitted by the signing certificate			
Reference	ETSI TS 103 301 [1], clause 9.3			
PICS Selection	PICS_RTCMEM_RECEPTION AND PICS_IS_IUT_SECURED			
Expected behaviour				
with				
the IUT being in the "initial state"				
and the IUT is operating in secured mode				
ensure that				
when				
the IUT receives a RTCMEM				
signed with the certificate				
containing psid				
indicating ITS_AID_RTCMEM				
and not containing appPermission item				
then				
the IUT discards the	received RTCMEM			

History

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