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Technical Specification

**Intelligent Transport Systems (ITS);  
Communications Access for Land Mobiles (CALM);  
Test specifications for ITS station management (ISO 24102);  
Part 2: Test Suite Structure and Test Purposes (TSS & TP)**

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Reference

RTS/ITS-00267

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Keywords

CALM, ITS, testing, TSS&TP

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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 Communications Access for Land Mobiles (CALM); Test specifications for ITS station management (ISO 24102), as identified below:

- Part 1: "Protocol Implementation Conformance Statement (PICS) specification";
- Part 2: "Test Suite Structure and Test Purposes (TSS & TP)";**
- Part 3: "Abstract Test Suite (ATS) and partial PIXIT proforma".

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## Modal verbs terminology

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

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# 1 Scope

The present document provides the test suite structure and test purpose specification for the ISO protocols specified in ISO 24102-4 [1] and ISO 24102-5 [2] in compliance with the relevant requirements, and in accordance with the relevant guidance given in EG 202 798 [i.1].

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# 2 References

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

Referenced documents which are not found to be publicly available in the expected location might be found at <http://docbox.etsi.org/Reference>.

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## 2.1 Normative references

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

- [1] ISO 24102-4:2013: "Intelligent transport systems -- Communications access for land mobiles (CALM) -- ITS station management -- Part 4: Station-internal management communications".
- [2] ISO 24102-5:2013: "Intelligent transport systems -- Communications access for land mobiles (CALM) -- ITS station management -- Part 5: Fast service advertisement protocol (FSAP)".
- [3] ETSI TS 102 797-1 (V1.2.1): "Intelligent Transport Systems (ITS); Communications Access for Land Mobiles (CALM); Test specifications for ITS station management (ISO 24102); Part 1: Protocol Implementation Conformance Statement (PICS) specification".

## 2.2 Informative references

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: "Intelligent Transport Systems (ITS); Testing; Framework for conformance and interoperability testing".

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# 3 Definitions and abbreviations

## 3.1 Definitions

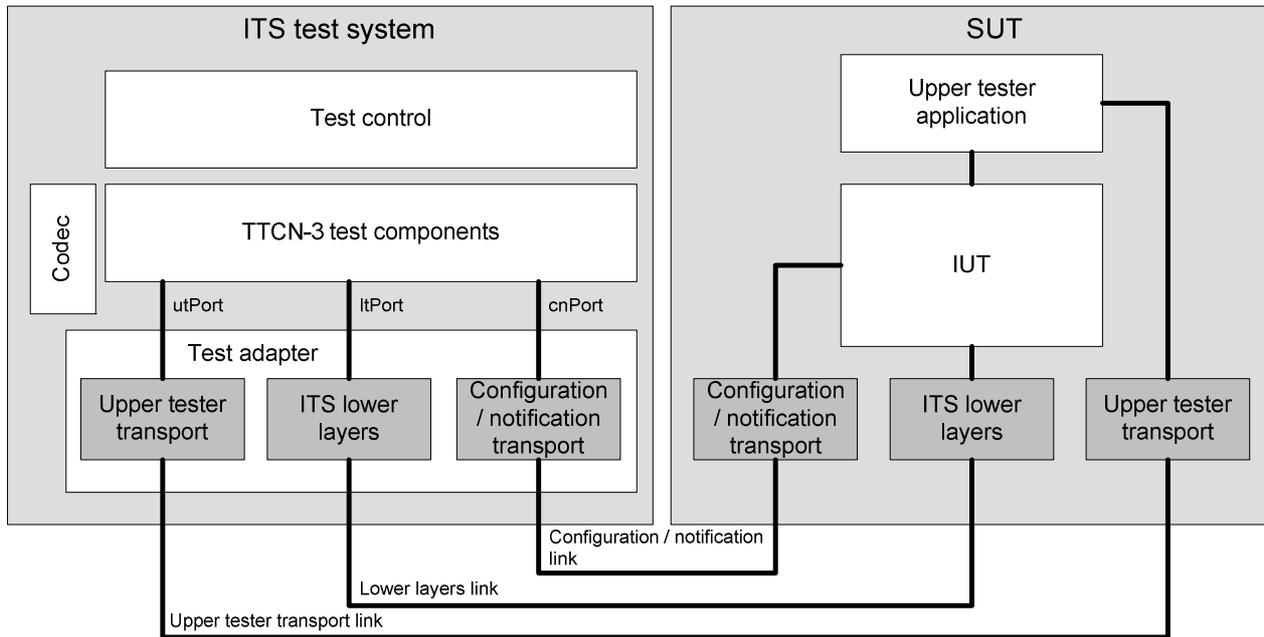
For the purposes of the present document, the terms and definitions given in ISO 24102-4 [1], ISO 24102-5 [2] and EG 202 798 [i.1] apply.

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in ISO 24102-4 [1], ISO 24102-5 [2] and EG 202 798 [i.1] apply.

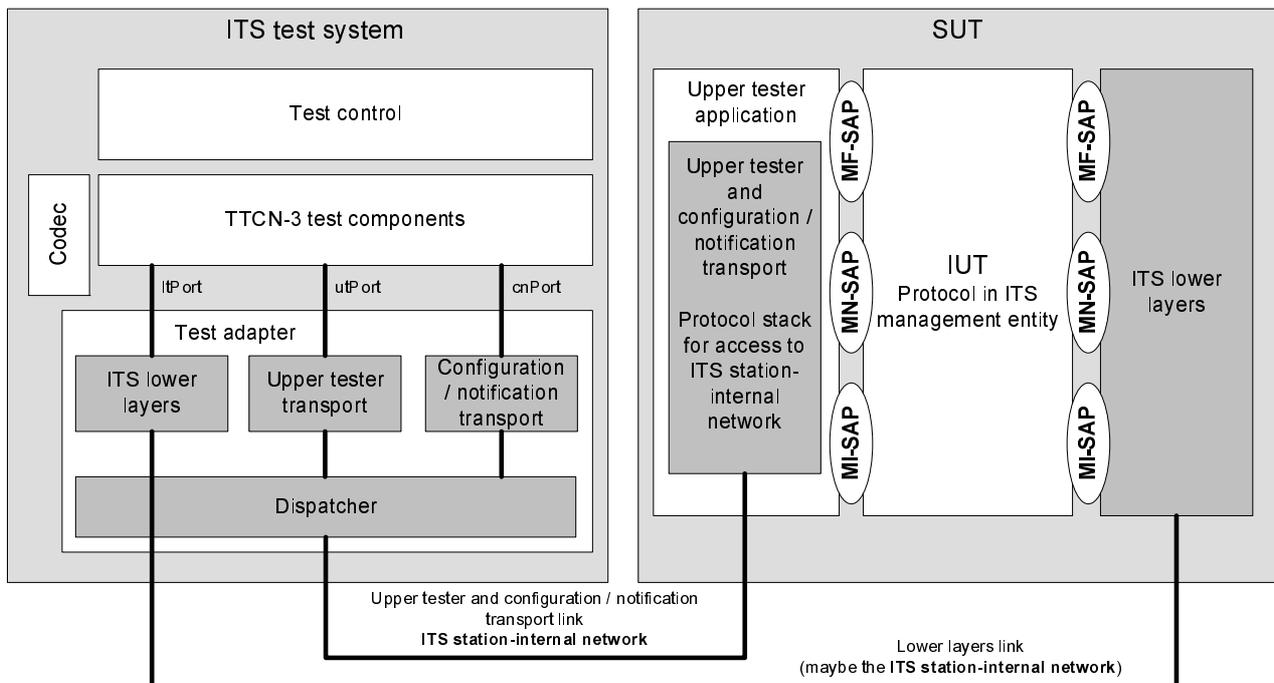
## 4 Test suite structure

In general, the conformance test system architecture presented in the ITS testing framework EG 202 798 [i.1] extended as illustrated in figure 1 applies.



**Figure 1: General conformance test system architecture for SUTs**

Such SUTs which support the "ITS station-internal Management Communications Protocol" (IICP) ISO 24102-4 [1] may benefit from the conformance test system architecture illustrated in figure 2, where the access to the IUT is performed via remote access to the management SAPs applying IICP. This may be applied in general for all three ports (utPort, ltPort, cnPort). In case of testing IICP itself, the ITS lower layers end up in the ITS station-internal network.



**Figure 2: Conformance test system architecture for SUTs compliant with ISO 24102-4 [1]**

Testing a protocol which resides inside the ITS management entity does not follow strictly the illustrations given in the ITS testing framework EG 202 798 [i.1]. Nevertheless the principles outlined there apply also. The essential difference is, that the access from the "upper tester application" and from the "ITS lower layers" to the IUT is via the management SAPs.

Note that for testing of FSAP and IICP, the ITS lower layers connect to the IUT via MF-SAP only.

## 5 Test purpose basics

### 5.1 TP definition conventions

The TP definition is built according to the guidelines provided in the ITS testing framework EG 202 798 [i.1], applying a formalized language with pre-defined keywords for the behaviour description.

### 5.2 TP identifier naming conventions

The identifier of the TP is built according to tables 1 and 2 as recommended in the ITS testing framework EG 202 798 [i.1].

**Table 1: TP naming convention for the ITS station-internal management communications protocol (IICP) specified in ISO 24102-4 [1]**

TP/<root>/<gr>/<x>/<nn>		
<root> = root	IICP	ITS station-Internal management Communication Protocol
<gr> = group	MGM	Management
	COM	Communication
<x> = type of testing	BV	Valid Behaviour tests
	BI	Invalid Syntax or Behaviour Tests
<nn> = sequential number		01 to 99

TPs for the IICP are specified in clause 6.

**Table 2: TP naming convention for the Fast Service Advertisement Protocol (FSAP) specified in ISO 24102-5 [2]**

TP/<root>/<gr>/<sgr>/<x>/<nn>		
<root> = root	FSAP	Fast Service Advertisement Protocol
<gr> = group	SP	Service provider
	SU	Service user
<sgr> = sub-group	HR	Combined ITS-S host and ITS-S router
	HO	ITS-S host only
	RO	ITS-S router only
<x> = type of testing	BV	Valid Behaviour tests
	BI	Invalid Syntax or Behaviour Tests
<nn> = sequential number		01 to 99

TPs for FSAP are specified in clause 7.

### 5.3 Rules for behaviour description

The description of the TP is built according to the guidelines provided in the ITS testing framework EG 202 798 [i.1].

### 5.4 Sources of TP definitions

All TPs are specified according to ISO 24102-4 [1] and ISO 24102-5 [2].

## 5.5 TP proforma

EG 202 798 [i.1] proposes a TP proforma which is used in the present document. The fields of this proforma as used in the present document are explained in table 3.

**Table 3: TP proforma field description**

<b>TP Header</b>	
<b>TP ID</b>	The TP ID is a unique identifier according to the TP naming conventions in tables 1 and 2.
<b>Test objective</b>	Short description of test purpose objective according to the requirements from the base standard.
<b>Reference</b>	The reference indicates the clauses of the reference standard specifications in which the conformance requirement is expressed.
<b>PICS selection</b>	Reference to the PICS statement involved for selection of the TP. Contains a Boolean expression. May contain PICS acronyms specified in tables 4 and 5. This section is only used in case an optional or conditional behaviour needs to be selected. Mandatory behaviour is identified by an empty field.
<b>TP Behaviour</b>	
<b>Initial conditions (optional)</b>	The initial conditions define in which initial state the IUT has to be to apply the actual TP. In the corresponding "Test Case" (TC), when the execution of the initial condition does not succeed, it leads to the assignment of an Inconclusive verdict.
<b>Expected behaviour (TP body)</b>	Definition of the events, which are parts of the TP objective, and the IUT are expected to perform in order to conform to the base specification. In the corresponding TC, "Pass" or "Fail" verdicts can be assigned there.

## 5.6 PICS mnemonics

The PICS mnemonics presented in tables 4 and 5 are used in the TP proforma.

**Table 4: PICS mnemonics for FSAP**

<b>Mnemonic</b>	<b>PICS item</b>
PICS_FSAP_ROLE_SP	TS 102 797-1 [3] B.2/1
PICS_FSAP_ROLE_SU	TS 102 797-1 [3] B.2/2
PICS_ITS_S_INW	TS 102 797-1 [3] B.6/1
PICS_ROLE_HONLY	TS 102 797-1 [3] B.5/1
PICS_ROLE_RH	TS 102 797-1 [3] B.5/3
PICS_ROLE_RONLY	TS 102 797-1 [3] B.5/2
PICS_SIP_N_CTX	TS 102 797-1 [3] B.4/2
PICS_SIP_W_CTX	TS 102 797-1 [3] B.4/1
PICS_SUT_AT_CHG	TS 102 797-1 [3] B.1/2
PICS_SUT_CH_CHG	TS 102 797-1 [3] B.1/1

**Table 5: PICS mnemonics for IICP**

<b>Mnemonic</b>	<b>PICS item</b>
PICS_IICP_MGM	TS 102 797-1 [3] A.8/1
PICS_ROLE_HONLY	TS 102 797-1 [3] A.1/1
PICS_ROLE_RH	TS 102 797-1 [3] A.1/3
PICS_ROLE_RONLY	TS 102 797-1 [3] A.1/2

## 6 TPs for IICP

### 6.1 Management

#### 6.1.1 Valid behaviour tests

<b>TP Id</b>	IICP/MGM/BV/01
<b>Test objective</b>	Generation of ITS-SCUalive message after power on - no other ITS-SCU in the SUT
<b>Reference</b>	ISO 24102-4 [1], clauses 9.1 and 9.2
<b>PICS Selection</b>	PICS_IICP_MGM
<b>Initial conditions</b>	
with { the IUT having no knowledge about other ITS-SCUs in the SUT }	
<b>Expected behaviour</b>	
ensure that { when { the IUT starting } then { the IUT generates an ITS-SCUalive (new) message with DestinationITS-SCU-ID=65535 and with SourceITS-SCU-ID equal to the own ITS-SCU ID, indicating its IST-SCUtype, and forwards this with MF-COMMAND IICrequestTX to the IICA } }	

<b>TP Id</b>	IICP/MGM/BV/02
<b>Test objective</b>	Reception of ITS-SCUalive (new) message with no address conflict
<b>Reference</b>	ISO 24102-4 [1], clauses 9.1 and 9.2
<b>PICS Selection</b>	PICS_IICP_MGM
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID allocated }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an ITS-SCUalive (new) message without address conflict } then { the IUT shall acknowledge this with ErrorStatus = 0 using MF-COMMAND IICresponseTX } }	

<b>TP Id</b>	IICP/MGM/BV/03
<b>Test objective</b>	Reception of ITS-SCUalive (new) message with address conflict
<b>Reference</b>	ISO 24102-4 [1], clauses 9.1 and 9.2
<b>PICS Selection</b>	PICS_IICP_MGM
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID allocated }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an ITS-SCUalive (new) message with address conflict, i.e. from an ITS-SCU having the same ITS-SCU-ID } then { the IUT shall acknowledge this with ErrorStatus = 2 using MF-COMMAND IICresponseTX for transmission to all ITS-SCUs } }	

<b>TP Id</b>	IICP/MGM/BV/04
<b>Test objective</b>	Reception of ITS-SCUalive (alive) message with no address conflict
<b>Reference</b>	ISO 24102-4 [1], clauses 9.1 and 9.3
<b>PICS Selection</b>	PICS_IICP_MGM
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID allocated }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an ITS-SCUalive (alive) message without address conflict } then { the IUT does not show any visible reaction } }	

<b>TP Id</b>	IICP/MGM/BV/05
<b>Test objective</b>	Periodic transmission of ITS-SCUalive (alive) message
<b>Reference</b>	ISO 24102-4 [1], clauses 9.1 and 9.3
<b>PICS Selection</b>	PICS_IICP_MGM
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID allocated }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having transmitted an ITS-SCUalive (alive) message with DestinationITS-SCU-ID=65535 and with SourceITS-SCU-ID equal to its own ITS-SCU ID, which does not result in an address conflict } then { the IUT transmits the next ITS-SCUalive (alive) message after the time span given in parameter Talive. } }	

<b>TP Id</b>	IICP/MGM/BV/06
<b>Test objective</b>	Transmission of ITS-SCUalive (delete) message
<b>Reference</b>	ISO 24102-4 [1], clauses 9.1 and 9.4
<b>PICS Selection</b>	PICS_IICP_MGM
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID allocated }	
<b>Expected behaviour</b>	
ensure that { when { the IUT wants to shut down and stop operation } then { the IUT transmits an ITS-SCUalive (delete) message with DestinationITS-SCU-ID=65535 and with SourceITS-SCU-ID equal to its own ITS-SCU ID using MF-COMMAND IICrequestTX } }	

### 6.1.2 Invalid behaviour tests

<b>TP Id</b>	IICP/MGM/BI/01
<b>Test objective</b>	Reception of ITS-SCUalive (alive) message with address conflict
<b>Reference</b>	ISO 24102-4 [1], clauses 9.1 and 9.3
<b>PICS Selection</b>	PICS_IICP_MGM
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID allocated }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an ITS-SCUalive (alive) message with address conflict , i.e. from an ITS-SCU having the same ITS-SCU-ID } then { the IUT shall acknowledge this with ErrorStatus = 2 using MF-COMMAND IICresponseTX for transmission to all ITS-SCUs, the IUT shall delete its own ITS-SCU-ID and shall register newly by sending an ITS-SCU (new) message indicating a new ITS-SCU-ID with MF-COMMAND IICrequestTX to the IICA for transmission to all ITS-SCUs } }	

<b>TP Id</b>	IICP/MGM/BI/02
<b>Test objective</b>	Reception of ITS-SCUalive message with unknown AliveMessage
<b>Reference</b>	ISO 24102-4 [1], clause 9
<b>PICS Selection</b>	PICS_IICP_MGM
<b>Initial conditions</b>	
with { the IUT having own ITS-SCU-ID }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an ITS-SCUalive message with unknown AliveMessage } then { the IUT acknowledges the message with ErrorStatus 3 } }	

<b>TP Id</b>	IICP/MGM/BI/03
<b>Test objective</b>	Reception of ITS-SCUalive message with unknown ITS-SCU type
<b>Reference</b>	ISO 24102-4 [1], clause 9
<b>PICS Selection</b>	PICS_IICP_MGM
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID allocated }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an ITS-SCUalive message with unknown ITS-SCU type } then { the IUT acknowledges the message with ErrorStatus 4 } }	

## 6.2 Communications

### 6.2.1 Valid behaviour tests

<b>TP Id</b>	IICP/COM/BV/01
<b>Test objective</b>	Transmission of IIC-Request VCI-info to all types of ITS-SCUs
<b>Reference</b>	ISO 24102-4 [1], clause 8.2.1 and annex B.2.3
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID allocated }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received the request to send an VCI-info request message to all ITS-SCUs } then { the IUT generates an VCI-info request message with DestinationITS-SCU-ID=65535 and with SourceITS-SCU-ID equal to its own ITS-SCU-ID, and forwards this with MF-COMMAND IICrequestTX to the IICA for transmission to all ITS-SCUs } }	

<b>TP Id</b>	IICP/COM/BV/02
<b>Test objective</b>	Transmission of IIC-Request VCI-info to ITS-SCUs with ITS-S router role
<b>Reference</b>	ISO 24102-4 [1], clause 8.2.1 and annex B.2.3
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID allocated }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received the request to send an VCI-info request message to all ITS-SCUs } then { the IUT generates an VCI-info request message with DestinationITS-SCU-ID=2 and with SourceITS-SCU-ID equal to its own ITS-SCU-ID, and forwards this with MF-COMMAND IICrequestTX to the IICA for transmission to all ITS-SCUs } }	

<b>TP Id</b>	IICP/COM/BV/03
<b>Test objective</b>	Transmission of VCI-info response message
<b>Reference</b>	ISO 24102-4 [1], clause 8.3.1 and annex B.2.3
<b>PICS Selection</b>	PICS_ROLE_RH OR PICS_ROLE_RONLY
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU ID, and having at least one CI to connect to another ITS-S }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an VCI-info request message } then { the IUT prepares the VCI-info response message with DestinationITS-SCU-ID="private address from the ITS-SCU which generated the request" and with SourceITS-SCU-ID equal to its own ITS-SCU-ID, and forwards this with MF-COMMAND IICresponseTX to the IICA } }	

<b>TP Id</b>	IICP/COM/BV/04
<b>Test objective</b>	Transmission of IIC-Request VCI-update to all types of ITS-SCUs
<b>Reference</b>	ISO 24102-4 [1], clause 8.2.1 and annex B.2.3
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID allocated }	
<b>Expected behaviour</b>	
ensure that { when { the IUT wants to provide an update of its own VCI information to all ITS-SCUs } then { the IUT generates an VCI-update message with DestinationITS-SCU-ID=65535 and with SourceITS-SCU-ID equal to its own ITS-SCU-ID, and forwards this with MF-COMMAND IICrequestTX to the IICA for transmission to all ITS-SCUs } }	

<b>TP Id</b>	IICP/COM/BV/05
<b>Test objective</b>	Reception of VCI-update request message
<b>Reference</b>	ISO 24102-4 [1], clause 8.3.1 and annex B.2.4.3
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU ID }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an VCI-update request message } then { the IUT does not show any visible reaction } }	

<b>TP Id</b>	IICP/COM/BV/06
<b>Test objective</b>	Transmission of IIC-Request MF-rcmd to a specific ITS-SCU
<b>Reference</b>	ISO 24102-4 [1], clause 8.2.1 and annex B.2.5
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID "own" allocated and knows the private ITS-SCU-ID "other" of another ITS-SCU }	
<b>Expected behaviour</b>	
ensure that { when { the ITS-S management requests remote access to the MF-SAP in another ITS-SCU } then { the IUT generates an MF-rcmd request message with DestinationITS-SCU-ID="other" and with SourceITS-SCU-ID "own", and forwards this with MF-COMMAND IICrequestTX to the IICA } }	

<b>TP Id</b>	IICP/COM/BV/07
<b>Test objective</b>	Transmission of IIC-Request MN-rcmd to a specific ITS-SCU
<b>Reference</b>	ISO 24102-4 [1], clause 8.2.1 and annex B.2.5
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID "own" allocated and knows the private ITS-SCU-ID "other" of another ITS-SCU }	
<b>Expected behaviour</b>	
ensure that { when { the ITS-S management requests remote access to the MN-SAP in another ITS-SCU } then { the IUT generates an MN-rcmd message with DestinationITS-SCU-ID="other" and with SourceITS-SCU-ID "own", and forwards this with MF-COMMAND IICrequestTX to the IICA } }	

<b>TP Id</b>	IICP/COM/BV/08
<b>Test objective</b>	Transmission of IIC-Request MI-rcmd to a specific ITS-SCU
<b>Reference</b>	ISO 24102-4 [1], clause 8.2.1 and annex B.2.5
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID "own" allocated and knows the private ITS-SCU-ID "other" of another ITS-SCU }	
<b>Expected behaviour</b>	
ensure that { when { the ITS-S management requests remote access to the MI-SAP in another ITS-SCU } then { the IUT generates an MI-rcmd message with DestinationITS-SCU-ID="other" and with SourceITS-SCU-ID "own", and forwards this with MF-COMMAND IICrequestTX to the IICA } }	

<b>TP Id</b>	IICP/COM/BV/09
<b>Test objective</b>	Transmission of IIC-Request MI-rget to a specific ITS-SCU
<b>Reference</b>	ISO 24102-4 [1], clause 8.2.1 and annex B.2.5
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID "own" allocated and knows the private ITS-SCU-ID "other" of another ITS-SCU }	
<b>Expected behaviour</b>	
ensure that { when { the ITS-S management requests remote access to the MI-SAP in another ITS-SCU in order to get the value of an I-Parameter } then { the IUT generates an MI-rget message with DestinationITS-SCU-ID="other" and with SourceITS-SCU-ID "own", and forwards this with MF-COMMAND IICrequestTX to the IICA } }	

<b>TP Id</b>	IICP/COM/BV/10
<b>Test objective</b>	Transmission of IIC-Request MI-rset to a specific ITS-SCU
<b>Reference</b>	ISO 24102-4 [1], clause 8.2.1 and annex B.2.5
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID "own" allocated and knows the private ITS-SCU-ID "other" of another ITS-SCU }	
<b>Expected behaviour</b>	
ensure that { when { the ITS-S management requests remote access to the MI-SAP in another ITS-SCU in order to set the value of an I-Parameter } then { the IUT generates an MI-rset message with DestinationITS-SCU-ID="other" and with SourceITS-SCU-ID "own", and forwards this with MF-COMMAND IICrequestTX to the IICA } }	

<b>TP Id</b>	IICP/COM/BV/11
<b>Test objective</b>	Transmission of MF-rcmd response message
<b>Reference</b>	ISO 24102-4 [1], clauses 8.3.1, 8.2.2 and annex B.2.3
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU ID "own" allocated }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an MF-rcmd request message from an ITS-SCU with ITS-SCU-ID="other" which requires a response } then { the IUT generates an MF-rcmd response message with DestinationITS-SCU-ID="other" and with SourceITS-SCU-ID "own", and forwards this with MF-COMMAND IICresponseTX to the IICA } }	

<b>TP Id</b>	IICP/COM/BV/12
<b>Test objective</b>	Transmission of MN-rcmd response message
<b>Reference</b>	ISO 24102-4 [1], clauses 8.3.1, 8.2.2 and annex B.2.3
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU ID "own" }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an MN-rcmd request message from an ITS-SCU with ITS-SCU-ID="other" which requires a response } then { the IUT generates an MN-rcmd response message with DestinationITS-SCU-ID="other" and with SourceITS-SCU-ID "own", and forwards this with MF-COMMAND IICresponseTX to the IICA } }	

<b>TP Id</b>	IICP/COM/BV/13
<b>Test objective</b>	Transmission of MI-rcmd response message
<b>Reference</b>	ISO 24102-4 [1], clauses 8.3.1, 8.2.2 and annex B.2.3
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU ID "own" }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an MI-rcmd request message from an ITS-SCU with ITS-SCU-ID="other" which requires a response } then { the IUT generates an MI-rcmd response message with DestinationITS-SCU-ID="other" and with SourceITS-SCU-ID "own", and forwards this with MF-COMMAND IICresponseTX to the IICA } }	

<b>TP Id</b>	IICP/COM/BV/14
<b>Test objective</b>	Transmission of MI-rget response message
<b>Reference</b>	ISO 24102-4 [1], clauses 8.3.1, 8.2.2 and annex B.2.3
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU ID "own" }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an MI-rget request message from an ITS-SCU with ITS-SCU-ID="other" which constitutes an authorized get request } then { the IUT generates an MI-rget response message providing the requested value with DestinationITS-SCU-ID="other" and with SourceITS-SCU-ID "own", and forwards this with MF-COMMAND IICresponseTX to the IICA } }	

<b>TP Id</b>	IICP/COM/BV/15
<b>Test objective</b>	Transmission of MI-rset response message
<b>Reference</b>	ISO 24102-4 [1], clauses 8.3.1, 8.2.2 and annex B.2.3
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU ID "own" }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an MI-rset request message from an ITS-SCU with ITS-SCU-ID="other" which constitutes an unauthorized set request } then { the IUT generates an MI-rset response message with DestinationITS-SCU-ID="other" and with SourceITS-SCU-ID "own", indicating the proper error code, and forwards this with MF-COMMAND IICresponseTX to the IICA } }	

<b>TP Id</b>	IICP/COM/BV/16
<b>Test objective</b>	Transmission of IIC-Request MF-rreq to a specific ITS-SCU
<b>Reference</b>	ISO 24102-4 [1], clause 8.2.1 and annex B.2.5
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID "own" allocated and knows the private ITS-SCU-ID "other" of another ITS-SCU }	
<b>Expected behaviour</b>	
ensure that { when { ITS-S management entity is used by ITS-S facilities layer to request access to a remote management } then { the IUT generates an MF-rreq message with DestinationITS-SCU-ID="other" and with SourceITS-SCU-ID "own", and forwards this with MF-COMMAND IICrequestTX to the IICA } }	

<b>TP Id</b>	IICP/COM/BV/17
<b>Test objective</b>	Transmission of IIC-Request MN-rreq to a specific ITS-SCU
<b>Reference</b>	ISO 24102-4 [1], clause 8.2.1 and annex B.2.5
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID "own" allocated and knows the private ITS-SCU-ID "other" of another ITS-SCU }	
<b>Expected behaviour</b>	
ensure that { when { ITS-S management entity is used by ITS-S networking&transport layer to request access to a remote management } then { the IUT generates an MN-rreq message with DestinationITS-SCU-ID="other" and with SourceITS-SCU-ID "own", and forwards this with MF-COMMAND IICrequestTX to the IICA } }	

<b>TP Id</b>	IICP/COM/BV/18
<b>Test objective</b>	Transmission of IIC-Request MI-rreq to a specific ITS-SCU
<b>Reference</b>	ISO 24102-4 [1], clause 8.2.1 and annex B.2.5
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID "own" allocated and knows the private ITS-SCU-ID "other" of another ITS-SCU }	
<b>Expected behaviour</b>	
ensure that { when { ITS-S management entity is used by ITS-S access layer to request access to a remote management } then { the IUT generates an MI-rreq message with DestinationITS-SCU-ID="other" and with SourceITS-SCU-ID "own", and forwards this with MF-COMMAND IICrequestTX to the IICA } }	

<b>TP Id</b>	IICP/COM/BV/19
<b>Test objective</b>	Transmission of MF-rreq response message
<b>Reference</b>	ISO 24102-4 [1], clauses 8.3.1, 8.2.2 and annex B.2.3
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU ID "own" }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an MF-rreq request message from an ITS-SCU with ITS-SCU-ID="other" which requires a response } then { the IUT generates an MF-rreq response message with DestinationITS-SCU-ID="other" and with SourceITS-SCU- ID "own", and forwards this with MF-COMMAND IICresponseTX to the IICA } }	

<b>TP Id</b>	IICP/COM/BV/20
<b>Test objective</b>	Transmission of MN-rreq response message
<b>Reference</b>	ISO 24102-4 [1], clauses 8.3.1, 8.2.2 and annex B.2.3
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU ID "own" }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an MN-rreq request message from an ITS-SCU with ITS-SCU-ID="other" which requires a response } then { the IUT generates an MN-rreq response message with DestinationITS-SCU-ID="other" and with SourceITS-SCU- ID "own", and forwards this with MF-COMMAND IICresponseTX to the IICA } }	

<b>TP Id</b>	IICP/COM/BV/21
<b>Test objective</b>	Transmission of MI-rreq response message
<b>Reference</b>	ISO 24102-4 [1], clauses 8.3.1, 8.2.2 and annex B.2.3
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU ID "own" }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an MI-rreq request message from an ITS-SCU with ITS-SCU-ID="other" which requires a response } then { the IUT generates an MI-rreq response message with DestinationITS-SCU-ID="other" and with SourceITS-SCU-ID "own", and forwards this with MF-COMMAND IICresponseTX to the IICA } }	

<b>TP Id</b>	IICP/COM/BV/22
<b>Test objective</b>	Reception of an ICC-Request message with invalid DestinationITS-SCU-ID=1
<b>Reference</b>	ISO 24102-4 [1], clause 8.3.1
<b>PICS Selection</b>	PICS_ROLE_RONLY
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID allocated }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an ICC-Request message with invalid DestinationITS-SCU-ID=1 (ITS-S host) } then { the IUT deletes the received message } }	

<b>TP Id</b>	IICP/COM/BV/23
<b>Test objective</b>	Reception of an ICC-Request message with invalid DestinationITS-SCU-ID=2
<b>Reference</b>	ISO 24102-4 [1], clause 8.3.1
<b>PICS Selection</b>	PICS_ROLE_HONLY
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID allocated }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an ICC-Request message with invalid DestinationITS-SCU-ID=2 (ITS-S router) } then { the IUT deletes the received message } }	

## 6.2.2 Invalid behaviour tests

<b>TP Id</b>	IICP/COM/BI/01
<b>Test objective</b>	Reception of an ICC-Request message with invalid DestinationITS-SCU-ID (reserved)
<b>Reference</b>	ISO 24102-4 [1], clause 8.3.1
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID allocated }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an ICC-Request message with invalid DestinationITS-SCU-ID (reserved) } then { the IUT deletes the received message } }	

<b>TP Id</b>	IICP/COM/BI/02
<b>Test objective</b>	Reception of an ICC-Response message with invalid DestinationITS-SCU-ID=1
<b>Reference</b>	ISO 24102-4 [1], clause 8.3.2
<b>PICS Selection</b>	PICS_ROLE_RONLY
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID allocated }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an ICC-Response message with invalid DestinationITS-SCU-ID=1 (ITS-S host) } then { the IUT deletes the received message } }	

<b>TP Id</b>	IICP/COM/BI/03
<b>Test objective</b>	Reception of an ICC-Response message with invalid DestinationITS-SCU-ID=2
<b>Reference</b>	ISO 24102-4 [1], clause 8.3.2
<b>PICS Selection</b>	PICS_ROLE_HONLY
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID allocated }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an ICC-Response message with invalid DestinationITS-SCU-ID=2 (ITS-S router) } then { the IUT deletes the received message } }	

<b>TP Id</b>	IICP/COM/BI/04
<b>Test objective</b>	Reception of an ICC-Response message with invalid DestinationITS-SCU-ID (reserved)
<b>Reference</b>	ISO 24102-4 [1], clause 8.3.2
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID allocated }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an ICC-Response message with invalid DestinationITS-SCU-ID (reserved) } then { the IUT deletes the received message } }	

<b>TP Id</b>	IICP/COM/BI/05
<b>Test objective</b>	Reception of an ICC-Request message with odd "PDU-Counter" value
<b>Reference</b>	ISO 24102-4 [1], clause 8.3.1
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID allocated }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an IIC-Request message with odd "PDU-Counter" value } then { the IUT deletes the received message } }	

<b>TP Id</b>	IICP/COM/BI/06
<b>Test objective</b>	Reception of an ICC-Response message with even "PDU-Counter" value
<b>Reference</b>	ISO 24102-4 [1], clause 8.3.1
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID allocated }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an IIC-Response message with even "PDU-Counter" value } then { the IUT deletes the received message } }	

<b>TP Id</b>	IICP/COM/BI/07
<b>Test objective</b>	Reception of an ICC-Response message with "PDU-Counter" not indicating a previous ICC-Request message
<b>Reference</b>	ISO 24102-4 [1], clause 8.3.1
<b>PICS Selection</b>	
<b>Initial conditions</b>	
with { the IUT having its own ITS-SCU-ID allocated, the IUT not awaiting an IIC-Response message }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a privately addressed IIC-Response message with odd "PDU-Counter" value } then { the IUT deletes the received message } }	

## 7 TPs for FSAP

### 7.1 Service provider

#### 7.1.1 Combined ITS-S host and ITS-S router

##### 7.1.1.1 Valid behaviour tests

<b>TP Id</b>	FSAP/SP/HR/BV/01
<b>Test objective</b>	Test of SAM format. Registration of ITS-S application for message distribution only (no session phase) with request of specific access technology
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.1, 8.2.4 and 8.2.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND PICS_ROLE_RH
<b>Initial conditions</b>	
with { the IUT having not registered any ITS-S application for service announcement, the IUT knowing the requested access technology }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a GCreateServer registration request for an ITS-S application including a required access technology and non-IP communications } then { the IUT periodically sends out SAM via the requested access technology with the requested repetition rate, not inviting for a reply } }	

<b>TP Id</b>	FSAP/SP/HR/BV/02
<b>Test objective</b>	Test of SAM format. Registration of ITS-S application for message distribution only (no session phase) with no request of specific access technology
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.1, 8.2.4 and 8.2.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND PICS_ROLE_RH
<b>Initial conditions</b>	
with { the IUT having not registered any ITS-S application for service announcement, the IUT knowing a suitable access technology }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a GCSregServer registration request for an ITS-S application requiring non-IP communications, not requiring a specific access technology } then { the IUT periodically sends out SAM via a suited access technology selected by the CI selection manager with the requested repetition rate, not inviting for a reply } }	

<b>TP Id</b>	FSAP/SP/HR/BV/03
<b>Test objective</b>	Test of SAM format. Registration of ITS-S application with need for a session, with no request of specific access technology, and without request to change communication channel for session phase
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.1, 8.2.4 and 8.2.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND PICS_ROLE_RH
<b>Initial conditions</b>	
with { the IUT having not registered any ITS-S application for service announcement, the IUT knowing a suitable access technology }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a GCSregServer registration request for an ITS-S application requiring non-IP communications in the session phase, but not requiring a change of communication channel } then { the IUT periodically sends out SAM via a suited access technology selected by the CI selection manager with the requested repetition rate, inviting for a reply } }	

<b>TP Id</b>	FSAP/SP/HR/BV/04
<b>Test objective</b>	Test of SAM format. Registration of ITS-S application with need for a session, with no request of specific access technology, and with request to change communication channel for session phase
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.1, 8.2.4 and 8.2.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND PICS_ROLE_RH AND (PICS_SUT_AT_CHG OR PICS_SUT_CH_CHG)
<b>Initial conditions</b>	
with { the IUT having not registered any ITS-S application for service announcement, the IUT knowing a suitable access technology }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a GRegServer registration request for an ITS-S application requiring non-IP communications, and requiring change of communication channel in the session phase } then { the IUT periodically sends out SAM via a suited access technology selected by the CI selection manager with the requested repetition rate, inviting for a reply, requesting a change of channel } }	

<b>TP Id</b>	FSAP/SP/HR/BV/05
<b>Test objective</b>	Finalization of SIP upon reception of CTX for non-IP session
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.6 and 8.4
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND PICS_ROLE_RH AND PICS_SIP_W_CTX
<b>Initial conditions</b>	
with { the IUT sending out periodically SAMs for one ITS-S application with non-IP based sessions }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a CTX with MF-REQUEST CTXrxNot as proper reply to a SAM } then { the IUT forwards the CTX to the proper application using MF-Command GCctx } }	

## 7.1.1.2 Invalid behaviour tests

<b>TP Id</b>	FSAP/SP/HR/BI/01
<b>Test objective</b>	Registration of ITS-S application for message distribution only (no session phase) with request of specific but not available access technology
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.1, 8.2.4 and 8.2.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND PICS_ROLE_RH AND PICS_SUT_AT_CHG
<b>Initial conditions</b>	
with { the IUT having not registered any ITS-S application for service announcement, the IUT not knowing the requested access technology, the IUT knowing another access technology suited for FSAP }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a GCSregServer registration request for an ITS-S application for the purpose of message distribution } then { the IUT does not send out periodically SAMs via the existent access technology } }	

<b>TP Id</b>	FSAP/SP/HR/BI/02
<b>Test objective</b>	Registration of ITS-S application with need for a session, with no request of specific access technology, with now suitable access technology known, and without request to change communication channel for session phase
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.1, 8.2.4 and 8.2.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND PICS_ROLE_RH
<b>Initial conditions</b>	
with { the IUT having not registered any ITS-S application for service announcement, the IUT not knowing a suitable access technology }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a GCSregServer registration request for an ITS-S application offering a session phase } then { the IUT does not send out periodically SAMs } }	

## 7.1.2 ITS-S host only

### 7.1.2.1 Valid behaviour tests

<b>TP Id</b>	FSAP/SP/HO/BV/01
<b>Test objective</b>	Registration of ITS-S application for message distribution only (no session phase) with request of specific access technology available in an ITS-S router unit
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.1, 8.2.4, 8.2.5 and 8.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND (PICS_ROLE_HONLY OR (PICS_ROLE_RH AND PICS_ITS_S_INW))
<b>Initial conditions</b>	
with { the IUT having not registered any ITS-S application for service announcement, the IUT knowing about availability of the requested access technology in an ITS-S router }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a GCreateServer registration request for an ITS-S application including a required access technology } then { the IUT forwards this request to the proper ITS-S router ITS-SCU applying IICP } }	

<b>TP Id</b>	FSAP/SP/HO/BV/02
<b>Test objective</b>	Registration of ITS-S application for message distribution only (no session phase) with no request of specific access technology
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.1, 8.2.4, 8.2.5 and 8.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND (PICS_ROLE_HONLY OR (PICS_ROLE_RH AND PICS_ITS_S_INW))
<b>Initial conditions</b>	
with { the IUT having not registered any ITS-S application for service announcement, the IUT knowing about availability of a suitable access technology in an ITS-S router }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a GCreateServer registration request for an ITS-S application } then { the IUT forwards this request to the proper ITS-S router ITS-SCU applying IICP } }	

<b>TP Id</b>	FSAP/SP/HO/BV/03
<b>Test objective</b>	Registration of ITS-S application with need for a session, with no request of specific access technology, and without request to change communication channel for session phase
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.1, 8.2.4, 8.2.5 and 8.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND (PICS_ROLE_HONLY OR (PICS_ROLE_RH AND PICS_ITS_S_INW))
<b>Initial conditions</b>	
with { the IUT having not registered any ITS-S application for service announcement, the IUT knowing about availability of a suitable access technology in an ITS-S router }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a GcRegServer registration request for an ITS-S application requiring non-IP communications in the session phase, but no change of communication channel } then { the IUT forwards this request to the proper ITS-S router ITS-SCU applying IICP } }	

<b>TP Id</b>	FSAP/SP/HO/BV/04
<b>Test objective</b>	Registration of ITS-S application with need for a session, with no request of specific access technology, and with request to change communication channel for session phase
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.1, 8.2.4 and 8.2.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND (PICS_ROLE_HONLY OR (PICS_ROLE_RH AND PICS_ITS_S_INW)) AND (PICS_SUT_AT_CHG OR PICS_SUT_CH_CHG)
<b>Initial conditions</b>	
with { the IUT having not registered any ITS-S application for service announcement, the IUT knowing about availability of a suitable access technology in an ITS-S router the SUT knowing about a required channel change }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a GcRegServer registration request for an ITS-S application requiring non-IP communications } then { the IUT forwards this request to the proper ITS-S router ITS-SCU applying IICP } }	

<b>TP Id</b>	FSAP/SP/HO/BV/05
<b>Test objective</b>	Finalization of SIP upon reception of CTX for non-IP session
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.6, 8.4 and 8.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND (PICS_ROLE_HONLY OR (PICS_ROLE_RH AND PICS_ITS_S_INW)) AND PICS_SIP_W_CTX
<b>Initial conditions</b>	
with { the IUT awaiting reception of CTX messages }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a CTX with MF-rreq(CTXrxNot) as proper reply to a SAM } then { the IUT notifies the ITS-S application using MF-COMMAND GCctx. } }	

## 7.1.2.2 Invalid behaviour tests

<b>TP Id</b>	FSAP/SP/HO/BI/01
<b>Test objective</b>	Registration of ITS-S application for message distribution only (no session phase) with request of specific but not available access technology
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.1, 8.2.4, 8.2.5 and 8.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND (PICS_ROLE_HONLY OR (PICS_ROLE_RH AND PICS_ITS_S_INW))
<b>Initial conditions</b>	
with { the IUT having not registered any ITS-S application for service announcement, the IUT not knowing about existence of the requested access technology, the IUT knowing about availability of a suitable access technology in an ITS-S router }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a GCreateServer registration request for an ITS-S application for the purpose of message distribution } then { the IUT does not forward this request to the proper ITS-S router ITS-SCU applying IICP } }	

<b>TP Id</b>	FSAP/SP/HO/BI/02
<b>Test objective</b>	Registration of ITS-S application with need for a session, with no request of specific access technology, with no suitable access technology being available, and without request to change communication channel for session phase
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.1, 8.2.4, 8.2.5 and 8.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND (PICS_ROLE_HONLY OR (PICS_ROLE_RH AND PICS_ITS_S_INW))
<b>Initial conditions</b>	
with { the IUT having not registered any ITS-S application for service announcement, the IUT not knowing about availability of a suitable access technology }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a GCreateServer registration request for an ITS-S application offering a session phase } then { the IUT does not forward this request to the proper ITS-S router ITS-SCU using the ITS station-internal management communications protocol (IICP) } }	

### 7.1.3 ITS-S router only

#### 7.1.3.1 Valid behaviour tests

<b>TP Id</b>	FSAP/SP/RO/BV/01
<b>Test objective</b>	Registration of ITS-S application for message distribution only (no session phase) with request of specific access technology
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.1, 8.2.4, 8.2.5 and 8.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND (PICS_ROLE_RONLY OR (PICS_ROLE_RH AND PICS_ITS_S_INW))
<b>Initial conditions</b>	
with { the IUT having not registered any ITS-S application for SAM transmission, the IUT knowing the requested access technology }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an MF-rreq(GCregServer) registration request for an ITS-S application including a required access technology and non-IP communications } then { the IUT periodically sends out SAM via the requested access technology with the requested repetition rate, not inviting for a reply } }	

<b>TP Id</b>	FSAP/SP/RO/BV/02
<b>Test objective</b>	Registration of ITS-S application for message distribution only (no session phase) with no request of specific access technology
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.1, 8.2.4, 8.2.5 and 8.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND (PICS_ROLE_RONLY OR (PICS_ROLE_RH AND PICS_ITS_S_INW))
<b>Initial conditions</b>	
with { the IUT having not registered any ITS-S application for service announcement, the IUT knowing a suitable access technology }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an MF-rreq(GCregServer) registration request for an ITS-S application requiring non-IP communications } then { the IUT periodically sends out SAM via a suited access technology selected by the CI selection manager with the requested repetition rate, not inviting for a reply } }	

<b>TP Id</b>	FSAP/SP/RO/BV/03
<b>Test objective</b>	Registration of ITS-S application with need for a session, with no request of specific access technology, and without request to change communication channel for session phase
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.1, 8.2.4, 8.2.5 and 8.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND (PICS_ROLE_RONLY OR (PICS_ROLE_RH AND PICS_ITS_S_INW))
<b>Initial conditions</b>	
with { the IUT having not registered any ITS-S application for service announcement, the IUT knowing a suitable access technology }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an MF-rreq(GCregServer) registration request for an ITS-S application requiring non-IP communications } then { the IUT periodically sends out SAM via a suited access technology selected by the CI selection manager with the requested repetition rate, inviting for a reply } }	

<b>TP Id</b>	FSAP/SP/RO/BV/04
<b>Test objective</b>	Registration of ITS-S application with need for a session, with no request of specific access technology, and with request to change communication channel for session phase
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.1, 8.2.4, 8.2.5 and 8.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND (PICS_ROLE_RONLY OR (PICS_ROLE_RH AND PICS_ITS_S_INW)) AND (PICS_SUT_AT_CHG OR PICS_SUT_CH_CHG)
<b>Initial conditions</b>	
with { the IUT having not registered any ITS-S application for service announcement, the IUT knowing a suitable access technology the SUT knowing about a required channel change }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an MF-rreq(GCregServer) registration request for an ITS-S application requiring non-IP communications } then { the IUT periodically sends out SAM via a suited access technology selected by the CI selection manager with the requested repetition rate, inviting for a reply, requesting a change of channel } }	

<b>TP Id</b>	FSAP/SP/RO/BV/05
<b>Test objective</b>	Finalization of SIP upon reception of CTX for non-IP session
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.6, 8.4 and 8.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND (PICS_ROLE_RONLY OR (PICS_ROLE_RH AND PICS_ITS_S_INW)) AND PICS_SIP_W_CTX
<b>Initial conditions</b>	
with { the IUT sending out periodically SAMs for one ITS-S application with non-IP based sessions }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a CTX as proper reply to a SAM } then { the IUT forwards the notification of CTX reception to the proper ITS-S host applying IICP } }	

### 7.1.3.2 Invalid behaviour tests

<b>TP Id</b>	FSAP/SP/RO/BI/01
<b>Test objective</b>	Registration of ITS-S application for message distribution only (no session phase) with request of specific but not available access technology
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.1, 8.2.4, 8.2.5 and 8.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND (PICS_ROLE_RONLY OR (PICS_ROLE_RH AND PICS_ITS_S_INW))
<b>Initial conditions</b>	
with { the IUT having not registered any ITS-S application for service announcement, the IUT not knowing the requested access technology, the IUT knowing another access technology suited for FSAP }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an MF-rreq(GCregServer) registration request for an ITS-S application for the purpose of message distribution } then { the IUT does not send out periodically SAMs via the known access technology } }	

<b>TP Id</b>	FSAP/SP/RO/BI/02
<b>Test objective</b>	Registration of ITS-S application with need for a session, with no request of specific access technology, with no suitable access technology being available, and without request to change communication channel for session phase
<b>Reference</b>	ISO 24102-5 [2], clauses 8.2.1, 8.2.4, 8.2.5 and 8.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SP AND (PICS_ROLE_RONLY OR (PICS_ROLE_RH AND PICS_ITS_S_INW))
<b>Initial conditions</b>	
with { the IUT having not registered any ITS-S application for service announcement, the IUT not knowing a suitable access technology }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received an MF-rreq(GCregServer) registration request for an ITS-S application offering a session phase } then { the IUT does not send out periodically SAMs } }	

## 7.2 Service user

### 7.2.1 Combined ITS-S host and ITS-S router

#### 7.2.1.1 Valid behaviour tests

<b>TP Id</b>	FSAP/SU/HR/BV/01
<b>Test objective</b>	Reception of SAM for message distribution only (no session phase)
<b>Reference</b>	ISO 24102-5 [2], clauses 8.3.1 and 8.3.4
<b>PICS Selection</b>	PICS_FSAP_ROLE_SU AND PICS_ROLE_RH
<b>Initial conditions</b>	
with { the IUT having received GCregClient, and having properly registered any ITS-S application without a session }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a SAM containing the expected ITS-AID } then { the IUT forwards the related message to the ITS-S application using GCsam } }	

<b>TP Id</b>	FSAP/SU/HR/BV/02
<b>Test objective</b>	Reception of SAM with need for a session, without request to change communication channel for session phase, with need to send CTX
<b>Reference</b>	ISO 24102-5 [2], clauses 8.3.1 and 8.3.4
<b>PICS Selection</b>	PICS_FSAP_ROLE_SU AND PICS_ROLE_RH AND PICS_SIP_W_CTX
<b>Initial conditions</b>	
with { the IUT having received GCreateClient, and having properly registered any ITS-S application with session initialization using CTX }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a SAM containing the expected ITS-AID } then { the IUT forwards the related message to the ITS-S application using GCsamctx, which is acknowledged providing a port number for the session the IUT sends the requested CTX containing the port number received in the acknowledgement } }	

<b>TP Id</b>	FSAP/SU/HR/BV/03
<b>Test objective</b>	Reception of SAM with need for a session, with request to change communication channel for session phase, with need to send CTX
<b>Reference</b>	ISO 24102-5 [2], clauses 8.3.1 and 8.3.4
<b>PICS Selection</b>	PICS_FSAP_ROLE_SU AND PICS_ROLE_RH AND PICS_SIP_W_CTX AND (PICS_SUT_AT_CHG OR PICS_SUT_CH_CHG)
<b>Initial conditions</b>	
with { the IUT having received GCreateClient, and having properly registered any ITS-S application with session initialization using CTX }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a SAM containing the expected ITS-AID } then { the IUT forwards the related message to the ITS-S application using GCsamctx, which is acknowledged providing a port number for the session the IUT sends the requested CTX in the new channel containing the port number received in the acknowledgement } }	
NOTE: This requires to have two channels available in the ITS lower layer transport.	

<b>TP Id</b>	FSAP/SU/HR/BV/04
<b>Test objective</b>	Reception of SAM of no interest (no match with a registered ITS-AID)
<b>Reference</b>	ISO 24102-5 [2], clauses 8.3.1 and 8.3.4
<b>PICS Selection</b>	PICS_FSAP_ROLE_SU AND PICS_ROLE_RH
<b>Initial conditions</b>	
with { the IUT having registered ITS applications, but not the one offered in the SAM }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a SAM containing an unwanted ITS-AID } then { the IUT discards the SAM without further actions } }	

<b>TP Id</b>	FSAP/SU/HR/BV/05
<b>Test objective</b>	Reception of SAM with need for a session, with request to change communication channel for session phase, with the requested channel being unknown
<b>Reference</b>	ISO 24102-5 [2], clauses 8.3.1 and 8.3.4
<b>PICS Selection</b>	PICS_FSAP_ROLE_SU AND PICS_ROLE_RH
<b>Initial conditions</b>	
with { the IUT having received GCreateClient, and having properly registered any ITS-S application }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a SAM containing the expected ITS-AID with a request to change to an unknown channel } then { the IUT discards the SAM without further actions } }	

### 7.2.1.2 Invalid behaviour tests

None.

## 7.2.2 ITS-S host only

### 7.2.2.1 Valid behaviour tests

<b>TP Id</b>	FSAP/SU/HO/BV/01
<b>Test objective</b>	Reception of SAM with need for a session with need to send CTX
<b>Reference</b>	ISO 24102-5 [2], clauses 8.3.1, 8.3.4 and 8.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SU AND (PICS_ROLE_HONLY OR (PICS_ROLE_RH AND PICS_ITS_S_INW)) AND PICS_SIP_W_CTX
<b>Initial conditions</b>	
with { the IUT having received GCreateClient, and having properly registered any ITS-S application with session initialization using CTX }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a SAM from the ITS-S router via IICP containing the expected ITS-AID } then { the IUT notifies reception of the SAM to the ITS-S application, which is acknowledged with a port number. the IUT sends the requested CTX to the ITS-S router applying IICP containing the port number received in the acknowledgement } }	

### 7.2.2.2 Invalid behaviour tests

None.

## 7.2.3 ITS-S router only

### 7.2.3.1 Valid behaviour tests

<b>TP Id</b>	FSAP/SU/RO/BV/01
<b>Test objective</b>	Reception of SAM
<b>Reference</b>	ISO 24102-5 [2], clauses 8.3.1, 8.3.4 and 8.5
<b>PICS Selection</b>	PICS_FSAP_ROLE_SU AND (PICS_ROLE_ROONLY OR (PICS_ROLE_RH AND PICS_ITS_S_INW))
<b>Initial conditions</b>	
with { the IUT having received GcRegClient, and having properly registered any ITS-S application without a session }	
<b>Expected behaviour</b>	
ensure that { when { the IUT having received a SAM } then { the IUT forwards the related message to the ITS-S application using MF-rcmd(GCsam) } }	

### 7.2.3.2 Invalid behaviour tests

None.

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## History

<b>Document history</b>		
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V1.2.1	June 2014	Publication