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Technical Specification

**Intelligent Transport Systems (ITS);
Communications Access for Land Mobiles (CALM);
Test specifications for Access Technology Support
(ISO 21218);
Part 1: Implementation Conformance
Statement (ICS) proforma**

Reference

RTS/ITS-00260

Keywords

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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 1 of a multi-part deliverable covering the test specifications for ITS access technology support (service access points and related procedures) ISO 21218 [1] as identified below:

Part 1: **"Implementation Conformance Statement (ICS) proforma";**

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

Part 3: "Abstract Test Suite (ATS) and partial PIXIT proforma".

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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Introduction

Communications for Intelligent Transport Systems (ITS) is standardized at ISO TC204 WG16 under the acronym CALM (Communications Access for Land Mobiles). The communications architecture of ITS and cooperative ITS and the concept of an ITS station (ITS-S) as a "Bounded Secured Managed Domain" (BSMD) are specified in ISO 21217 [i.1]. The ITS station reference architecture is based on the OSI model as illustrated in figure 1.

An implementation of a BSMD is named an "ITS station unit" (ITS-SU), or more precisely and "Bounded Secured Managed Entity" (BSME), which may consist of one or several physical units named "ITS station communication units" (ITS-SCU). ITS-SCUs are interconnected via the ITS station-internal network specified in ISO 21217 [i.1].
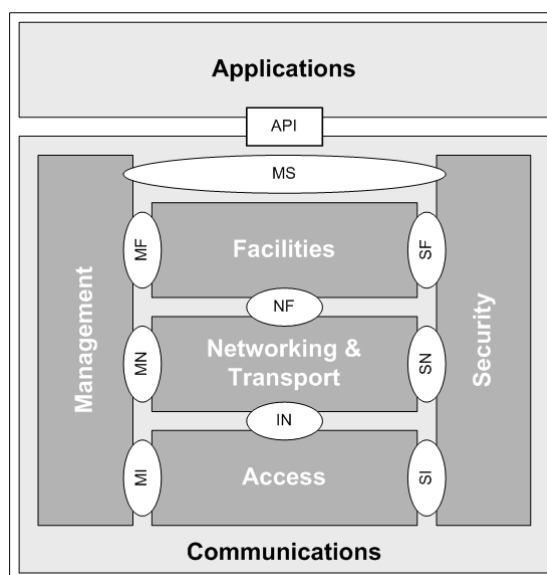
Figure 1: Simplified ITS station reference architecture

The OSI protocol layers of an ITS-S are grouped as shown in figure 1:

- The ITS-S access layer contains OSI layers 1 and 2, using the MI-interface towards the ITS-S management entity and the SI-interface towards the ITS-S security entity, and providing the IN-interface towards the ITS-S networking & transport layer.

- The ITS-S networking & transport layer contains OSI layers 3 and 4, using the MN-interface towards the ITS-S management entity, the SN-interface towards the ITS-S security entity, the IN-interface towards the ITS-S access layer, and providing the NF-interface towards the ITS-S facilities layer.

- The ITS-S facilities layer contains OSI layers 5, 6 and 7, using the MF-interface towards the ITS-S management entity, the SF-interface towards the ITS-S security entity and the NF-interface towards the ITS-S networking & transport layer.

There are further interfaces not presented in the simplified view of figure 1, i.e. the interfaces towards "Applications", which will be provided in an implementation by means of the API illustrated in figure 1.

The MI-interface, the MN-interface, the MF-interface, the SI-interface, the SN-interface, the SF-interface are specified in ISO 24102-3 [2] as service access points (SAPs). The IN-interface is described as an SAP in ISO 21218 [1].

In a distributed implementation of an ITS-S, management commands are exchanged between the ITS-SCUs by means of the "ITS station-internal management communications protocol" (IICP) specified in ISO 24102-4 [i.3]. Such management commands may directly carry functions of service primitives of SAPs to which they are addressed. By this, functions of the service primitives become observable as PDUs and thus testable. Consequently the present document indirectly provides also the foundations for testing functions of service primitives, but not the service primitives themselves.

The functionality of "ITS station-internal management communications" may be used to provide the upper tester access in the SUT as specified in ISO 24102-3 [2], ETSI EG 202 798 [i.2], and ETSI TS 102 760-2 [i.4].

Details of the ITS-S access layer which are subject of the present document are illustrated in figure 2.
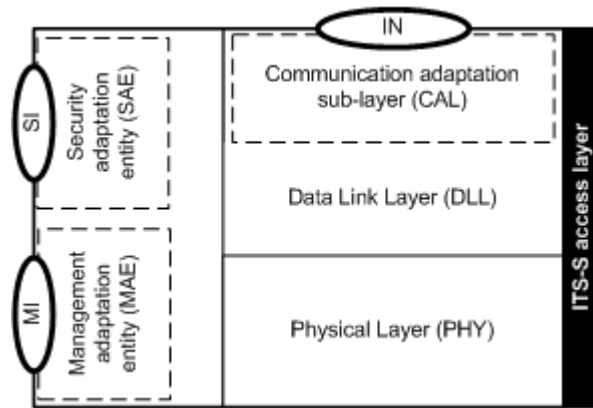
Figure 2: Illustration of the ITS-S access layer

1 Scope

The present document specifies "Implementation Conformance Statement" (ICS) proformas for functionality of the ITS-S access layer service access points MI-SAP and IN-SAP and related procedures as defined in ISO 21218 [1] in accordance with the relevant guidance given in ETSI EG 202 798 [i.2].

This proforma is intended for use by suppliers of equipment which is claimed to conform to the functionality of the ITS-S access layer service access points and procedures as specified in ISO 21218 [1] in combination with a defined "Communication interface" (CI) described in ISO 21217 [i.1] . Without a CI supporting ISO 21218 [1], this proforma is not applicable.

To evaluate conformance of a particular implementation, it is necessary to have a statement of which capabilities and options have been implemented for a specific CI. Such a statement is called an Implementation Conformance Statement (ICS). The present document provides proforma ICS templates, to be filled in by equipment suppliers.

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.

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

2.1 Normative references

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

[1] ISO 21218:2013: "Intelligent Transport Systems - Communications access for land mobiles (CALM) - Access technology support".

[2] ISO 24102-3:2013: "Intelligent Transport Systems - Communications access for land mobiles (CALM) - ITS station management - Part 3: Service access points".

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

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] ISO 21217:2014: "Intelligent Transport Systems - Communications access for land mobiles (CALM) - Architecture".

[i.2] ETSI EG 202 798: "Intelligent Transport Systems (ITS); Testing; Framework for conformance and interoperability testing".

[i.3] ISO 24102-4:2013: "Intelligent Transport Systems - Communications access for land mobiles (CALM) - ITS station management - Part 4: Station-internal management communication".

[i.4] ETSI TS 102 760-2: "Intelligent Transport Systems (ITS); Communications Access for Land Mobiles (CALM); Test specifications for Access Technology Support (ISO 21218); Part 2: Test Suite Structure and Test Purposes (TSS & TP)".

[i.5]   ISO 15628:2013: "Intelligent transport systems -- Dedicated short range communication (DSRC) -
                       - DSRC application layer".

3   Definitions and abbreviations

3.1   Definitions

For the purposes of the present document, the terms and definitions given in ISO 21218 [1], ISO 21217 [i.1],
ISO 24102-3 [2], ISO 24102-4 [i.3], ETSI EG 202 798 [i.2] and ISO/IEC 9646-7 [3] apply.

3.2   Abbreviations

For the purposes of the present document, the abbreviations given in ISO 21218 [1], ISO 21217 [i.1], ISO 24102-3 [2],
ISO 24102-4 [i.3], ETSI EG 202 798 [i.2] and ISO/IEC 9646-7 [3] apply.

4   Conformance requirement concerning ICS

The actual ICS proforma to be filled in by a supplier shall be technically equivalent to the text of the ICS proforma
given in the normative annexes of the present document, and shall preserve the numbering, naming and ordering of the
proforma items.

An ICS which conforms to the present document shall be a conforming ICS proforma completed in accordance with the
instructions for completion given in annex A.

Annex A (normative):
Guidance for completing the ICS proforma

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

A.1   Purposes and structure

The purpose of this ICS proforma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in ISO 21218 [1] may provide information about the implementation in a standardized manner.

The ICS proforma is subdivided into clauses for the following categories of information:

- guidance for completing the ICS proforma;

- identification of the implementation;

- identification of the protocol;

- global statement of conformance;

- ICS proforma tables.

A.2   Abbreviations and conventions

A.2.1   General

The ICS proforma contained in this annex is comprised of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7 [3].

A.2.2   Item column

The item column contains a number which identifies the item in the table.

A.2.3   Item description column

The item description column describes in free text each respective item (e.g. parameters, timers, etc.). It implicitly means "is <item description> supported by the implementation?".

A.2.4   Status column

The following notations, defined in ISO/IEC 9646-7 [3] and extended here, are used for the status column:

m   mandatory - the capability is required to be supported.

o   optional - the capability may be supported or not.

n/a   not applicable - in the given context, it is impossible to use the capability.

x   prohibited (excluded) - there is a requirement not to use this capability in the given context.

o.i   qualified optional - for mutually exclusive or selectable options from a set. "i" is an integer which identifies a unique group of related optional items and the logic of their selection which is defined immediately following the table.

ci   conditional - the requirement on the capability ("m", "o", "x" or "n/a") depends on the support of other optional or conditional items. "i" is an integer identifying a unique conditional status expression which is defined immediately following the table.

r   as specified in the related referenced standard of the CI.

A.2.5   Reference column

The reference column makes reference to ISO 21218 [1], except where explicitly stated otherwise.

A.2.6   Support column

The support column shall be filled in by the supplier of the implementation. The following common notations, defined in ISO/IEC 9646-7 [3], are used for the support column:

Y or y   supported by the implementation.

N or n   not supported by the implementation.

N/A, n/a or - no answer required (allowed only if the status is n/a, directly or after evaluation of a conditional status).

A.2.7   Values allowed column

The values allowed column contains the type, the list, the range, or the length of values allowed. The following notations are used:

- range of values: <min value> .. <max value>
  example: 5 .. 20

- list of values: <value1>, <value2>, ..., <valueN>
  example: 2 ,4 ,6 ,8, 9
  example: '1101'B, '1011'B, '1111'B
  example: '0A'H, '34'H, '2F'H

- list of named values: <name1>(<val1>), <name2>(<val2>), ..., <nameN>(<valN>)
  example: reject(1), accept(2)

- length: size (<min size> .. <max size>)
  example: size (1 .. 8)

A.2.8   Values supported column

The values supported column shall be filled in by the supplier of the implementation. In this column, the values or the ranges of values supported by the implementation shall be indicated.

A.2.9   References to items

For each possible item answer (answer in the support column) within the ICS proforma a unique reference exists, used, for example, in the conditional expressions. It is defined as the table identifier, followed by a solidus character "/", followed by the item number in the table. If there is more than one support column in a table, the columns are discriminated by letters (a, b, etc.), respectively.

EXAMPLE 1:   A.5/4 is the reference to the answer of item 4 in table 5 of annex A.

EXAMPLE 2:   A.6/3b is the reference to the second answer (i.e. in the second support column) of item 3 in table 6 of annex A.

A.2.10   Prerequisite line

A prerequisite line takes the form: Prerequisite: <predicate>.

A prerequisite line after a clause or table title indicates that the whole clause or the whole table is not required to be completed if the predicate is FALSE.

A.3   Instructions for completing the ICS proforma

The supplier of the implementation shall complete the ICS proforma in each of the spaces provided. In particular, an explicit answer shall be entered, in each of the "Support" column boxes provided, using the notation described in clause A.2.

If necessary, the supplier may provide additional comments in space at the bottom of the tables or separately.

Annex B (normative):
Identification of the implementation

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

B.1   General

Identification of the Implementation Under Test (IUT) and the system in which it resides (the System Under Test (SUT)) should be filled in so as to provide as much detail as possible regarding version numbers and configuration options.

> NOTE: The essential part of the IUT is the functionality specified in ISO 21218 [1]. The SUT, as a minimum, is a communication interface (CI) as specified in ISO 21217 [i.1]. In what follows, the IUT thus referrers to the functionality specified in ISO 21218 [1] applied in the context of a specific CI.

The product supplier information and client information should both be filled in if they are different.

A person who can answer queries regarding information supplied in the ICS should be named as the contact person.

B.2   Date of the statement

....

B.3   Implementation Under Test (IUT) identification

IUT name:

....
....

IUT version:

....

B.4   System Under Test (SUT) identification

SUT name:

....
....

Hardware configuration:

....
....
....

Operating system:

....

B.5   Product supplier

Name:

....

Address:

....

....

....

Telephone number:

....

Facsimile number:

....

E-mail address:

....

Additional information:

....

....

B.6   Client (if different from product supplier)

Name:

....

Address:

....

....

....

Telephone number:

....

Facsimile number:

....

E-mail address:

....

Additional information:

....

....

B.7   ICS contact person

(A person to contact if there are any queries concerning the content of the ICS.)

Name:

....

Telephone number:

....

Facsimile number:

....

E-mail address:

....

Additional information:

....

....

B.8   Identification of protocol

This ICS proforma applies to the following standards:

- ISO 21218 [1]:

- CI standard reference:

    ....

    ....

- CI standard PICS reference:

    ....

    ....

B.9   Global statement of conformance

Are all mandatory capabilities implemented? (Yes/No)   ....

NOTE: Answering "No" to this question indicates non-conformance to the protocol specification. Non-supported mandatory capabilities are to be identified in the ICS, with an explanation of why the implementation is non-conforming, on pages attached to the ICS proforma.

B.10 Detailed conformance declarations proforma

Detailed conformance declarations proforma are presented in annex C.

Annex C (normative):
ICS proforma for ISO 21218 access technology support

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the ICS proforma for ISO 21218 access technology support in this annex so that it can be used for its intended purposes and may further publish the completed ICS proforma.

C.1 General

Table C.1: Registration of CIs

Item	Method of registration of CIs in the SUT	Reference	Status	Support
1	Dynamically using the standardized registration procedure	6.4.2	o	

Table C.2: Upper tester access

Item	Method of upper tester access in the SUT	Reference	Status	Support
1	Applying IICP	ISO 24102-3 [2], ISO 24102-4 [i.3]	o	

C.2 Service Access Points

Table C.3: Adaptation

Item	Adaptation implemented	Reference	Status	Support
1	Communication adaptation sub-layer (CAL) with IN-SAP	5.1, 5.2	m	
2	Management adaptation entity (MAE) with MI-SAP	5.1, 5.3	m	
3	Security adaptation entity (SAE) with SI-SAP	5.1, 5.4	n/a	

C.3 CI classification

Table C.4: MAC addressing

Item	Addressing at MAC sub-layer supported by CI	Reference	Status	Support
1	48 bit MAC address	6.3	o.1	
2	Other addressing scheme than 48 bit MAC address	6.3	o.1	

o.1: It is mandatory to support exactly one of these options.

Table C.5: CI classes

Item	CI class implemented	Reference	Status	Support
1	CIC-I1 - Multiple simultaneous peer stations transceiver	6.2.1	o.2	
2	CIC-I2 - Single peer station transceiver	6.2.1	o.2	
3	CIC-I3 - Groupcast transmitter only	6.2.1	o.2	
4	CIC-I4 - Broadcast receiver only	6.2.1	o.2	
5	CIC-I5 - ISO 15628 [i.5] legacy CI	6.2.1	o.2	
6	CIC-il1 - Non-deterministic ITS station-internal network	6.2.1	o.2	
7	CIC-il2 - Deterministic ITS station-internal network	6.2.1	o.2	

o.2: It is mandatory to support exactly one of these options.

Table C.6: CI access classes

Item	CI access class implemented	Reference	Status	Support
1	CIAC-1	6.2.2	o.3	
2	CIAC-2	6.2.2	o.3	
3	CIAC-3	6.2.2	o.3	

o.3: It is mandatory to support exactly one of these options.

Table C.7: Medium type value

Item	Value of MedType	Reference	Status	Support	Values	
					Allowed	Supported
1	"Unknown"	A, B	o		0	
2	"Any"	A, B	o		1	
3	Type of access technology of IUT	6.4.2, 6.4.11.2, A, B	m		2 ... 255	

Table C.8: VCI type

Item	VCI types implemented	Reference	Status	Support
1	BC-VCI transmitter	7.1, 7.3.1	c.1	
2	MC-VCI transmitter	7.1, 7.3.1	c.2	
3	UC-VCI (includes RX and TX capability)	7.1, 7.3.1	c.3	
4	RX-VCI groupcast	7.1, 7.3.1	c.4	

c.1: IF (Table C.5/1 OR Table C.5/3) THEN m ELSE n/a.

c.2: IF (Table C.5/1 OR Table C.5/3) THEN o ELSE n/a.

c.3: IF (Table C.5/1 OR Table C.5/2) THEN m ELSE n/a.

c.4: IF Table C.5/4 THEN m ELSE n/a.

C.4 Address formats

Table C.9: Link identifier

Item	Link-ID format implemented	Reference	Status	Support
1	Link-ID	6.3, 7.2	m	

Table C.10: IN-SAP source and destination address

Item	IN-SAP source and destination address format implemented	Reference	Status	Support
1	IN-SAP source and destination address	8.2.2, 6.3	m	

C.5 Procedures

Table C.11: Procedures

Item	Procedures implemented	Reference	Status	Support
1	Registration procedure	6.4.2, 6.4.10	c.5	
2	Deregistration	6.4.3, 6.4.10	c.5	
3	Inactivation	6.4.4, 6.4.10	o	
4	Activation	6.4.5, 6.4.10	o	
5	Suspension	6.4.6, 6.4.10	o	
6	Resuming	6.4.7, 6.4.10	o	
7	Connection	6.4.8, 6.4.10	o	
8	Disconnection	6.4.9, 6.4.10	o	
9	Cross-CI prioritization - victim procedure	6.4.11.1, 6.4.11.2, 6.4.11.3, 6.4.11.4	o	
10	Cross-CI prioritization - interferer procedure	6.4.11.1, 6.4.11.5	o	
11	Protection of CI	6.4.12	o	
12	Regulatory Information Management	6.4.13	r	
13	Creation of a BC-VCI	7.3.1	c.6	
14	Creation of a MC-VCI	7.3.1	c.7	
15	Creation of a UC-VCI	7.3.1	c.8	
16	Creation of a RX-VCI	7.3.1	c.9	
17	Reset of a VCI	7.3.2	m	
18	Deletion of a VCI	7.3.3	m	
19	Association of peer with Link-ID	7.3.4, 8.2.2	c.8	
20	Rejection of DL-UNITDATA.requests with user priority less than given in parameter "MinimumUserPriority"	8.4, A	o	
21	Management of priority queue level based on parameters "QueueAlarmThreshold" and "QueueLowThreshold"	8.4, A	m	

c.5: IF Table C.1/1 THEN m ELSE n/a.

c.6: IF Table C.8/1 THEN m ELSE n/a.

c.7: IF Table C.8/2 THEN m ELSE n/a.

c.8: IF Table C.8/3 THEN m ELSE n/a.

c.9: IF Table C.8/4 THEN m ELSE n/a.

C.6 IN-SAP services

Table C.12: IN-SAP services

Item	Functionality of IN-SAP services implemented	Reference	Status	Support
1	IN-UNITDATA (Type 1 operation)	8.1, 8.3, B	m	
2	IN-UNITDATA-STATUS (Type 1 operation)	8.1, 8.3, B	o	
3	IN-DATA-ACK (Type 3 operation)	8.1, B	n/a	
4	IN-DATA-ACK-STATUS (Type 3 operation)	8.1, B	n/a	
5	IN-REPLY (Type 3 operation)	8.1, B	n/a	
6	IN-REPLY-STATUS (Type 3 operation)	8.1, B	n/a	
7	IN-REPLY-UPDATE (Type 3 operation)	8.1, B	n/a	
8	IN-REPLY-UPDATE-STATUS (Type 3 operation)	8.1, B	n/a	
9	IN-CONNECT (Type 2 operation)	8.1	n/a	
10	IN-DATA (Type 2 operation)	8.1	n/a	
11	IN-DISCONNECT (Type 2 operation)	8.1	n/a	
12	IN-RESET (Type 2 operation)	8.1	n/a	
13	IN-CONNECTION-FLOWCONTROL (Type 2 operation)	8.1	n/a	

NOTE: ISO 21218 [1] does not specify any requirements for Type 2 operation and Type 3 operation, thus these IN-SAP services are not further considered in the present document.

C.7 SNAP

Table C.13: Sub-network access protocol

Item	SNAP implemented	Reference	Status	Support
1	SNAP	8.2.3	o	

C.8 MI-SAP services

Table C.14: MI-SAP services

Item	Functionality of MI-SAP services implemented	Reference	Status	Support
1	MI-GET	9, ISO 24102-3 [2]	m	
2	MI-SET	9, ISO 24102-3 [2]	m	
3	MI-COMMAND	9, ISO 24102-3 [2]	m	
4	MI-REQUEST	9, ISO 24102-3 [2]	m	

C.9 COMMANDs and REQUESTs

Table C.15: COMMANDs

Item	COMMANDs implemented	Reference	Status	Support
1	0: SimIUTcmd	ISO 24102-3 [2]	c.10	
2	1: RegCmd	6.4.2, ISO 24102-3 [2]	c.5	
3	2: CIstateChng	6.4.3, 6.4.4, 6.4.5, 6.4.6, 6.4.7, 6.4.8, 6.4.9, ISO 24102-3 [2]	c.11	
4	3: WakeUp	ISO 24102-3 [2]	r	
5	4: RTScmd	6.4.11.5, ISO 24102-3 [2]	c.12	
6	5: RTSackCmd	6.4.11.3, ISO 24102-3 [2]	c.13	
7	6: CONcmd	7.3.1, ISO 24102-3 [2]	c.14	
8	7: RIcmd	6.4.13, ISO 24102-3 [2]	c.15	
9	8: ManuCmd	ISO 24102-3 [2]	o	
10	9: VCIcmd	7.3.1, ISO 24102-3 [2]	m	
11	10: Monitor	ISO 24102-3 [2]	o	
12	11: UnitDataCmd	ISO 24102-3 [2]	r	

    c.10:   IF Table C.2/1 THEN m ELSE n/a.

    c.11:   IF Table C.1/1 OR Table C.11/3 OR Table C.11/4 OR Table C.11/5 OR Table C.11/6 OR Table C.11/7 OR Table C.11/8 THEN m ELSE n/a.

    c.12:   IF Table C.11/10 THEN m ELSE n/a.

    c.13:   IF Table C.11/9 THEN m ELSE n/a.

    c.14:   IF Table C.6/2 OR Table C.6/3 THEN m ELSE n/a.

    c.15:   IF Table C.11/12 THEN m ELSE n/a.

Table C.16: REQUESTs

Item	REQUESTs implemented	Reference	Status	Support
1	0: SimIUTreq	ISO 24102-3 [2]	c.10	
2	1:RegReq	6.4.2, ISO 24102-3 [2]	c.5	
3	2: PrioReg	6.4.11.2, ISO 24102-3 [2]	c.13	
4	3: RTSreq	6.4.11.3, 6.4.11.4, 6.4.11.5, ISO 24102-3 [2]	c.13	
4	4: RTSackReq	6.4.11.5, ISO 24102-3 [2]	c.12	
5	5: RIreq	6.4.13, ISO 24102-3 [2]	c.15	
6	6: ManuReq	7.3.1, 8.4, ISO 24102-3 [2]	o	
7	7: Events	6.4.13, ISO 24102-3 [2]	m	
8	8: PosUpdateReq	ISO 24102-3 [2]	o	
9	9: UnitDataReq	ISO 24102-3 [2]	r	

C.10 Events

Table C.17: Events

Item	Events implemented	Reference	Status	Support
1	Invalid user priority	8.4, ISO 24102-3 [2]	c.16	
2	Transmission queue above upper threshold	8.4, ISO 24102-3 [2]	c.17	
3	Transmission queue is full	8.4, 8.6, ISO 24102-3 [2]	c.18	
4	VCI created	7.3.1, ISO 24102-3 [2]	m	
5	VCI deleted	7.3.3, ISO 24102-3 [2]	m	
6	Automatic notification of change of parameter value	ISO 24102-3 [2]	c.19	
7	Transmit queue below lower threshold	7.1, 8.4, ISO 24102-3 [2]	c.20	
8	VCI reset	7.3.2, ISO 24102-3 [2]	m	
9	Any other registered mandatory Event	ISO 24102-3 [2]	m	
10	Any other registered optional Event	ISO 24102-3 [2]	o	

c.16: IF Table C.11/20 THEN m ELSE n/a.

c.17: IF Table C.20/6 THEN m ELSE n/a.

c.18: IF Table C.24/2 THEN m ELSE n/a.

c.19: IF Table C.15/11 THEN m ELSE o.

c.20: IF Table C.20/5 THEN m ELSE n/a.

C.11 Error/return codes

Table C.18: Error/return codes

Item	Error/return codes implemented	Reference	Status	Support
1	SUCCESS	ISO 24102-3 [2]	m	
2	UNSPECIFIED FAILURE	ISO 24102-3 [2]	m	
3	INVALID PARAMETER NUMBER	ISO 24102-3 [2]	m	
4	INVALID PARAMETER VALUE	ISO 24102-3 [2]	m	
5	RI VIOLATION	6.4.13, ISO 24102-3 [2]	c.15	
6	INVALID COMMAND/REQUEST NUMBER	ISO 24102-3 [2]	m	
7	INVALID COMMAND/REQUEST VALUE	6.4.10, ISO 24102-3 [2]	m	
8	ACCESS VIOLATION	ISO 24102-3 [2]	m	
9	INVALID COMMAND/REQUEST TYPE	ISO 24102-3 [2]	m	
10	SEQUENCE ERROR	ISO 24102-3 [2]	n/a	
11	VALUE NOT AVAILABLE	ISO 24102-3 [2]	m	
12	UNSPECIFIED HARDWARE FAILURE	ISO 24102-3 [2]	o	

C.12   MIB parameters

Table C.19: Read/write VCI MIB parameters

Item	MIB parameter readable and writeable	Reference	Status	Support
1	10: MACaddrTemp	6.4.2, A, B, C	c.21	
2	22: MinimumUserPriority	8.4, A, B	o	
3	29: InactivityTimeLimit	7.3.3, A, B	m	
4	32: PeerMAC	7.3.4, 8.2.2, A, B	c.21	
5	35: RXsensitivity	A, B	r	
6	36: TXpower	A, B	r	
7	39: DataRate	A, B	m	
8	43: Directivity	A, B	r	
9	44: BlockLength	A, B	m	
10	45: FreeAirTime	A, B	r	
11	46: FrameLengthMax	A, B	r	
12	51: LogicalChannels	A, B	m	

c.21:   IF Table C.4/1 THEN r ELSE n/a.

Table C.20: Read/write CI MIB parameters

Item	MIB parameter readable and writeable	Reference	Status	Support
1	5: ITS-SCU-ID	6.3, 6.4.2, 6.4.3, A, B, C	c.22	
2	6: MedID	6.4.2, A, B	c.22	
3	8: TimeOutRegister	6.4.2, A, B	c.5	
4	18: Regulatory Information	6.4.13, A, B	c.15	
5	24: QueueLowThreshold	7.1, 8.4, A, B	r	
6	25: QueueAlarmThreshold	7.1, 8.4, A, B	r	
7	31: MedUseObservationTime	A, B	r	
8	34: MinPrioCrossCI	6.4.11.3, A, B	c.13	
9	42: DataRateNWreq	A, B	r	

c.22:   IF Table C.1/1 OR NOT Table C.4/1 THEN m ELSE o.

Table C.21: Read-only VCI MIB parameters

Item	MIB parameter readable and writeable	Reference	Status	Support
1	2: CommProfile	A, B	o	
2	16: Notify	6.4.2, 6.4.3, 6.4.4, 6.4.5, 6.4.6, 6.4.7, 6.4.8, 6.4.9, A, B	m	
3	26: DistancePeer	A, B	r	
4	27: CommRangeRef	A, B	r	
5	28: TimeOfLastReception	7.3.4, A, B	m	
6	37: TXpowMax	A, B	r	
7	38: PeerRXpower	A, B	r	
8	40: DataRateNW	A, B	r	
9	41: DataRatesNW	A, B	r	
10	49: Cost	A, B	r	
11	50: Reliability	A, B	r	

Table C.22: Read-only CI MIB parameters

Item	MIB parameter readable and writeable	Reference	Status	Support
1	3: Properties	A, B	m	
2	4: ManufacturerDeviceID	A, B	m	
3	7: LocalCIID	6.3, 6.4.2, 6.4.11.5, 7.1, 8.2.2, A, B, C.3	m	
4	9: MACaddress	6.3, 6.4.2, 8.2.2, A, B, C.2	c.23	
5	11: CIclass	6.2.1, 6.2.1.3, 7.3.1, A, B	m	
6	12: CIaccessClass	6.2.2, 6.2.1.3, 6.4.8, 6.4.9, 7.3.1, A, B	m	
7	13: CIstatus	6.4.2, 6.4.3, 6.4.4, 6.4.5, 6.4.6, 6.4.7, 6.4.8, 6.4.9, 6.4.10, 7.3.1, A, B	m	
8	17: MedType	6.4.2, 6.4.11.2, 7.1, A, B	m	
9	19: Connect	7.3.1, A, B	r	
10	30: MediumUsage	A, B	r	
11	33: VirtualCI	A, B	m	
12	43: Directivity	A, B	r	
13	48: KinematicVectorOut	A, B	o	

c.23:   IF Table C.4/1 THEN m ELSE n/a.

Table C.23: Write-only CI MIB parameters

Item	MIB parameter readable and writeable	Reference	Status	Support
1	20: SIMpin	6.2.2, A, B	c.24	
2	21: ProviderInfo	6.2.2, A, B	c.24	
3	47: KinematicVectorIn	A, B	o	

c.24:   IF Table C.6/3 THEN r ELSE n/a.

Table C.24: Notify-only MIB parameters

Item	MIB parameter readable and writeable	Reference	Status	Support
1	0: Errors	A, B	m	
2	23: QueueLevel	7.1, 8.4, A, B	r	

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