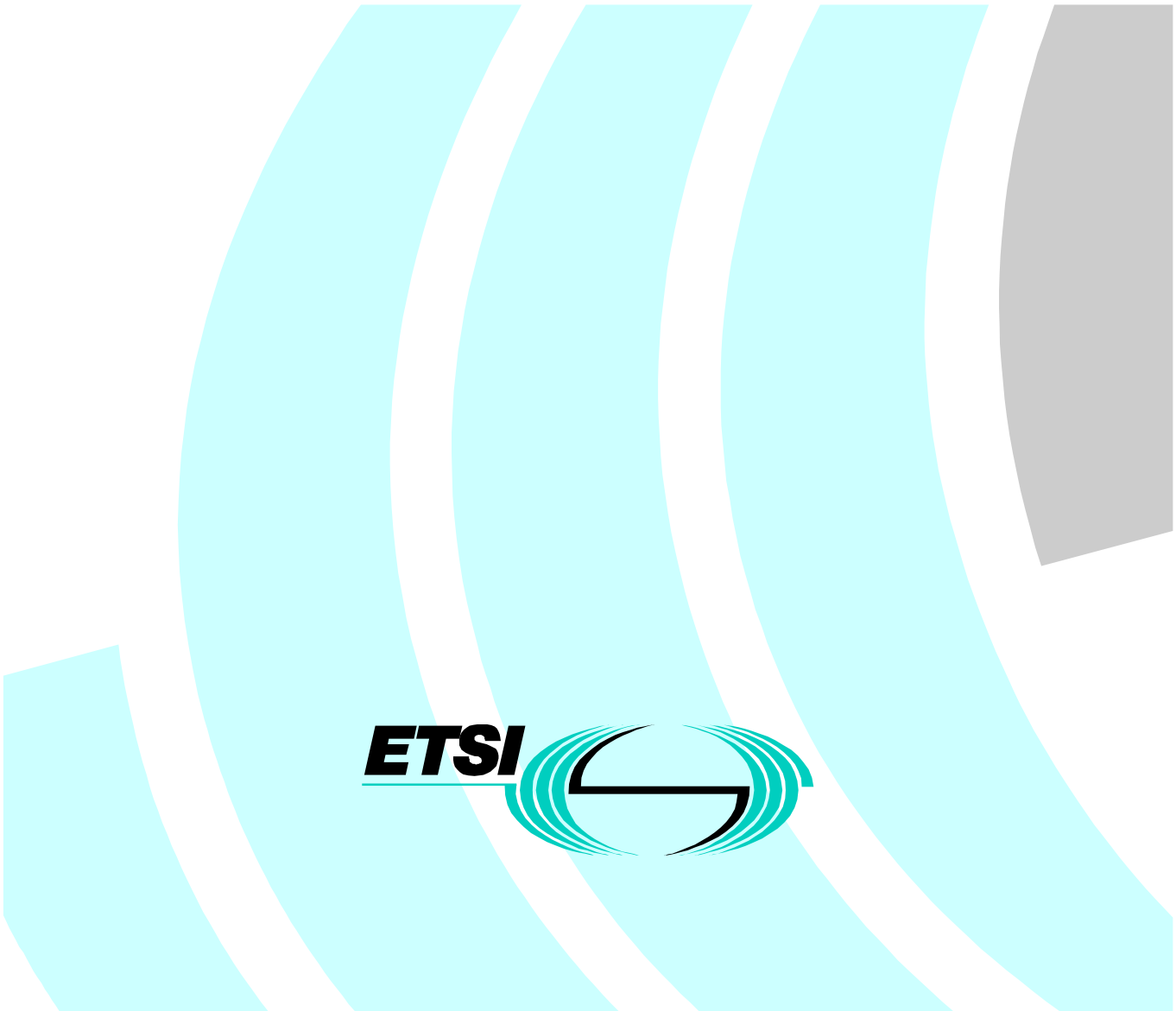
ETSI EN 300 417-5-2 V1.1.1 (1999-08)

European Standard (Telecommunications series)

**Transmission and Multiplexing (TM);
Generic requirements of transport functionality of equipment;
Part 5-2: Plesiochronous Digital Hierarchy (PDH)
path layer functions;
Implementation Conformance Statement (ICS)
proforma specification**



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Contents

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Transmission and Multiplexing (TM).

The present document is one of a family of documents that has been produced in order to provide inter-vendor and inter-operator compatibility of Synchronous Digital Hierarchy (SDH) equipment.

The present document is part 5-2 of a multi-part EN covering the generic requirements of transport functionality of equipment, as identified below:

Part 1-1: "Generic processes and performance";

Part 1-2: "General information about Implementation Conformance Statement (ICS) proforma";

Part 2-1: "Synchronous Digital Hierarchy (SDH) and Plesiochronous Digital Hierarchy (PDH) physical section layer functions";

Part 2-2: "Synchronous Digital Hierarchy (SDH) and Plesiochronous Digital Hierarchy (PDH) physical section layer functions; Implementation Conformance Statement (ICS) proforma specification";

Part 3-1: "Synchronous Transport Module-N (STM-N) regenerator and multiplex section layer functions";

Part 3-2: "Synchronous Transport Module-N (STM-N) regenerator and multiplex section layer functions; Implementation Conformance Statement (ICS) proforma specification";

Part 4-1: "Synchronous Digital Hierarchy (SDH) path layer functions";

Part 4-2: "Synchronous Digital Hierarchy (SDH) path layer functions; Implementation Conformance Statement (ICS) proforma specification";

Part 5-1: "Plesiochronous Digital Hierarchy (PDH) path layer functions";

Part 5-2: "Plesiochronous Digital Hierarchy (PDH) path layer functions; Implementation Conformance Statement (ICS) proforma specification";

Part 6-1: "Synchronization layer functions";

Part 6-2: "Synchronization layer functions; Implementation Conformance Statement (ICS) proforma specification";

Part 7-1: "Equipment management and auxiliary layer functions";

Part 7-2: "Auxiliary layer functions; Implementation Conformance Statement (ICS) proforma specification".

Parts 2 to 7 specify the layers and their atomic functions.

NOTE 1: The present document does not currently address configuration management.

NOTE 2: The SDH radio equipment functional blocks are addressed by ETSI WG TM4.

Various of the above parts have previously been published as parts of ETS 300 417.

They have been converted to parts of EN 300 417 without technical changes, but some editorial changes have been necessary (e.g. references). In particular:

- Parts 2-1, 2-2 and 3-2 have been modified to take account of editorial errors present in edition 1.
- Part 1-1 has had its title change of to align with other parts published at a later date.

Also note that in the meantime parts 8-1 and 8-2 together will all parts x-3 (Abstract Test Suites) have been stopped.

National transposition dates	
Date of adoption of this EN:	23 July 1999
Date of latest announcement of this EN (doa):	31 October 1999
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 April 2000
Date of withdrawal of any conflicting National Standard (dow):	30 April 2000

Introduction

To evaluate conformance of a particular implementation, it is necessary to have a statement of which capabilities and options have been implemented for a telecommunication specification. Such a statement is called an Implementation Conformance Statement (ICS).

A client of a test laboratory who requests a conformance/approval test shall provide to the test laboratory a completed ICS proforma for each layer to be tested and a detailed system description of the implementation.

The ICS proforma is not another complete description of the related specification, but rather a compact form of its static conformance requirements, to be used by the test laboratory to identify which test shall be performed on a given implementation. Not every feature of a profile specification is contained in the related ICS proforma. For particular cases requiring specific information the ICS can refer to the appropriate clause of the related specification by means of references, notes and or comments.

The ICS proforma captures the implementation flexibility allowed by the related specification and details which option are left to the implementor, which are conditionally dependent on other option taken by the implementor.

The ICS items in the present document are developed following an atomic-function basis, which means reporting the requirements atomic function per atomic function.

The ICS tables are organized in subclauses following the subclauses structure of the relevant base specification.

1 Scope

The present document provides the Implementation Conformance Statement (ICS) proforma for the SDH Path layer functions defined in EN 300 417-5-1 [1] in compliance with the relevant requirements, and in accordance with the relevant guidance given in ISO/IEC 9646-7 [5] and ETS 300 406 [3].

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[1] EN 300 417-5-1: "Transmission and Multiplexing (TM); Generic requirement of transport functionality of equipment; Part 5-1: Plesiochronous Digital Hierarchy (PDH) path layer functions".

[2] EN 300 417-1-1: "Transmission and Multiplexing (TM); Generic requirements of transport functionality of equipment; Part 1-1: Generic processes and performance".

[3] ETS 300 406: "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

[4] ISO/IEC 9646-1 (1995): "Information technology; Open systems interconnection; Conformance testing methodology and framework; Part 1: General concepts".

[5] ISO/IEC 9646-7 (1995): "Information technology; Open systems interconnection; Conformance testing methodology and framework; Part 7: Implementation Conformance Statements".

[6] ETS 300 147: "Transmission and Multiplexing (TM); Synchronous Digital Hierarchy (SDH); Multiplexing structure".

[7] ITU-T Recommendation G.704 (1991): "Synchronous frame structures used at primary and secondary hierarchical levels".

[8] ITU-T Recommendation G.751 (1988): "Digital multiplex equipments operating at third order bit rate of 34 368 kbit/s and the fourth order bit rate of 139 264 kbit/s and using positive justification".

[9] ITU-T Recommendation G.742 (1988): "Second order digital multiplex equipment operating at 8 448 kbit/s and using positive justification".

[10] ITU-T Recommendation G.823 (1988): "The control of jitter and wander within digital networks which are based on the 2 048 kbit/s hierarchy".

[11] ITU-T Recommendation G.825 (1993): "The control of jitter and wander within digital networks which are based on the synchronous digital hierarchy (SDH)".

[12] ITU-T Recommendation G.826 (1993): "Error performance parameters and objectives for international, constant bit rate digital paths at or above the primary rate".

[13] ITU-T Recommendation G.707 (1996): "Network node interface for the synchronous digital hierarchy (SDH)".

[14] ETS 300 746: "Transmission and Multiplexing (TM); Synchronous Digital Hierarchy (SDH); Network protection schemes; Automatic Protection Switch (APS) protocols and operation".

[15] IEEE Standard 802.6: "DQDB Access Method".

[16] ETS 300 337: "Transmission and Multiplexing (TM); Generic frame structures for the transport of various signals (including Asynchronous Transfer Mode (ATM) cells and Synchronous Digital Hierarchy (SDH) elements) at the ITU-T Recommendation G.702 hierarchical rates of 2 048 kbit/s, 34 368 kbit/s and 139 264 kbit/s".

[17] ETS 300 167: "Transmission and Multiplexing (TM); Functional characteristics of 2 048 kbit/s interfaces".

[18] EN 300 417-6-2: "Transmission and Multiplexing (TM); Generic requirements of transport functionality of equipment; Part 6-2: Synchronization layer functions; Implementation Conformance Statement (ICS) proforma specification".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

- terms defined in EN 300 417-5-1 [1];
- terms defined in ISO/IEC 9646-1 [4] and in ISO/IEC 9646-7 [5].

In particular, the following terms defined in ISO/IEC 9646-1 [4] apply:

Implementation Conformance Statement (ICS): statement made by the supplier of an implementation or system claimed to conform to a given specification, stating which capabilities have been implemented. The ICS can take several forms: protocol ICS, profile ICS, profile specific ICS, information object ICS, etc.

ICS proforma: document, in the form of a questionnaire, which when completed for an implementation or system becomes an ICS.

3.2 Abbreviations

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

A	Adaptation function
AcSL	Accepted Signal Label
AcTI	Accepted Trace identifier
ADM	Add-Drop Multiplexer
AI	Adapted Information
AIS	Alarm Indication Signal
AP	Access Point
APId	Access Point Identifier
ATM	Asynchronous Transfer Mode
AU	Administrative Unit
AU-n	Administrative Unit, level n
AUG	Administrative Unit Group
Avp	ATM Virtual Path
BER	Bit Error Ratio
BIP	Bit Interleaved Parity
BIP-N	Bit Interleaved Parity, width N
C	Connection function
CI	Characteristic Information
CK	Clock

CM	Connection Matrix
CP	Connection Point
CRC	Cyclic Redundancy Check
CS	Clock Source
D	Data
DCC	Data Communications Channel
DEC	Decrement
DEG	Degraded
DEGM	Degraded Monitor period
DEGTHR	Degraded Threshold
DS	Defect Second
EBC	Errored Block Count
EDC	Error Detection Code
EDCV	Error Detection Code Violation
EMF	Equipment Management Function
EQ	Equipment
ES	Errored Second
ETS	European Telecommunication Standard
ExTI	Expected Trace Identifier
F_B	Far-end Block
FAS	Frame Alignment Signal
FS	Frame Start signal
HEC	Header Error Control
HO	Higher Order
HOVC	Higher Order Virtual Container
HP	Higher order Path
ID	Identifier
IF	In Frame state
IM	In Multiframe state
INC	Increment
incAIS	incoming AIS
IUT	Implementation Under Test
LC	Link Connection, Layer Clock
LO	Lower Order
LOA	Loss Of Alignment; generic for LOF, LOM, LOP
LOF	Loss Of Frame
LOM	Loss Of Multiframe
LOP	Loss Of Pointer
LOVC	Lower Order Virtual Container
LTC	Loss of Tandem Connection
MC	Matrix Connection
MCF	Message Communications Function
MFAS	Multi Frame Alignment Signal
MFS	Multi-Frame Start
MI	Management Information
MON	Monitored
MP	Management Point
MSB	Most Significant Bit
N1[x][y]	bit x (x=7,8) of byte N1 in frame y (y=1.76)
N2[x][y]	bit x (x=7,8) of byte N2 in frame y (y=1.76)
N.C.	Not Connected
N_B	Near-end Block
NCI	No CRC-4 multiframe Indication
NDF	New Data Flag
NE	Network Element
NMON	Not Monitored
NU	National Use (bits, bytes)
NUx	National Use, bit rate order x
OAM	Operation, Administration and Management
ODI	Outgoing Defect Indication

OEI	Outgoing Error Indication
OF	Outgoing Far-end
OF_B	Outgoing Far-end VC Block
OFS	Out of Frame Second
OH	Overhead
ON	Outgoing Near-end
OOF	Out Of Frame state
OOM	Out Of Multiframe state
OSF	Outgoing Signal Fail
OSI(x)	Open Systems Interconnection, Layer x
P0s	synchronous 64 kbit/s layer
P0_31c	1 984 kbit/s layer
P12s	2 048 kbit/s PDH path layer with synchronous 125 µs frame structure according to ETS 300 167 [17]
P12x	2 048 kbit/s layer (transparent)
P22e	8 448 kbit/s PDH path layer with 4 plesiochronous 2 048 kbit/s
P22x	8 448 kbit/s layer (transparent)
P31e	34 368 kbit/s PDH path layer with 4 plesiochronous 8 448 kbit/s
P31x	34 368 kbit/s layer (transparent)
P4e	139 264 kbit/s PDH path layer with 4 plesiochronous 34 368 kbit/s
P4s	139 264 kbit/s PDH path layer with synchronous 125 µs frame structure according to ETS 300 337
P4x	139 264 kbit/s layer (transparent)
PDH	Plesiochronous Digital Hierarchy
PJE	Pointer Justification Event
PLM	Payload Mismatch
PM	Performance Monitoring
Pn	Plesiochronous signal, Level n
POH	Path Overhead
ppm	part per million
PRBS	Pseudo Random Binary Sequence
PRC	Primary Reference Clock
PTR	Pointer
PU	PDH Unit
QOS	Quality Of Service
RDI	Remote Defect Indicator
REI	Remote Error Indicator
RFI	Remote Failure Indicator
RI	Remote Information
RP	Remote Point
RxSL	Received Signal Label
RxTI	Received Trace identifier
S11*	TU-12 carrying a VC-11 path layer
S12	VC-12 path layer
S12D	VC-12 tandem connection sublayer
S12P	VC-12 protection sublayer
S2	VC-2 path layer
S2D	VC-2 tandem connection sublayer
S2P	VC-2 protection sublayer
S3	VC-3 path layer
S3D	VC-3 tandem connection sublayer
S3P	VC-3 protection sublayer
S4	VC-4 path layer
S4D	VC-4 tandem connection sublayer
S4P	VC-4 protection sublayer
S4-4c	contiguous concatenated VC-4-4c path layer
SD	Synchronization Distribution layer, Signal Degrade
SDH	Synchronous Digital Hierarchy
SF	Signal Fail
Sk	Sink
So	Source

SSD	Server Signal Degrade
SSF	Server Signal Fail
SSM	Synchronization Status Message
STM	Synchronous Transport Module
STM-N	Synchronous Transport Module, level N
SUT	System Under Test
TC	Tandem Connection
TCn	Tandem Connection level n
TCP	Termination Connection Point
TI	Timing Information
TI	Trace Identifier
TIM	Trace Identifier Mismatch
TIMdis	Trace Identifier Mismatch disable
TM	Transmission_Medium, Transmission & Multiplexing
TMN	Telecommunications Management Network
TP	Timing Point
TPmode	Termination Point mode
TS	Time Slot
TSD	Trail Signal Degrade
TSF	Trail Signal Fail
TT	Trail Termination function
TTI	Trail Trace Identifier
TTs	Trail Termination supervisory function
TU	Tributary Unit
TUG	Tributary Unit Group
TxTI	Transmitted Trace Identifier
UI	Unit Interval
UNEQ	Unequipped
VC	Virtual Container
VC-n	Virtual Container, level n

4 Conformance to this ICS proforma specification

If it claims to conform to the present document, 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 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 clause A.1.

For each layer instance, it's needed to fill a separate ICS Proforma depending on the layer instance.

Annex A (normative): ICS proforma for EN 300 417-5-1

A.1 Guidance for completing the ICS proforma

A.1.1 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 EN 300 417-5-1 [1] may provide information about the implementation in a standardized manner.

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

- instructions for completing the ICS proforma;
- identification of the implementation;
- identification of the ETS;
- global statement of conformance.

A.1.2 Abbreviations and conventions

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 [5].

Item column

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

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?".

Status column

The following notations, defined in ISO/IEC 9646-7 [5], 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 an unique group of related optional items and the logical 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 an unique conditional status expression which is defined immediately following the table. For nested conditional expressions, the syntax "IF ... THEN (IF ... THEN ... ELSE...) ELSE ..." shall be used to avoid ambiguities.

Reference column

The reference column gives reference to EN 300 417-5-1 [1], except where explicitly stated otherwise.

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 [5], 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).

If this ICS proforma is completed in order to describe a multiple-profile support in a system, it is necessary to be able to answer that a capability is supported for one profile and not supported for another. In that case, the supplier shall enter the unique reference to a conditional expression, preceded by "?" (e.g. ?3). This expression shall be given in the cell provided at the bottom of the table. It uses predicates defined in the SCS, each of which refers to a single profile and which takes the value TRUE if and only if that profile is to be used.

EXAMPLE 1: ?3: IF prof1 THEN Y ELSE N.

It is also possible to provide a comment to an answer in the space provided at the bottom of the table.

Values allowed column

The values allowed column contains the values or the ranges of values allowed.

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.

Mnemonic column

The Mnemonic column contains mnemonic identifiers for each item.

References to items

For each possible item answer (answer in the support column) within the ICS proforma exists a unique reference, 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 shall be discriminated by letters (a, b, etc.), respectively.

EXAMPLE 2: C.5/4 is the reference to the answer of item 4 in table 5 of annex C.

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

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.1.3 Instructions for completing the ICS proforma

The supplier of the implementation shall complete the ICS proforma in each of the spaces provided. However, the tables containing in "user role" subclause shall only be completed for user implementations, and the tables containing in "network role" subclause shall only be completed for network implementations. If necessary, the supplier may provide additional comments separately.

More detailed instructions are given at the beginning of the different subclauses of the ICS proforma.

Annex B (normative): ICS proforma for P4e Path Layer

B.1 Identification of the implementation

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.

In the present document, an IUT, and of course the identification of an IUT refers to a P4e Path Layer instance implemented inside the SUT.

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.1.1 Date of the statement

.....

B.1.2 Implementation Under Test (IUT) identification

IUT name:

.....

.....

IUT version

Hardware version:

.....

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Software version:

.....

.....

Firmware version:

.....

.....

B.1.3 System Under Test (SUT) identification

SUT name:

.....

.....

Hardware configuration:

.....

.....

SUT Software version:

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.....

SUT Firmware version:

.....

Operating system:

.....

.....

B.1.4 Product supplier

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

B.1.5 Client

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

B.1.6 ICS contact person

Name:

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

B.2 Identification of the ETS

This ICS proforma applies to the following standard:

EN 300 417-5-1 [1]: "Transmission and Multiplexing (TM); Generic requirement of transport functionality of equipment; Part 5-1: Plesiochronous Digital Hierarchy (PDH) path layer functions".

B.3 Global statement of conformance of P4e Path Layer

Due to the model used for this layer the "Global statement of conformance" sentence used in ETSI ICS is not applicable to this layer.

B.4 P4e Path Layer Functions

B.4.0 P4e Path Layer Description

Table B.1: P4e Path Layer functions

Item	P4e Path Layer functions	Reference	Status	Support
1	P4e Connection function (P4e_C).	4	o.101	
2	P4e Layer Trail Termination Source function (P4e_TT_So).	4, figure 1	o.101	
3	P4e Layer Trail Termination Sink function (P4e_TT_Sk).	4, figure 1	o.101	
4	P4e/P31s Layer Trail Adaptation Source function (P4e/P31s_A_So).	4, figure 1	c101	
5	P4e/P31s Layer Trail Adaptation Sink function (P4e/P31s_A_Sk).	4, figure 1	c102	
6	P4e/P31e Layer Trail Adaptation Source function (P4e/P31e_A_So).	4, figure 1	c101	
7	P4e/P31e Layer Trail Adaptation Sink function (P4e/P31e_A_Sk).	4, figure 1	c102	
8	P4e/P31x Layer Trail Adaptation Source function (P4e/P31x_A_So).	4, figure 1	c101	
9	P4e/P31x Layer Trail Adaptation Sink function (P4e/P31x_A_Sk).	4, figure 1	c102	
10	P4e Timing Atomic function (P4e_PEC).	4, figure 1	c103	
11	P4e Layer non-intrusive monitoring function (P4em_TT_Sk).	4, figure 1	o	
12	P4e Layer to Xxx Layer Adaptation Source function (P4e/Xxx_A_So)	n/a	c101	
13	P4e Layer to Xxx Layer Adaptation Sink function (P4e/Xxx_A_Sk)	n/a	c102	

o.101: It is mandatory to support at least one of these items -- connection function and/or trail termination source and/or trail termination sink present
o.102: It is mandatory to support at least one of these items -- at least one Payload Adaptation Source present
o.103: It is mandatory to support at least one of these items -- at least one Payload Adaptation Sink present
c101: IF B.1/2 THEN o.102 ELSE x -- a TT_So function should exist for A_So function
c102: IF B.1/3 THEN o.103 ELSE x -- a TT_Sk function should exist for A_Sk function
c103: IF B.1/4 OR B.1/6 OR B.1/8 THEN m ELSE x -- At least one P4e_A_So function exists

Comment: Items dealing with P4e/Xxx_A functions take into account the implementation of adaptation functions not specified or referenced in EN 300 417-x-1 standards.

Table B.2: Number of adaptation to P31 Layers source functions

Prerequisite: B.1/4 OR B.1/6 OR B.1/8 -- at least one adaptation source function exists

Item	Number of adaptation to P31 layers source functions	Reference	Status	Support	Values	
					Allowed	Supported
1	Number of supported P4e/P31s_A_So functions.	4, figure 1	c201		$1 \leq j1 \leq 4$	
2	Number of supported P4e/P31e_A_So functions.	4, figure 1	c202		$1 \leq j2 \leq 4$	
3	Number of supported P4e/P31x_A_So functions.	4, figure 1	c203		$1 \leq j3 \leq 4$	
4	Number of P4e/P31w_A_So (w = s, e, x) functions supported: j1+j2+j3.	4, figure 1	m		$j1 + j2 + j3 \geq 4$	
5	The equivalent capacity of P4e/P31w_A_So (w = s, e, x) functions supported exceeds the 4 PU31 timeslots available in the P4e_CI (j1+j2+j3>4).		c204		___	

c201: IF B.1/4 THEN m ELSE n/a -- P4/P31s_A_So supported
c202: IF B.1/6 THEN m ELSE n/a -- P4/P31e_A_So supported
c203: IF B.1/8 THEN m ELSE n/a -- P4/P31x_A_So supported
c204: IF (B.1/4 AND B.1/6 AND B.1/8) OR (B.1/4 AND B.1/6) OR (B.1/4 AND B.1/8) OR (B.1/6 AND B.1/8) THEN o ELSE n/a -- multiple P4e/P31w_A_So (w = x, e, s) supported

Table B.3: Number of adaptation to P31 Layers sink functions

Prerequisite: B.1/5 OR B.1/7 OR B.1/9 -- at least one adaptation sink function exists

Item	Number of adaptation to P31 layers sink functions	Reference	Status	Support	Values	
					Allowed	Supported
1	Number of supported P4e/P31s_A_Sk functions.	4, figure 1	c301		1≤ j4 ≤4	
2	Number of supported P4e/P31e_A_Sk functions.	4, figure 1	c302		1≤ j5 ≤ 4	
3	Number of supported P4e/P31x_A_Sk functions.	4, figure 1	c303		1≤ j6 ≤ 4	
4	Number of P4e/P31w_A_Sk (w = s, e, x) functions supported: j4+j5+j6.	4, figure 1	m		j4 + j5 + j6 ≥ 4	
5	The equivalent capacity of P4e/P31w_A_Sk (w = s, e, x) functions supported exceeds the 4 PU31 timeslots available in the P4e_CI (j4+j5+j6>4).		c304		-	

c301: IF B.1/5 THEN m ELSE n/a -- P4/P31s_A_Sk supported
c302: IF B.1/7 THEN m ELSE n/a -- P4/P31e_A_Sk supported
c303: IF B.1/9 THEN m ELSE n/a -- P4/P31x_A_Sk supported
c304: IF (B.1/5 AND B.1/7 AND B.1/9) OR
(B.1/5 AND B.1/7) OR (B.1/5 AND B.1/9) OR
(B.1/7 AND B.1/9) THEN o ELSE n/a -- multiple P4e/P31w_A_Sk (w = x, e, s) supported

B.4.0.1 Characteristic Information

Table B.4: P4e Characteristic Information

Prerequisite: B.1/1 OR B.1/2 OR B.1/3 -- implies that at least one P4e Layer Trail Termination or Connection function is present

Item	P4e Characteristic Information	Reference	Status	Support
1	The characteristic information (CI) is a 139 264 kbits/s signal with co-directional bit timing and frame start information and conforms to G.751.	4, figure 1, G.751	m	
2	The CI is structured to form a 2 928 bit long frame with 16 bit frame overhead.	4, figure 2, G.751	m	
3	The CI contains a FAS overhead in bits 1 to 12.	4, figure 2, G.751	m	
4	The CI contains a RDI bit in bit 13.	4, figure 2, G.751	m	
5	The CI contains three user Bits for National Use in bits 14 to 16.	4, figure 2, G.751	m	

B.4.0.2 Adapted information

Table B.5: P4e Adapted Information

Prerequisite: B.1/2 OR B.1/3 -- implies that at least one P4e Layer Trail Termination function is present

Item	P4e Adapted Information	Reference	Status	Support
1	The adapted information (AI) is a multiplexed signal containing four tributary signals PU31 with co-directional bit timing and frame start information.	4	m	
2	The PU31 is a 34 368 kbit/s non-structured signal (P31x_CI).	4	c501	
3	The PU31 is a 34 368 kbit/s frame structured signal conforming to G.751, with justification overhead bits (P31e_CI).	4, G.751	c502	
4	The PU31 is a 34 368 kbit/s signal with a frame structure conforming to ETS 300 337, with justification overhead bits (P31s_CI).	4, ETS 300 337	c503	

o.501: It is mandatory to support at least one of these items -- at least one type of payload supported
c501: IF B.1/8 OR B.1/9 THEN o.501 ELSE n/a -- a P4e/P31x_A exists
c502: IF B.1/6 OR B.1/7 THEN o.501 ELSE n/a -- a P4e/P31e_A exists
c503: IF B.1/4 OR B.1/5 THEN o.501 ELSE n/a -- a P4e/P31s_A exists

B.4.1 P4e Connection function

Table B.6: P4e Connection function

Prerequisite: B.1/1 -- a connection function exists

Item	P4e Connection function	Reference	Status	Support
1	No requirements	4.1	n/a	

B.4.2 P4e Trail Termination functions

Prerequisite: B.1/2 OR B.1/3 -- a trail termination function exists

B.4.2.1 P4e Trail Termination Source P4e_TT_So

Prerequisite: B.1/2 -- a trail termination source function exists

B.4.2.1.1 Processes (P4e_TT_So)

Table B.7: Frame Alignment Signal insertion (P4e_TT_So)

Item	Frame Alignment Signal insertion (P4e_TT_So)	Reference	Status	Support
1	The Frame Alignment Signal (111110 100000) is inserted into the frame overhead.	4.2.1	m	

Table B.8: RDI insertion/removal (P4e_TT_So)

Prerequisite: B.1/2 AND B.1/3 -- bi-directional layer supported

Item	RDI insertion (P4e_TT_So)	Reference	Status	Support
1	The RDI bit is set to "1" within 900 µs on activation of P4e_RI_RDI.	4.2.1	m	
2	The RDI bit is set to "0" within 900 µs on removal of P4e_RI_RDI.	4.2.1	m	

B.4.2.2 P4e Trail Termination Sink P4e_TT_Sk

Prerequisite: B.1/3 -- a termination sink function exists

B.4.2.2.1 Management information (P4e_TT_Sk)

Table B.9: Configuration/provisioning of information from EMF to P4e_TT_Sk

Item	Configuration/provisioning of information from EMF to P4e_TT_Sk	Reference	Status	Support
1	P4e_TT_Sk_MI_TPmode is provisionable from the EMF.	4.2.2	m	
2	P4e_TT_Sk_MI_SSF_Reported is provisionable from the EMF.	4.2.2	m	
3	P4e_TT_Sk_MI_RDI_Reported is provisionable from the EMF.	4.2.2	c901	
4	P4e_TT_Sk_MI_1second is provisioned by the EMF.	4.2.2	m	

c901: IF B.1/2 AND B.1/3 THEN m ELSE x -- bi-directional layer supported

Table B.10: Signal reports from P4e_TT_Sk to EMF

Item	Signal reports from P4e_TT_Sk to EMF	Reference	Status	Support
1	P4e_TT_Sk_MI_cRDI is reported to the EMF.	4.2.2	c1001	
2	P4e_TT_Sk_MI_cSSF is reported to the EMF.	4.2.2	m	
3	P4e_TT_Sk_MI_pN_DS is reported to the EMF.	4.2.2	m	
4	P4e_TT_Sk_MI_pN_EBC is reported to the EMF.	4.2.2	m	
5	P4e_TT_Sk_MI_pF_DS is reported to the EMF.	4.2.2	c1001	

c1001: IF B.1/2 AND B.1/3 THEN m ELSE x -- bi-directional layer supported

B.4.2.2.2 Processes (P4e_TT_Sk)

Table B.11: Trail Termination Point mode process

Prerequisite: B.9/11 -- MI_TPmode provisionable from the EMF

Item	Trail Termination Point mode process	Reference	Status	Support
1	The Trail Termination Point Mode supports "not monitored" (NMON) status.	EN 300 417-1-1 subclause 8.5	m	
2	The Trail Termination Point Mode supports "monitored" (MON) status.	EN 300 417-1-1 subclause 8.5	m	

Table B.12: FAS and error detection

Item	FAS and error detection	Reference	Status	Support
1	The FAS bits of each received frame are compared to their expected value "111110 100000" and a difference is taken as evidence of one or more errors (nN_B) in the block.	4.2.2	m	

Table B.13: RDI processing

Prerequisite: B.1/2 AND B.1/3 -- bi-directional layer supported

Item	RDI processing	Reference	Status	Support
1	A "1" in the RDI bit indicates an RDI state.	4.2.2	m	
2	A "0" in the RDI bit indicates the normal state.	4.2.2	m	

B.4.2.2.3 Defects (P4e_TT_Sk)

Table B.14: Defects for P4e_TT_Sk

Prerequisite: B.1/2 AND B.1/3 -- bi-directional layer supported

Item	Defects for P4e_TT_Sk	Reference	Status	Support
1	The function detects the dRDI defect according to the specification in EN 300 417-1-1, subclauses 7.4.1, 8.2.1.5, 8.2.2.2.	4.2.2, EN 300 417-1-1 subclause 7.4.1, 8.2.1.5, 8.2.2.2	m	

B.4.2.2.4 Consequent actions (P4e_TT_Sk)

Table B.15: Consequent actions for P4e_TT_Sk

Item	Consequent actions for P4e_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: aTSF <-- CI_SSF.	4.2.2	m	
2	The function implements the following logical equation: aRDI <-- CI_SSF.	4.2.2	c1501	

c1501: IF B.1/2 AND B.1/3 THEN m ELSE n/a -- bi-directional layer supported

B.4.2.2.5 Defect Correlations (P4e_TT_Sk)

Table B.16: Defect Correlations for P4e_TT_Sk

Item	Defect Correlations for P4e_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: cRDI <-- dRDI and MON and RDI_Reported.	4.2.2	c1601	
2	The function implements the following logical equation: cSSF <-- CI_SSF and MON and SSF_Reported.	4.2.2	c1602	

c1601: IF B.10/1 THEN m ELSE n/a -- cRDI is reported
c1602: IF B.10/2 THEN m ELSE n/a -- cSSF is reported

B.4.2.2.6 Performance monitoring (P4e_TT_Sk)

Table B.17: Performance Monitoring (P4e_TT_Sk)

Item	Performance Monitoring (P4e_TT_Sk)	Reference	Status	Support
1	The function implements the following logical equation: pN_DS <-- aTSF or dEQ.	4.2.2	c1701	
2	The function implements the following logical equation: pF_DS <-- dRDI.	4.2.2	c1702	
3	The function implements the following logical equation: pN_EBC <-- Sum(nN_B).	4.2.2	c1703	
4	The "Sum" is calculated over a one-second period.	4.2.2	c1703	

c1701: IF B.10/3 THEN m ELSE n/a -- pN_DS is reported
c1702: IF B.10/5 THEN m ELSE n/a -- pF_DS is reported
c1703: IF B.10/4 THEN m ELSE n/a -- pN_EBC is reported

B.4.3 P4e Adaptation functions

B.4.3.1 P4e to P31x Adaptation Source P4e/P31x_A_So/i

Prerequisite: B.1/8 -- P4e to P31x adaptation source function exists

B.4.3.1.1 Management information (P4e/P31x_A_So)

Table B.18: Configuration/provisioning information from EMF to P4e/P31x_A_So

Item	Configuration/provisioning information from EMF to P4e/P31x_A_So	Reference	Status	Support
1	P4e/P31x_A_So_MI_Active is provisionable from the EMF.	4.3.1	c1801	
2	The function can be activated (P4e/P31x_A_So_MI_Active is TRUE) and deactivated (P4e/P31x_A_So_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	4.3.1	c1802	

c1801: IF B.2/5 THEN m ELSE n/a -- equivalent capacity of P4e/P31w_A_So (w = s, e, x) functions exceeds 4 PU31 timeslots
c1802: IF B.18/1 THEN m ELSE n/a -- P4e/P31x_A_So_MI_Active provisionable

B.4.3.1.2 Processes (P4e/P31x_A_So)

Table B.19: Adaptation process for P4e/P31x_A_So

Item	Adaptation process for P4e/P31x_A_So	Reference	Status	Support
1	The function maps one plesiochronous, 34 368 kbit/s, P31 information stream into the P4e frame, as specified in ITU-T Recommendation G.751, subclause 1.5.2.	4.3.1, figure 2, G.751 subclause 1.5.2	m	
2	The function takes P31x_CI, a bit-stream with a rate of 34 368 kbit/s ± 20 ppm and inserts it into the PU31 #i.	4.3.1, figure 3	m	

Table B.20: Frequency justification and bitrate adaptation (P4e/P31x_A_So)

Prerequisite: B.19/1 -- mapping of P31x_CI into the P4e frame supported

Item	Frequency justification and bitrate adaptation (P4e/P31x_A_So)	Reference	Status	Support
1	The function provides for an elastic store (buffer) process.	4.3.1	m	
2	The data signal is written into the buffer under control of the associated input clock.	4.3.1	m	
3	The data signal is read out of the buffer under control of the P4e clock, frame position (P4e_TI), and justification decisions.	4.3.1	m	
4	Each justification decision results in a corresponding positive justification action. Upon a positive justification action, the reading of 1 data bit is cancelled once and no data are written at the justification opportunity bit J.	4.3.1, G.751	m	
5	The buffer size is such that this justification process does not introduce any errors when the input clock (P31x CI_CK) has a frequency within the range 34 368 kbit/s ± 20 ppm and a jitter specified by ITU-T Recommendation G.823, and the P4e clock (P4e_TI_CK) has a frequency and jitter within the range specified in subclause 4.5.	4.3.1, 4.5, G.823	m	
6	The function generates the justification control (CCCCC) bits according to the specification in ITU-T Recommendation G.751 and inserts them in the appropriate C bit positions.	4.3.1, G.751	m	

Table B.21: Activation of P4e/P31x_A_So functions and timeslot access

Prerequisite: B.19/1 -- mapping of P31x_CI into the P4e frame supported

Item	Activation of P4e/P31x_A_So functions and timeslot access	Reference	Status	Support
1	The adaptation source function has access to PU-31 #i of the P4e access point.	4.3.1	m	
2	The function accesses the access point only when it is activated (MI_Active is true).	4.3.1	c2101	

c2101: IF B.18/1 THEN m ELSE n/a -- P4e/P31x_A_So_MI_Active provisionable

B.4.3.2 P4e to P31x Adaptation Sink P4e/P31x_A_Sk/i

Prerequisite: B.1/9 -- P4e to P31x adaptation sink function exists

B.4.3.2.1 Management information (P4e/P31x_A_Sk)

Table B.22: Configuration/provisioning information from EMF to P4e/P31x_A_Sk

Item	Configuration/provisioning information from EMF to P4e/P31x_A_Sk	Reference	Status	Support
1	P4e/P31x_A_Sk_MI_Active is provisionable from the EMF.	4.3.2	c2201	
2	The function can be activated (P4e/P31x_A_Sk_MI_Active is TRUE) and deactivated (P4e/P31x_A_Sk_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	4.3.2	c2202	

c2201: IF B.3/5 THEN m ELSE n/a -- equivalent capacity of P4e/P31w_A_Sk (w = s, e, x) functions exceeds 4 PU31 timeslots

c2202: IF B.22/1 THEN m ELSE n/a -- P4e/P31x_A_Sk_MI_Active provisionable

B.4.3.2.2 Processes (P4e/P31x_A_Sk)

Table B.23: Adaptation process for P4e/P31x_A_Sk

Item	Adaptation process for P4e/P31x_A_Sk	Reference	Status	Support
1	This function recovers one plesiochronous, 34 368 kbit/s, information stream P31 from the P4e frame as specified in ITU-T Recommendation G.751, subclause 1.5.2.	4.3.2, figure 2, figure 3, G.751 subclause 1.5.2	m	

Table B.24: Justification control interpretation for P4e/P31x_A_Sk

Prerequisite: B.23/1 -- demapping of P31x_CI from the P4e frame supported

Item	Justification control interpretation for P4e/P31x_A_Sk	Reference	Status	Support
1	The function performs justification control interpretation according ITU-T Recommendation G.751.	4.3.2, G.751	m	
2	If the majority of the C bits is "0" the J bit is taken as a data bit.	4.3.2, G.751	m	
3	If the majority of C bits is "1" J bit is taken as a justification bit and consequently ignored.	4.3.2, G.751	m	

Table B.25: Smoothing and jitter limiting process for P4e/P31x_A_Sk

Prerequisite: B.23/1 -- demapping of P31x_CI from the P4e frame supported

Item	Smoothing and jitter limiting process for P4e/P31x_A_Sk	Reference	Status	Support
1	The function provides for a clock smoothing and elastic store (buffer) process.	4.3.2, G.751	m	
2	The 34 368 kbit/s data signal is written into the buffer under control of the associated (gapped) input clock.	4.3.2, G.751	m	
3	The data signal is read out of the buffer under control of a smoothed (equally spaced) 34 368 kHz ± 20 ppm clock.	4.3.2	m	
4	The residual jitter caused by bit justifications (measured at the 34 368 kbit/s interface) is such that the peak-to-peak jitter at the 34 368 kbit/s output (being a tributary) in the absence of input jitter does not exceed 0,3 UI when measured in the frequency range up to 800 kHz.	4.3.2	m	
5	When measured with an instrument incorporating a bandpass filter having a lower cut-off frequency of 10 kHz, a roll-off of 20 dB/decade and an upper limit of 800 kHz, the peak-to-peak output jitter does not exceed 0,05 UI with a probability of 99,9 % during a measurement period of 10 s.	4.3.2	m	
6	A 34 368 kbit/s signal, modulated by sinusoidal jitter, applied to an adaptation source and retrieved from the adaptation sink, has a jitter transfer characteristic within the gain/frequency limits given in figure 8.	4.3.2, figure 8	m	
7	The buffer size is such that in the presence of jitter as specified in ITU-T Recommendation G.823 and a frequency within the range 34 368 kbit/s ± 20 ppm, this justification process does not introduce any errors.	4.3.2, 4.5, G.823	m	
8	Following a step in frequency of the P31x signal transported by the P4e_AI there will be a maximum recovery time of X seconds after which this process does not generate any bit errors.	4.3.2, G.823	n/a	

Table B.26: Activation of P4e/P31x_A_Sk functions and timeslot access

Prerequisite: B.23/1 -- demapping of P31x_CI from the P4e frame supported

Item	Activation of P4e/P31x_A_Sk functions and timeslot access	Reference	Status	Support
1	The adaptation sink function has access to a PU-31 # i of the P4e access point.	4.3.2	m	
2	The function performs the operation specified above when it is activated (MI_Active is true).	4.3.2	c2601	
3	If the function is not active (MI_Active is False) it transmits the all-ONEs signal at its output (CI_D).	4.3.2	c2601	
4	If the function is not active (MI_Active is False) it does not report its status via the management point.	4.3.2	c2601	

c2601: IF B.22/1 THEN m ELSE n/a -- P4e/P31x_A_Sk_MI_Active provisionable

B.4.3.2.3 Consequent actions (P4e/P31x_A_Sk)

Table B.27: Consequent actions for P4e/P31x_A_Sk

Item	Consequent actions for P4e/P31x_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- AI_TSF.	4.3.2	m	
2	On declaration of aAIS the function outputs an all-ONEs (AIS) - complying to the frequency limits for this signal (a bit rate in range 34 368 kbit/s ± 20 ppm) - signal within 900 µs.	4.3.2	m	
3	On clearing of aAIS the function outputs normal data within 900 µs.	4.3.2	m	
4	The function implements the following logical equation: aSSF <-- AI_TSF.	4.3.2	m	

B.4.3.3 P4e to P31e Adaptation Source P4e/P31e_A_So/i

Prerequisite: B.1/6 -- a P4e/P31e Adaptation source function exists

B.4.3.3.1 Management information (P4e/P31e_A_So)

Table B.28: Configuration/provisioning information from EMF to P4e/P31e_A_So

Item	Configuration/provisioning information from EMF to P4e/P31e_A_So	Reference	Status	Support
1	P4e/P31e_A_So_MI_Active is provisionable from the EMF.	4.3.3	c2801	
2	The function can be activated (P4e/P31e_A_So_MI_Active is TRUE) and deactivated (P4e/P31e_A_So_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	4.3.3	c2802	

c2801: IF B.2/5 THEN m ELSE n/a -- equivalent capacity of P4e/P31w_A_So (w = s, e, x) functions exceeds 4 PU31 timeslots

c2802: IF B.28/1 THEN m ELSE n/a -- P4e/P31e_A_So_MI_Active provisionable

B.4.3.3.2 Processes (P4e/P31e_A_So)

Table B.29: Adaptation process for P4e/P31e_A_So

Item	Adaptation process for P4e/P31e_A_So	Reference	Status	Support
1	The function maps one plesiochronous, 34 368 kbit/s, P31 information stream into the P4e frame as specified in ITU-T Recommendation G.751, subclause 1.5.2.	4.3.3, figure 2, G.751 subclause 1.5.2	m	
2	The function takes P31e_CI, a bit-stream with a rate of 34 368 kbit/s ± 20 ppm and inserts it into the PU31 #i.	4.3.3, figure 3	m	

Table B.30: Frequency justification and bitrate adaptation for P4e/P31e_A_So

Prerequisite: B.29/1 -- mapping of P31e_CI into the P4e frame supported

Item	Frequency justification and bitrate adaptation for P4e/P31e_A_So	Reference	Status	Support
1	The function provides for an elastic store (buffer) process.	4.3.3	m	
2	The data signal is written into the buffer under control of the associated input clock.	4.3.3	m	
3	The data signal is read out of the buffer under control of the P4e clock, frame position (P4e_TI), and justification decisions.	4.3.3	m	
4	Each justification decision results in a corresponding positive justification action. Upon a positive justification action, the reading of 1 data bit is cancelled once and no data are written at the justification opportunity bit J.	4.3.3, G.751	m	
5	the buffer size is such that this justification process does not introduce any errors when the input clock (P31e CI_CK) has a frequency within the range 34 368 kbit/s ± 20 ppm and a jitter specified by ITU-T Recommendation G.823, and the P4e clock (P4e_TI_CK) has a frequency and jitter within the range specified in subclause 4.5.	4.3.3, 4.5, G.823	m	
6	The function generates the justification control (CCCCC) bits according to the specification in ITU-T Recommendation G.751 and inserts them in the appropriate C bit positions.	4.3.3, G.751	m	

Table B.31: Activation of P4e/P31e_A_So functions and timeslot access

Prerequisite: B.29/1 -- mapping of P31e_CI into the P4e frame supported

Item	Activation of P4e/P31e_A_So functions and timeslot access	Reference	Status	Support
1	The adaptation source function has access to a PU-31 #i of the P4e access point.	4.3.3	m	
2	The function accesses the access point only when it is activated (MI_Active is true).	4.3.3	c3101	

c3101: IF B.28/1 THEN m ELSE n/a -- P4e/P31e_A_So_MI_Active is provisionable

B.4.3.4 P4e to P31e Adaptation Sink P4e/P31e_A_Sk/i

Prerequisite: B.1/7 -- P4e to P31e adaptation sink function exists

B.4.3.4.1 Management information(P4e/P31e_A_Sk)

Table B.32: Configuration/provisioning information from EMF to P4e/P31e_A_Sk

Item	Configuration/provisioning information from EMF to P4e/P31e_A_Sk	Reference	Status	Support
1	P4e/P31e_A_Sk_MI_Active is provisionable from the EMF.	4.3.4	c3201	
2	P4e/P31e_A_Sk_MI_AIS_Reported is provisionable from the EMF.	4.3.4	m	
3	The function can be activated (P4e/P31e_A_Sk_MI_Active is TRUE) and deactivated (P4e/P31e_A_Sk_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	4.3.4	c3202	

c3201: IF B.3/5 THEN m ELSE n/a -- equivalent capacity of P4e/P31w_A_Sk (w = s, e, x) functions exceeds 4 PU31 timeslots

c3202: IF B.32/1 THEN m ELSE n/a -- P4e/P31e_A_Sk_MI_Active provisionable

Table B.33: Signal reports from P4e/P31e_A_Sk to EMF

Item	Signal reports from P4e/P31e_A_Sk to EMF	Reference	Status	Support
1	P4e/P31e_A_Sk_MI_cLOF is reported to the EMF.	4.3.4	m	
2	P4e/P31e_A_Sk_MI_cAIS is reported to the EMF.	4.3.4	m	

B.4.3.4.2 Processes (P4e/P31e_A_Sk)

Table B.34: Adaptation process for P4e/P31e_A_Sk

Item	Adaptation process for P4e/P31e_A_Sk	Reference	Status	Support
1	This function recovers one plesiochronous, 34 368 kbit/s, information stream P31 from the P4e frame as specified in ITU-T Recommendation G.751, subclause 1.5.2.	4.3.4, figure 2, figure 3, G.751, subclause 1.5.2	m	
2	The function performs the frame alignment of the 34 368 kbit/s signal to recover the frame start signal FS.	4.3.4	m	

Table B.35: Justification control interpretation for P4e/P31e_A_Sk

Prerequisite: B.34/1 -- demapping of P31e_CI from the P4e frame supported

Item	Justification control interpretation for P4e/P31e_A_Sk	Reference	Status	Support
1	The function performs justification control interpretation according ITU-T Recommendation G.751.	4.3.4, G.751	m	
2	If the majority of the C bits is "0" the J bit is taken as a data bit.	4.3.4, G.751	m	
3	If the majority of C bits is "1", J bit is taken as a justification bit and consequently ignored.	4.3.4, G.751	m	

Table B.36: Smoothing and jitter limiting process(P4e/P31e_A_Sk)

Prerequisite: B.34/1 -- demapping of P31e_CI from the P4e frame supported

Item	Smoothing and jitter limiting process(P4e/P31e_A_Sk)	Reference	Status	Support
1	The function provides for a clock smoothing and elastic store (buffer) process.	4.3.4, G.751	m	
2	The 34 368 kbit/s data signal is written into the buffer under control of the associated (gapped) input clock.	4.3.4, G.751	m	
3	The data signal is read out of the buffer under control of a smoothed (equally spaced) 34 368 kHz ± 20 ppm clock.	4.3.4	m	
4	The residual jitter is for further study.	4.3.4	n/a	
5	The buffer size is such that in the presence of jitter as specified in ITU-T Recommendation G.823 and a frequency within the range 34 368 kbit/s ± 20 ppm, this justification process does not introduce any errors.	4.3.4, G.823	m	
6	Following a step in frequency of the P31e signal transported by the P4e_AI there will be a maximum recovery time of X seconds after which this process does not generate any bit errors.	4.3.4, G.823	n/a	

Table B.37: Activation of P4e/P31e_A_Sk functions and timeslot access

Prerequisite: B.34/1 -- demapping of P31e_CI from the P4e frame supported

Item	Activation of P4e/P31e_A_Sk functions and timeslot access	Reference	Status	Support
1	The adaptation sink function has access to a PU-31 #i of the P4e access point.	4.3.4	m	
2	The function performs the operation specified above when it is activated (MI_Active is true).	4.3.4	c3701	
3	If the function is not active (MI_Active is False) it transmits the all-ONEs signal at its output (CI_D).	4.3.4	c3701	
4	If the function is not active (MI_Active is False) it does not report its status via the management point.	4.3.4	c3702	

c3701: IF B.32/1 THEN m ELSE n/a -- P4e/P31e_A_Sk_MI_Active provisionable

c3702: IF B.32/1 AND (B.33/1 OR B.33/2) THEN m ELSE n/a -- P4e/P31e_A_Sk_MI_Active provisionable and MI signals reported to the EMF

Table B.38: Frame alignment recovery for P4e/P31e_A_Sk

Prerequisite: B.34/2 -- frame alignment supported

Item	Frame alignment recovery for P4e/P31e_A_Sk	Reference	Status	Support
1	Loss of frame alignment is assumed to have taken place when four consecutive frame alignment signals have been incorrectly received in their predicted positions.	4.3.4	m	
2	When frame alignment is assumed to be lost, the frame alignment device decides that such alignment has effectively been recovered when it detects the presence of three consecutive frame alignment signals.	4.3.4	m	
3	The frame alignment device having detected the appearance of a single correct frame alignment signal, begins a new search for the frame alignment signal when it detects the absence of the frame alignment signal in one of the two following frames.	4.3.4	m	

B.4.3.4.3 Defects (P4e/P31e_A_Sk)

Table B.39: Defects for P4e/P31e_A_Sk

Item	Defects for P4e/P31e_A_Sk	Reference	Status	Support
1	The function detects a loss of frame defect (dLOF) when four consecutive frame alignment signals have been incorrectly received in their predicted positions.	4.3.4	m	
2	The dLOF defect is cleared when three consecutive frame alignment signals are detected.	4.3.4	m	
3	The function detects an AIS defect (dAIS) according to the specification in subclause 8.2.1.7 in EN 300 417-1-1.	4.3.4, EN 300 417-1-1 subclause 8.2.1.7	m	
4	For the dAIS detection/clearance procedure the value of X is: X = 4.	4.3.4	m	
5	For the dAIS detection/clearance procedure the value of Y is: Y = 1 536.	4.3.4	m	
6	For the dAIS detection/clearance procedure the value of Z is: Z = 5.	4.3.4	m	

B.4.3.4.4 Consequent actions (P4e/P31e_A_Sk)

Table B.40: Consequent Actions for P4e/P31e_A_Sk

Item	Consequent Actions for P4e/P31e_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- dAIS or dLOF.	4.3.4	m	
2	On declaration of aAIS the function outputs an all-ONEs (AIS) signal - complying to the frequency limits for this signal (a bit rate in range 34 368 kbit/s ± 20 ppm) - within 900 µs.	4.3.4	m	
3	On clearing of aAIS the function outputs normal data within 900 µs.	4.3.4	m	
4	The function implements the following logical equation: aSSF <-- dAIS or dLOF.	4.3.4	m	

B.4.3.4.5 Defect Correlations (P4e/P31e_A_Sk)

Table B.41: Defect correlations for P4e/P31e_A_Sk

Item	Defect correlations for P4e/P31e_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: cAIS <-- dAIS and (not AI_TSF) and AIS_Reported.	4.3.4	c4101	
2	The function implements the following logical equation: cLOF <-- dLOF and not dAIS.	4.3.4	c4102	

c4101: IF B.33/2 THEN m ELSE n/a -- cAIS supported
c4102: IF B.33/1 THEN m ELSE n/a -- cLOF supported

B.4.3.5 P4e to P31s Adaptation Source P4e/P31s_A_So/i

Prerequisite: B 1/4 -- a P4/P31s Adaptation source function exists

B.4.3.5.1 Management information (P4e/P31s_A_So/i)

Table B.42: Configuration/provisioning information from EMF to P4e/P31s_A_So

Item	Configuration/provisioning information from EMF to P4e/P31s_A_So	Reference	Status	Support
1	P4e/P31s_A_So_MI_Active is provisionable from the EMF.	4.3.5	c4201	
2	The function can be activated (P4e/P31s_A_So_MI_Active is TRUE) and deactivated (P4e/P31s_A_So_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	4.3.5	c4202	

c4201: IF B.2/5 THEN m ELSE n/a -- equivalent capacity of P4e/P31w_A_So (w = s, e, x) functions exceeds 4 PU31 timeslots

c4202: IF B.42/1 THEN m ELSE n/a -- P4e/P31s_A_So_MI_Active provisionable

B.4.3.5.2 Processes (P4e/P31s_A_So/i)

Table B.43: Adaptation process for P4e/P31s_A_So

Item	Adaptation process for in P4e/P31s_A_So	Reference	Status	Support
1	This function maps one synchronous, 34 368 kbit/s, P31 information stream into the P4e frame as specified in ITU-T Recommendation G.751, subclause 1.5.2.	4.3.5, figure 2, G.751 subclause 1.5.2	m	
2	The function takes P31s_CI, a bit-stream with a rate of 34 368 kbit/s ± 4,6 ppm and inserts it into the PU31 #i.	4.3.5, figure 3	m	

Table B.44: Frequency justification and bitrate adaptation for P4e/P31s_A_So

Prerequisite: B.43/1 -- mapping of P31s_CI into the P4e frame supported

Item	Frequency justification and bitrate adaptation for P4e/P31s_A_So	Reference	Status	Support
1	The function provides for an elastic store (buffer) process.	4.3.5	m	
2	The data signal is written into the buffer under control of the associated input clock.	4.3.5	m	
3	The data signal is read out of the buffer under control of the P4e clock, frame position (P4e_TI), and justification decisions.	4.3.5	m	
4	Each justification decision results in a corresponding positive justification action. Upon a positive justification action, the reading of 1 data bit is cancelled once and no data are written at the justification opportunity bit J.	4.3.5, G.751	m	
5	The buffer size is such that this justification process does not introduce any errors when the input clock (P31s CI_CK) has a frequency within the range 34 368 kbit/s ± 20 ppm and a jitter specified by ITU-T Recommendation G.823, and the P4e clock (P4e_TI_CK) has a frequency and jitter within the range specified in subclause 4.5.	4.3.5, 4.5, G.823	m	
6	The function generates the justification control (CCCCC) bits according to the specification in ITU-T Recommendation G.751 and inserts them in the appropriate C bit positions.	4.3.5, G.751	m	

Table B.45: Activation of P4e/P31s_A_So functions and timeslot access

Prerequisite: B.43/1 -- mapping of P31s_CI into the P4e frame supported

Item	Activation of P4e/P31s_A_So functions and timeslot access	Reference	Status	Support
1	The adaptation source function has access to a PU-31 #i of the P4e access point.	4.3.5	m	
2	The function accesses the access point only when it is activated (MI_Active is true).	4.3.5	c4501	

c4501: IF B.42/1 THEN m ELSE n/a -- P4e/P31s_A_So_MI_Active is provisionable

B.4.3.6 P4e to P31s Adaptation Sink P4e/P31s_A_Sk/i

Prerequisite: B.1/5 -- P4e to P31s adaptation sink function exists

B.4.3.6.1 Management information (P4e/P31s_A_Sk)

Table B.46: Configuration/provisioning information from EMF to P4e/P31s_A_Sk

Item	Configuration/provisioning information from EMF to P4e/P31s_A_Sk	Reference	Status	Support
1	P4e/P31s_A_So_MI_Active is provisionable from the EMF.	4.3.6	c4601	
2	P4e/P31x_A_So_MI_AIS_Reported is provisionable from the EMF.	4.3.6	m	
3	The function can be activated (P4e/P31s_A_Sk_MI_Active is TRUE) and deactivated (P4e/P31s_A_Sk_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	4.3.6	c4602	

c4601: IF B.3/5 THEN m ELSE n/a -- equivalent capacity of P4e/P31w_A_Sk (w = s, e, x) functions exceeds 4 PU31 timeslots

c4602: IF B.46/1 THEN m ELSE n/a -- P4e/P31s_A_Sk_MI_Active provisionable

Table B.47: Signal reports from P4e/P31s_A_Sk to EMF

Item	Signal reports from P4e/P31s_A_Sk to EMF	Reference	Status	Support
1	P4e/P31s_A_Sk_MI_cLOF is reported to the EMF.	4.3.6	m	
2	P4e/P31s_A_Sk_MI_cAIS is reported to the EMF.	4.3.6	m	

B.4.3.6.2 Processes (P4e/P31s_A_Sk)

Table B.48: Adaptation process for P4e/P31s_A_Sk

Item	Adaptation process for P4e/P31s_A_Sk	Reference	Status	Support
1	This function recovers one plesiochronous, 34 368 kbit/s, information stream P31 from the P4e frame as specified in ITU-T Recommendation G.751, subclause 1.5.2.	4.3.6, figure 2, figure 3, G.751, subclause 1.5.2	m	
2	The function performs the frame alignment of the 34 368 kbit/s signal to recover the frame start signal FS.	4.3.6	m	

Table B.49: Justification control interpretation(P4e/P31s_A_Sk)

Prerequisite: B.48/1 -- demapping of P31s_CI from the P4e frame supported

Item	Justification control interpretation (P4e/P31s_A_Sk)	Reference	Status	Support
1	The function performs justification control interpretation according ITU-T Recommendation G.751.	4.3.6, G.751	m	
2	If the majority of the C bits is "0" the J bit is taken as a data bit.	4.3.6, G.751	m	
3	If the majority of C bits is "1", J bit is taken as a justification bit and consequently ignored.	4.3.6, G.751	m	

Table B.50: Smoothing and jitter limiting process (P4e/P31s_A_Sk)

Prerequisite: B.48/1 -- demapping of P31s_CI from the P4e frame supported

Item	Smoothing and jitter limiting process (P4e/P31s_A_Sk)	Reference	Status	Support
1	The function provides for a clock smoothing and elastic store (buffer) process.	4.3.6, G.751	m	
2	The 34 368 kbit/s data signal is written into the buffer under control of the associated (gapped) input clock.	4.3.6, G.751	m	
3	The data signal is read out of the buffer under control of a smoothed (equally spaced) 34 368 kHz ± 20 ppm clock.	4.3.6	m	
4	The residual jitter is for further study.	4.3.6	n/a	
5	The buffer size is such that in the presence of jitter as specified in ITU-T Recommendation G.823 and a frequency within the range 34 368 kbit/s ± 20 ppm, this justification process does not introduce any errors.	4.3.6, G.823	m	
6	Following a step in frequency of the P31s signal transported by the P4e_AI there will be a maximum recovery time of X seconds after which this process does not generate any bit errors.	4.3.6, G.823	n/a	

Table B.51: Activation of P4e/P31s_A_Sk functions and timeslot access

Prerequisite: B.48/1 -- demapping of P31s_CI from the P4e frame supported

Item	Activation of P4e/P31s_A_Sk functions and timeslot access	Reference	Status	Support
1	The adaptation sink function has access to a PU-31 #i of the P4e access point.	4.3.6	m	
2	The function performs the operation specified above when it is activated (MI_Active is true).	4.3.6	c5101	
3	If the function is not active (MI_Active is False) it transmits the all-ONEs signal at its output (CI_D).	4.3.6	c5101	
4	If the function is not activate (MI_Active is False) it does not report its status via the management point.	4.3.6	c5102	

c5101: IF B.46/1 THEN m ELSE n/a -- P4e/P31s_A_Sk_MI_Active provisionable

c5102: IF B.46/1 AND (B.47/1 OR B.47/2) THEN m ELSE n/a -- P4e/P31e_A_Sk_MI_Active provisionable and MI signals reported to the EMF

Table B.52: Frame alignment recovery for P4e/P31s_A_Sk

Item	Frame alignment recovery for P4e/P31s_A_Sk	Reference	Status	Support
1	The frame alignment is found by searching for the A1, A2 bytes contained in the 34 Mbit/s signal.	4.3.6, ETS 300 337	m	
2	The frame signal is continuously checked with the presumed frame start position for the alignment.	4.3.6	m	
3	Frame alignment is deemed to have been lost when either: - four consecutive FAS are detected in error (i.e. ≥ 1 error in each FAS); - 986 or more frames with one or more BIP8 violations (≥986 BIPV) are detected in a block of 1 000 frames (125 ms).	4.3.6	m	
4	Frame alignment is deemed to have been recovered when three consecutive non-errored FAS are found.	4.3.6	m	
5	Should a research for frame alignment be initiated either due to: - a fortuitous FAS position being found once and not being found a second time in its expected position; - exceeding the threshold which indicates false alignment, then the new search for frame alignment should start 1 bit displaced forward from the position of the last indication of frame alignment.	4.3.6	m	
6	The state machine for the frame alignment recovery conforms to figure 13.	4.3.6, figure 13	m	

B.4.3.6.3 Defects (P4e/P31s_A_Sk)

Table B.53: Defects for P4e/P31s_A_Sk

Item	Defects for P4e/P31s_A_Sk	Reference	Status	Support
1	The function detects a loss of frame defect (dLOF) if the frame alignment state machine (figure 13) is in (one of) the OOF state(s).	4.3.6, figure 13	m	
2	The dLOF defect is cleared when the frame alignment state machine is in (one of) the IF state(s).	4.3.6, figure 13	m	
3	The function detects an AIS defect (dAIS) according to the specification in subclause 8.2.1.7 in EN 300 417-1-1.	4.3.6, EN 300 417-1-1 subclause 8.2.1.7	m	
4	For the dAIS detection/clearance procedure the value of X is: X = 7.	4.3.6	m	
5	For the dAIS detection/clearance procedure the value of Y is: Y = 4296.	4.3.6	m	
6	For the dAIS detection/clearance procedure the value of Z is: Z = 8.	4.3.6	m	

B.4.3.6.4 Consequent actions (P4e/P31s_A_Sk)

Table B.54: Consequent Actions for P4e/P31s_A_Sk

Item	Consequent Actions for P4e/P31s_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- dAIS or dLOF.	4.3.6	m	
2	On declaration of aAIS the function is output an all-ONEs (AIS) signal - complying to the frequency limits for this signal (a bit rate in range 34 368 kbit/s ± 20 ppm) - within 250 µs.	4.3.6	m	
3	On clearing of aAIS the function outputs normal data within 250 µs.	4.3.6	m	
4	The function implements the following logical equation: aSSF <-- dAIS or dLOF.	4.3.6	m	

B.4.3.6.5 Defect correlation (P4e/P31s_A_Sk)

Table B.55: Defect correlations for P4e/P31s_A_Sk

Item	Defect correlations for P4e/P31s_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: cAIS <-- dAIS and (not AI_TSF) and AIS_Reported.	4.3.2	c5501	
2	The function implements the following logical equation: cLOF <-- dLOF and not dAIS.	4.3.2	c5502	

c5501: IF B.47/2 THEN m ELSE n/a -- MI_cAIS supported
c5502: IF B.47/1 THEN m ELSE n/a -- MI_cLOF supported

B.4.4 P4e Layer Monitoring Functions

B.4.4.1 P4e Layer Non-intrusive Monitoring Function P4em_TT_Sk

Prerequisite: B.1/11 -- a non-intrusive trail termination sink function exists

B.4.4.1.1 Management information (P4em_TT_Sk)

Table B.56: Configuration/provisioning information from EMF to P4em_TT_Sk

Item	Configuration/provisioning information from EMF to P4em_TT_Sk	Reference	Status	Support
1	P4em_TT_Sk_MI_TPMode is provisionable from the EMF.	4.4.1	m	
2	P4em_TT_Sk_MI_SSF_Reported is provisionable from the EMF.	4.4.1	m	
3	P4em_TT_Sk_MI_RDI_Reported is provisionable from the EMF.	4.4.1	c5601	

c5601: IF B.1/2 AND B.1/3 THEN m ELSE x -- bi-directional layer supported

Table B.57: Signal reports from P4em_TT_Sk to EMF

Item	Signal reports from P4em_TT_Sk to EMF	Reference	Status	Support
1	P4em_TT_Sk_MI_cRDI is reported to the EMF.	4.4.1	c5701	
2	P4em_TT_Sk_MI_cSSF is reported to the EMF.	4.4.1	m	
3	P4em_TT_Sk_MI_pN_DS is reported to the EMF.	4.4.1	m	
4	P4em_TT_Sk_MI_pN_EBC is reported to the EMF.	4.4.1	m	
5	P4em_TT_Sk_MI_pF_DS is reported to the EMF.	4.4.1	c5701	

c5701: IF B.1/2 AND B.1/3 THEN m ELSE x -- bi-directional layer supported

B.4.4.1.2 Processes

Table B.58: Trail Termination Point mode process

Prerequisite: B.56/11 -- MI_TPmode supported

Item	Trail Termination Point mode process	Reference	Status	Support
1	The Trail Termination Point Mode supports "not monitored" (NMON) status.	EN 300 417-1-1 subclause 8.5	m	
2	The Trail Termination Point Mode supports "monitored" (MON) status.	EN 300 417-1-1 subclause 8.5	m	

Table B.59: FAS and error detection

Item	FAS and error detection	Reference	Status	Support
1	The FAS bits of each received frame are compared to their expected value "111110 100000" and a difference is taken as evidence of one or more errors (nN_B) in the block.	4.4.1	m	

Table B.60: RDI processing

Prerequisite: B.1/2 AND B.1/3 -- bi-directional layer supported

Item	RDI processing	Reference	Status	Support
1	A "1" in the RDI bit indicates an RDI state.	4.4.1	m	
2	A "0" in the RDI bit indicates the normal state.	4.4.1	m	

B.4.4.1.3 Defects (P4em_TT_Sk)

Table B.61: Defects for P4em_TT_Sk

Prerequisite: B.1/2 AND B.1/3 -- bi-directional layer supported

Item	Defects for P4em_TT_Sk	Reference	Status	Support
1	The function detects for dRDI defect according to the specification in EN 300 417-1-1, subclauses 7.4.1, 8.2.1.5, 8.2.2.2.	4.4.1, EN 300 417-1 subclause 7.4.1, 8.2.1.5, 8.2.2.2	m	

B.4.4.1.4 Consequent actions (P4em_TT_Sk)

Table B.62: Consequent actions for P4em_TT_Sk

Item	Consequent actions for P4em_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: aTSF <-- CI_SSF.	4.4.1	m	

B.4.4.1.5 Defect Correlations (P4em_TT_Sk)

Table B.63: Defect Correlations for P4em_TT_Sk

Item	Defect Correlations (P4em_TT_Sk)	Reference	Status	Support
1	The function implements the following logical equation: cRDI <-- dRDI and MON and RDI_Reported.	4.4.1	c6301	
2	The function implements the following logical equation: cSSF <-- CI_SSF and MON and SSF_Reported.	4.4.1	c6302	

c6301: IF B.57/1 THEN m ELSE n/a -- cRDI is reported
c6302: IF B.57/2 THEN m ELSE n/a -- cSSF is reported

B.4.4.1.6 Performance Monitoring (P4em_TT_Sk)

Table B.64: Performance Monitoring (P4em_TT_Sk)

Item	Performance Monitoring (P4em_TT_Sk)	Reference	Status	Support
1	The function implements the following logical equation: pN_DS <-- aTSF or dEQ.	4.4.1	c6401	
2	The function implements the following logical equation: pF_DS <-- dRDI.	4.4.1	c6402	
3	The function implements the following logical equation: pN_EBC <-- Sum(nN_B).	4.4.1	c6403	
4	The "Sum" is calculated over a one-second period.	4.4.1	c6403	

c6401: IF B.57/3 THEN m ELSE n/a -- pN_DS is reported
c6402: IF B.57/5 THEN m ELSE n/a -- pF_DS is reported
c6403: IF B.57/4 THEN m ELSE n/a -- pN_EBC is reported

B.4.5 P4e PDH Equipment Clock Adaptation Source P4e_PEC

Prerequisite: B.1/10 -- P4e_PEC exists

B.4.5.1 Processes (P4e_PEC)

Table B.65: Processes (P4e_PEC)

Item	Processes (P4e_PEC)	Reference	Status	Support
1	The function generates the clock (bit) reference signal P4e_TI_CK for the P4e signal, in the range of 139 264 kbit/s ± 15 ppm.	4.5	m	
2	The function generates the clock signal such that the peak-to-peak jitter at the 139 264 kbit/s output does not exceed 0,05 UI when it is measured within the frequency range from 200 Hz to 3 500 kHz.	4.5	m	
3	The function generates the frame start reference signal P4e_TI_FS for the P4e signal, which is active once per 2 928 bits.	4.5	m	

Annex C (normative): ICS proforma for P31e Path Layer

C.1 Identification of the implementation

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.

In the present document, an IUT, and of course the identification of an IUT refers to a P31e Path Layer instance implemented inside the SUT.

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.

C.1.1 Date of the statement

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C.1.2 Implementation Under Test (IUT) identification

IUT name:

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IUT version

Hardware version:

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Software version:

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Firmware version:

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C.1.3 System Under Test (SUT) identification

SUT name:

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Hardware configuration:

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SUT Software version:

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SUT Firmware version:

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Operating system:

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C.1.4 Product supplier

Name:

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Address:

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.....

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Telephone number:

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Facsimile number:

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E-mail address:

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Additional information:

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C.1.5 Client

Name:

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Address:

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Telephone number:

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Facsimile number:

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E-mail address:

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Additional information:

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C.1.6 ICS contact person

Name:

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Telephone number:

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Facsimile number:

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E-mail address:

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Additional information:

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C.2 Identification of the ETS

This ICS proforma applies to the following standard:

EN 300 417-5-1 [1]: "Transmission and Multiplexing (TM); Generic requirement of transport functionality of equipment; Part 5-1: Plesiochronous Digital Hierarchy (PDH) path layer functions".

C.3 Global statement of conformance of P31e Path Layer

Due to the model used for this layer the "Global statement of conformance" sentence used in ETSI ICS is not applicable to this layer.

C.4 P31e Path Layer Functions

C.4.0 P31e Path Layer Description

Table C.1: P31e Path Layer functions

Item	P31e Path Layer functions	Reference	Status	Support
1	P31e Connection function (P31e_C).	5	o.101	
2	P31e Layer Trail Termination Source function (P31e_TT_So).	5, figure 16	o.101	
3	P31e Layer Trail Termination Source function (P31e_TT_Sk).	5, figure 16	o.101	
4	P31e/P22e Layer Trail Adaptation Source function (P31e/P22e_A_So).	5, figure 16	c101	
5	P31e/P22e Layer Trail Adaptation Sink function (P31e/P22e_A_Sk).	5, figure 16	c102	
6	P31e/P22x Layer Trail Adaptation Source function (P31x/P22x_A_So).	5, figure 16	c101	
7	P31e/P22x Layer Trail Adaptation Sink function (P31x/P22x_A_Sk).	5, figure 16	c102	
8	P31e Timing Atomic function (P31e_PEC).	5, figure 16	c103	
9	P31e Layer non-intrusive monitoring function (P31em_TT_Sk).	5, figure 16	o	
10	P31e Layer to Xxx Layer Adaptation Source function (P31e/Xxx_A_So)	n/a	c101	
11	P31e Layer to Xxx Layer Adaptation Sink function (P31e/Xxx_A_Sk)	n/a	c102	

o.101: It is mandatory to support at least one of these items -- connection function and/or trail termination source and/or trail termination sink present

o.102: It is mandatory to support at least one of these items -- at least one payload adaptation source present

o.103: It is mandatory to support at least one of these items -- at least one payload adaptation sink present

c101: IF C.1/2 THEN o.102 ELSE x -- a TT_So function should exist for A_So function

c102: IF C.1/3 THEN o.103 ELSE x -- a TT_Sk function should exist for A_Sk function

c103: IF C.1/4 OR C.1/6 THEN m ELSE x -- At least one P31e_A_So function exists

Comment: Items dealing with P31e/Xxx_A functions take into account the implementation of adaptation functions not specified or referenced in EN 300 417-x-1 standards.

Table C.2: Number of adaptation to P22 Layers source functions

Prerequisite: C.1/4 OR C.1/6 -- at least one adaptation source function exists

Item	Number of adaptation to P22 layers source functions	Reference	Status	Support	Values	
					Allowed	Supported
1	Number of supported P31e/P22e_A_So functions.	5, figure 16	c201		1≤ j1 ≤ 4	
2	Number of supported P31e/P22x_A_So functions.	5, figure 16	c202		1≤ j2 ≤4	
3	Number of P31e/P22w_A_So (w = e, x) functions supported: j1+j2.	5, figure 16	m		j1 + j2 ≥ 4	
4	The equivalent capacity of P31e/P22w_A_So (w = e, x) functions supported exceeds the 4 PU22 timeslots available in the P31e_CI (j1+j2>4).		c203		___	

c201: IF C.1/4 THEN m ELSE n/a -- P31/P22e_A_So supported
c202: IF C.1/6 THEN m ELSE n/a -- P31/P22x_A_So supported
c203: IF (C.1/4 AND C.1/6) THEN o ELSE n/a -- multiple P31e/P22w_A_So (w = x, e) supported

Table C.3: Number of adaptation to P22 Layers sink functions

Prerequisite: C.1/5 OR C.1/7 -- at least one adaptation sink function exists

Item	Number of adaptation to P22 layers sink functions	Reference	Status	Support	Values	
					Allowed	Supported
1	Number of supported P31e/P22e_A_Sk functions.	5, figure 16	c301		1≤ j3 ≤ 4	
2	Number of supported P31e/P22x_A_Sk functions.	5, figure 16	c302		1≤ j4 ≤ 4	
3	Number of P31e/P22w_A_Sk (w = s, e, x) functions supported: j3+j4.	5, figure 16	m		j3 + j4 ≥ 4	
4	The equivalent capacity of P31e/P22w_A_Sk (w = e, x) functions supported exceeds the 4 PU22 timeslots available in the P31e_CI (j3+j4 >4).		**c303**		___	

c301: IF C.1/5 THEN m ELSE n/a -- P31/P22e_A_Sk supported
c302: IF C.1/7 THEN m ELSE n/a -- P31/P22x_A_Sk supported
c303: IF (C.1/5 AND C.1/7) THEN o ELSE n/a -- multiple P31e/P22w_A_Sk (w = x, e) supported

C.4.0.1 Characteristic Information

Table C.4: P31e Characteristic Information

Prerequisite: C.1/1 OR C.1/2 OR C.1/3 -- implies that at least one P31e Layer Trail Termination or Connection function is present

Item	P31e Characteristic Information	Reference	Status	Support
1	The characteristic information (CI) is a 34 368 kbits/s signal with co-directional bit timing and frame start information and conforms to G.751.	5, figure 17, G.751	m	
2	The CI is structured to form a 1 536 bit long frame with 12 bit frame overhead.	5, figure 17, G.751	m	
3	The CI contains a FAS overhead in bits 1 to 10.	5, figure 17, G.751	m	
4	The CI contains a RDI bit in bit 11.	5, figure 17, G.751	m	
5	The CI contains one user bit for National Use in bit 12.	5, figure 17, G.751	m	

C.4.0.2 Adapted information

Table C.5: P31e Adapted Information

Prerequisite: C.1/2 OR C.1/3 -- implies that at least one P31e Layer Trail Termination function is present

Item	P31e Adapted Information	Reference	Status	Support
1	The adapted information (AI) is a multiplexed signal containing four tributary signals PU22 with co-directional bit timing and frame start information.	5	m	
2	The PU22 is a 8 448 kbit/s non-structured signal (P22x_CI).	5	c501	
3	The PU22 is a 8 448 kbit/s frame structured signal conforming to G.742, with justification overhead bits (P22e_CI).	5, G.742	c502	

o.501: It is mandatory to support at least one of these items -- at least one type of payload supported
c501: IF C.1/6 OR C.1/7 THEN o.501 ELSE n/a -- a P31e/P22x_A exists
c502: IF C.1/4 OR C.1/5 THEN o.501 ELSE n/a -- a P31e/P22e_A exists

C.4.1 P31e Connection function

Table C.6: P31e Connection function

Prerequisite: C.1/1 -- a connection function exists

Item	P31e Connection function	Reference	Status	Support
1	No requirements	5.1	n/a	

C.4.2 P31e Trail Termination functions

Prerequisite: C.1/2 OR C.1/3 -- a trail termination function exists

C.4.2.1 P31e Trail Termination Source P31e_TT_So

Prerequisite: C.1/2 -- a trail termination source function exists

C.4.2.1.1 Processes (P31e_TT_So)

Table C.7: Frame Alignment Signal insertion (P31e_TT_So)

Item	Frame Alignment Signal insertion (P31e_TT_So)	Reference	Status	Support
1	The Frame Alignment Signal (11110 10000) is inserted into the frame overhead.	5.2.1	m	

Table C.8: RDI insertion/removal (P31e_TT_So)

Prerequisite: C.1/2 AND C.1/3 -- bi-directional layer supported

Item	RDI insertion (P31e_TT_So)	Reference	Status	Support
1	The RDI bit is set to "1" within 800 µs on activation of P31e_RI_RDI.	5.2.1	m	
2	The RDI bit is set to "0" within 800 µs on removal of P31e_RI_RDI.	5.2.1	m	

C.4.2.2 P31e Trail Termination Sink P31e_TT_Sk

Prerequisite: C.1/3 -- a termination sink function exists

C.4.2.2.1 Management information (P31e_TT_Sk)

Table C.9: Configuration/provisioning of information from EMF to P31e_TT_Sk

Item	Configuration/provisioning of information from EMF to P31e_TT_Sk	Reference	Status	Support
1	P31e_TT_Sk_MI_TPmode is provisionable from the EMF.	5.2.2	m	
2	P31e_TT_Sk_MI_SSF_Reported is provisionable from the EMF.	5.2.2	m	
3	P31e_TT_Sk_MI_RDI_Reported is provisionable from the EMF.	5.2.2	c901	
4	P31e_TT_Sk_MI_1second is provisioned by the EMF.	5.2.2	m	

c901: IF C.1/2 AND C.1/3 THEN m ELSE x -- bi-directional layer supported

Table C.10: Signal reports from P31e_TT_Sk to EMF

Item	Signal reports from P31e_TT_Sk to EMF	Reference	Status	Support
1	P31e_TT_Sk_MI_cRDI is reported to the EMF.	5.2.2	c1001	
2	P31e_TT_Sk_MI_cSSF is reported to the EMF.	5.2.2	m	
3	P31e_TT_Sk_MI_pN_DS is reported to the EMF.	5.2.2	m	
4	P31e_TT_Sk_MI_pN_EBC is reported to the EMF.	5.2.2	m	
5	P31e_TT_Sk_MI_pF_DS is reported to the EMF.	5.2.2	m	

c1001: IF C.1/2 AND C.1/3 THEN m ELSE x -- bi-directional layer supported

C.4.2.2.2 Processes (P31e_TT_Sk)

Table C.11: Trail Termination Point mode process

Prerequisite: C.9/1 -- MI_TPmode provisionable from the EMF

Item	Trail Termination Point mode process	Reference	Status	Support
1	The Trail Termination Point Mode supports "not monitored" (NMON) status.	EN 300 417-1-1 subclause 8.5	m	
2	The Trail Termination Point Mode supports "monitored" (MON) status.	EN 300 417-1-1 subclause 8.5	m	

Table C.12: FAS and error detection

Item	FAS and error detection	Reference	Status	Support
1	The FAS bits of each received frame are compared to their expected value "11110 10000" and a difference is taken as evidence of one or more errors (nN_B) in the block.	5.2.2	m	

Table C.13: RDI processing

Prerequisite: C.1/2 AND C.1/3 -- bi-directional layer supported

Item	RDI processing	Reference	Status	Support
1	A "1" in the RDI bit indicates an RDI state.	5.2.2	m	
2	A "0" in the RDI bit indicates the normal state.	5.2.2	m	

C.4.2.2.3 Defects (P31e_TT_Sk)

Table C.14: Defects for P31e_TT_Sk

Prerequisite: C.1/2 AND C.1/3 -- bi-directional layer supported

Item	Defects for P31e_TT_Sk	Reference	Status	Support
1	The function detects the dRDI defect according to the specification in EN 300 417-1-1, subclauses 7.4.1, 8.2.1.5, 8.2.2.2.	5.2.2, EN 300 417-1-1 subclause 7.4.1, 8.2.1.5, 8.2.2.2	m	

C.4.2.2.4 Consequent actions (P31e_TT_Sk)

Table C.15: Consequent actions for P31e_TT_Sk

Item	Consequent actions for P31e_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: aTSF <-- CI_SSF.	5.2.2	m	
2	The function implements the following logical equation: aRDI <-- CI_SSF.	5.2.2	c1501	

c1501: IF C.1/2 AND C.1/3 THEN m ELSE n/a -- bi-directional layer supported

C.4.2.2.5 Defect Correlations (P31e_TT_Sk)

Table C.16: Defect Correlations for P31e_TT_Sk

Item	Defect Correlations for P31e_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: cRDI <-- dRDI and MON and RDI_Reported.	5.2.2	c1601	
2	The function implements the following logical equation: cSSF <-- CI_SSF and MON and SSF_Reported.	5.2.2	c1602	

c1601: IF C.10/1 THEN m ELSE n/a -- cRDI is reported
c1602: IF C.10/2 THEN m ELSE n/a -- cSSF is reported

C.4.2.2.6 Performance monitoring (P31e_TT_Sk)

Table C.17: Performance Monitoring (P31e_TT_Sk)

Item	Performance Monitoring (P31e_TT_Sk)	Reference	Status	Support
1	The function implements the following logical equation: pN_DS <-- aTSF or dEQ.	5.2.2	c1701	
2	The function implements the following logical equation: pF_DS <-- dRDI.	5.2.2	c1702	
3	The function implements the following logical equation: pN_EBC <-- Sum(nN_B) The "Sum" is calculated over a one-second period.	5.2.2	c1703	

c1701: IF C.10/3 THEN m ELSE n/a -- pN_DS is reported
c1702: IF C.10/5 THEN m ELSE n/a -- pF_DS is reported
c1703: IF C.10/4 THEN m ELSE n/a -- pN_EBC is reported

C.4.3 P31e Adaptation functions

C.4.3.1 P31e to P22x Adaptation Source P31e/P22x_A_So/i

Prerequisite: C.1/6 -- P31e to P22x adaptation source function exists

C.4.3.1.1 Management information (P31e/P22x_A_So)

Table C.18: Configuration/provisioning information from EMF to P31e/P22x_A_So

Item	Configuration/provisioning information from EMF to P31e/P22x_A_So	Reference	Status	Support
1	P31e/P22x_A_So_MI_Active is provisionable from the EMF.	5.3.1	c1801	
2	The function can be activated (P31e/P22x_A_So_MI_Active is TRUE) and deactivated (P31e/P22x_A_So_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	5.3.1	c1802	

c1801: IF C.2/4 THEN m ELSE n/a -- equivalent capacity of P31e/P22w_A_So (w = e, x) functions exceeds 4 PU22 timeslots

c1802: IF C.18/1 THEN m ELSE n/a -- P31e/P22x_A_So_MI_Active provisionable

C.4.3.1.2 Processes (P31e/P22x_A_So)

Table C.19: Adaptation process for P31e/P22x_A_So

Item	Adaptation process for P31e/P22x_A_So	Reference	Status	Support
1	The function maps one plesiochronous, 8 448 kbit/s, P22 information stream into the P31e frame, as specified in ITU-T Recommendation G.751, subclause 1.4.2.	5.3.1, figure 17, G.751 subclause 1.4.2	m	
2	The function takes P22x_CI, a bit-stream with a rate of 8 448 kbit/s ± 30 ppm and inserts it into the PU22 #i.	5.3.1, figure 18	m	

Table C.20: Frequency justification and bitrate adaptation (P31e/P22x_A_So)

Prerequisite: C.19/1 -- mapping of P22x_CI into the P31e frame supported

Item	Frequency justification and bitrate adaptation (P31e/P22x_A_So)	Reference	Status	Support
1	The function provides for an elastic store (buffer) process.	5.3.1	m	
2	The data signal is written into the buffer under control of the associated input clock.	5.3.1	m	
3	The data signal is read out of the buffer under control of the P31e clock, frame position (P31e_TI), and justification decisions.	5.3.1	m	
4	Each justification decision results in a corresponding positive justification action. Upon a positive justification action, the reading of 1 data bit is cancelled once and no data are written at the justification opportunity bit J.	5.3.1, G.751	m	
5	The buffer size is such that this justification process does not introduce any errors when the input clock (P22x_CI_CK) has a frequency within the range 8 448 kbit/s ± 30 ppm and a jitter specified by ITU-T Recommendation G.823, and the P31e clock (P31e_TI_CK) has a frequency and jitter within the range specified in subclause 5.5.	5.3.1, 5.5, G.823	m	
6	The function generates the justification control (CCC) bits according to the specification in ITU-T Recommendation G.751 and inserts them in the appropriate C bit positions.	5.3.1, G.751	m	

Table C.21: Activation of P31e/P22x_A_So functions and timeslot access

Prerequisite: C.19/1 -- mapping of P22x_CI into the P31e frame supported

Item	Activation of P31e/P22x_A_So functions and timeslot access	Reference	Status	Support
1	The adaptation source function has access to a PU-22 #i of the P31e access point.	5.3.1	m	
2	The function accesses the access point only when it is activated (MI_Active is true).	5.3.1	c2101	

c2101: IF C.18/1 THEN m ELSE n/a -- P31e/P22x_A_So_MI_Active provisionable

C.4.3.2 P31e to P22x Adaptation Sink P31e/P22x_A_Sk/i

Prerequisite: C.1/7 -- P31e to P22x adaptation sink function exists

C.4.3.2.1 Management information (P31e/P22x_A_Sk)

Table C.22: Configuration/provisioning information from EMF to P31e/P22x_A_Sk

Item	Configuration/provisioning information from EMF to P31e/P22x_A_Sk	Reference	Status	Support
1	P31e/P22x_A_Sk_MI_Active is provisionable from the EMF.	5.3.2	c2201	
2	The function can be activated (P31e/P22x_A_Sk_MI_Active is TRUE) and deactivated (P31e/P22x_A_Sk_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	5.3.2	c2202	

c2201: IF C.3/4 THEN m ELSE n/a -- equivalent capacity of P31e/P22w_A_Sk (w = e, x) functions exceeds 4 PU22 timeslots

c2202: IF C.22/1 THEN m ELSE n/a -- P31e/P22x_A_Sk_MI_Active provisionable

C.4.3.2.2 Processes (P31e/P22x_A_Sk)

Table C.23: Adaptation process for P31e/P22x_A_Sk

Item	Adaptation process for P31e/P22x_A_Sk	Reference	Status	Support
1	This function recovers one plesiochronous, 8 448 kbit/s, information stream P22 from the P31e frame as specified in ITU-T Recommendation G.751, subclause 1.4.2.	5.3.2, figure 17, figure 18, G.751 subclause 1.4.2	m	

Table C.24: Justification control interpretation for P31e/P22x_A_Sk

Prerequisite: C.23/1 -- demapping of P22x_CI from the P31e frame supported

Item	Justification control interpretation for P31e/P22x_A_Sk	Reference	Status	Support
1	The function performs justification control interpretation according ITU-T Recommendation G.751.	5.3.2, G.751	m	
2	If the majority of the C bits is "0" the J bit is taken as a data bit.	5.3.2, G.751	m	
3	If the majority of C bits is "1" J bit is taken as a justification bit and consequently ignored.	5.3.2, G.751	m	

Table C.25: Smoothing and jitter limiting process for P31e/P22x_A_Sk

Prerequisite: C.23/1 -- demapping of P22x_CI from the P31e frame supported

Item	Smoothing and jitter limiting process for P31e/P22x_A_Sk	Reference	Status	Support
1	The function provides for a clock smoothing and elastic store (buffer) process.	5.3.2, G.751	m	
2	The 8 448 kbit/s data signal is written into the buffer under control of the associated (gapped) input clock.	5.3.2, G.751	m	
3	The data signal is read out of the buffer under control of a smoothed (equally spaced) 8 448 kHz ± 30 ppm clock.	5.3.2	m	
4	The residual jitter caused by bit justifications (measured at the 8 448 kbit/s interface) is such that the peak-to-peak jitter at the 8 448 kbit/s output (being a tributary) in the absence of input jitter does not exceed 0,25 UI when measured in the frequency range up to 400 kHz.	5.3.2	m	
5	When measured with an instrument incorporating a bandpass filter having a lower cut-off frequency of 3 kHz, a roll-off of 20 dB/decade and an upper limit of 400 kHz, the peak-to-peak output jitter does not exceed 0,05 UI with a probability of 99,9 % during a measurement period of 10 s.	5.3.2	m	
6	A 8 448 kbit/s signal, modulated by sinusoidal jitter, applied to an adaptation source and retrieved from the adaptation sink, has a jitter transfer characteristic within the gain/frequency limits given in figure 23.	5.3.2, figure 23	m	
7	The buffer size is such that in the presence of jitter as specified in ITU-T Recommendation G.823 and a frequency within the range 8 448 kbit/s ± 30 ppm, this justification process does not introduce any errors.	5.3.2, G.823	m	
8	Following a step in frequency of the P22x signal transported by the P31e_AI there will be a maximum recovery time of X seconds after which this process does not generate any bit errors.	5.3.2, G.823	n/a (note)	
NOTE: The Status will be changed to "m" as soon as the value X will be standardized. A value of 1 second has been proposed.				

Table C.26: Activation of P31e/P22x_A_Sk functions and timeslot access

Prerequisite: C.23/1 -- demapping of P22x_CI from the P31e frame supported

Item	Activation of P31e/P22x_A_Sk functions and timeslot access	Reference	Status	Support
1	The adaptation sink function has access to a PU-22 #i of the P31e access point.	5.3.2	m	
2	The function performs the operation specified above when it is activated (MI_Active is true).	5.3.2	c2601	
3	If the function is not active (MI_Active is False) it transmits the all-ONEs signal at its output (CI_D).	5.3.2	c2601	
4	If the function is not active (MI_Active is False) it does not report its status via the management point.	5.3.2	c2601	

c2601: IF C.22/1 THEN m ELSE n/a -- P31e/P22x_A_Sk_MI_Active provisionable

C.4.3.2.3 Consequent actions (P31e/P22x_A_Sk)

Table C.27: Consequent actions for P31e/P22x_A_Sk

Item	Consequent actions for P31e/P22x_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- AI_TSF.	5.3.2	m	
2	On declaration of aAIS the function outputs an all-ONEs (AIS) - complying to the frequency limits for this signal (a bit rate in range 8 448 kbit/s ± 30 ppm) -signal within 100 µs.	5.3.2	m	
3	On clearing of aAIS the function outputs normal data within 100 µs.	5.3.2	m	
4	The function implements the following logical equation: aSSF <-- AI_TSF.	5.3.2	m	

C.4.3.3 P31e to P22e Adaptation Source P31e/P22e_A_So/i

Prerequisite: C.1/4 -- a P31e/P22e Adaptation source function exists

C.4.3.3.1 Management information (P31e/P22e_A_So/i)

Table C.28: Configuration/provisioning information from EMF to P31e/P22e_A_So

Item	Configuration/provisioning information from EMF to P31e/P22e_A_So	Reference	Status	Support
1	P31e/P22e_A_So_MI_Active is provisionable from the EMF.	5.3.3	c2801	
2	The function can be activated (P31e/P22e_A_So_MI_Active is TRUE) and deactivated (P31e/P22e_A_So_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	5.3.3	c2802	

c2801: IF C.2/4 THEN m ELSE n/a -- equivalent capacity of P31e/P22w_A_So (w = e, x) functions exceeds 4 PU22 timeslots

c2802: IF C.28/1 THEN m ELSE n/a -- P31e/P22e_A_So_MI_Active provisionable

C.4.3.3.2 Processes (P31e/P22e_A_So/i)

Table C.29: Adaptation process for P31e/P22e_A_So

Item	Adaptation process for P31e/P22e_A_So	Reference	Status	Support
1	The function maps one plesiochronous, 8 448 kbit/s, P22 information stream into the P31e frame as specified in ITU-T Recommendation G.751, subclause 1.4.2.	5.3.3, figure 17, G.751 subclause 1.4.2	m	
2	The function takes P22e_CI, a bit-stream with a rate of 8 448 kbit/s ± 30 ppm and inserts it into the PU22 #i.	5.3.3, figure 18	m	

Table C.30: Frequency justification and bitrate adaptation for P31e/P22e_A_So

Prerequisite: C.29/1 -- mapping of P22e_CI into the P31e frame supported

Item	Frequency justification and bitrate adaptation for P31e/P22e_A_So	Reference	Status	Support
1	The function provides for an elastic store (buffer) process.	5.3.3	m	
2	The data signal is written into the buffer under control of the associated input clock.	5.3.3	m	
3	The data signal is read out of the buffer under control of the P31e clock, frame position (P31e_TI), and justification decisions.	5.3.3	m	
4	Each justification decision results in a corresponding positive justification action. Upon a positive justification action, the reading of 1 data bit is cancelled once and no data are written at the justification opportunity bit J.	5.3.3, G.751	m	
5	This justification process does not introduce any errors when the input clock (P22e CI_CK) has a frequency within the range 8 448 kbit/s ± 30 ppm and a jitter specified by ITU-T Recommendation G.823, and the P31e clock (P31e_TI_CK) has a frequency and jitter within the range specified in subclause 5.5.	5.3.3, 5.5, G.823	m	
6	The function generates the justification control (CCC) bits according to the specification in ITU-T Recommendation G.751 and inserts them in the appropriate C bit positions.	5.3.3, G.751	m	

Table C.31: Activation of P31e/P22e_A_So functions and timeslot access

Prerequisite: C.29/1 -- mapping of P22e_CI into the P31e frame supported

Item	Activation of P31e/P22e_A_So functions and timeslot access	Reference	Status	Support
1	The adaptation source function has access to a PU-22 #i of the P31e access point.	5.3.3	m	
2	The function accesses the access point only when it is activated (MI_Active is true).	5.3.3	c3101	

c3101: IF C.28/1 THEN m ELSE n/a -- P31e/P22e_A_So_MI_Active is provisionable

C.4.3.4 P31e to P22e Adaptation Sink P31e/P22e_A_Sk/i

Prerequisite: C.1/5 -- P31e to P22e adaptation sink function exists

C.4.3.4.1 Management information(P31e/P22e_A_Sk/i)

Table C.32: Configuration/provisioning information from EMF to P31e/P22e_A_Sk

Item	Configuration/provisioning information from EMF to P31e/P22e_A_Sk	Reference	Status	Support
1	P31e/P22e_A_Sk_MI_Active is provisionable from the EMF.	5.3.4	c3201	
2	P31e/P22x_A_Sk_MI_AIS_Reported is provisionable from the EMF.	5.3.4	m	
3	The function can be activated (P31e/P22e_A_Sk_MI_Active is TRUE) and deactivated (P31e/P22e_A_Sk_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	5.3.4	c3202	

c3201: IF C.3/4 THEN m ELSE n/a -- equivalent capacity of P31e/P22w_A_Sk (w = e, x) functions exceeds 4 PU22 timeslots

c3202: IF C.32/1 THEN m ELSE n/a -- P31e/P22e_A_Sk_MI_Active provisionable

Table C.33: Signal reports from P31e/P22e_A_Sk to EMF

Item	Signal reports from P31e/P22e_A_Sk to EMF	Reference	Status	Support
1	P31e/P22e_A_Sk_MI_cLOF is reported to the EMF.	5.3.4	m	
2	P31e/P22e_A_Sk_MI_cAIS is reported to the EMF.	5.3.4	m	

C.4.3.4.2 Processes (P31e/P22e_A_Sk)

Table C.34: Adaptation process for P31e/P22e_A_Sk

Item	Adaptation process for P31e/P22e_A_Sk	Reference	Status	Support
1	This function recovers one plesiochronous, 8 448 kbit/s, information stream P22 from the P31e frame as specified in ITU-T Recommendation G.751, subclause 1.4.2.	5.3.4, figure 17, figure 18, G.751, subclause 1.4.2	m	
2	The function performs the frame alignment of the 8 448 kbit/s signal to recover the frame start signal FS.	5.3.4	m	

Table C.35: Justification control interpretation for P31e/P22e_A_Sk

Prerequisite: C.34/1 -- demapping of P22e_CI from the P31e frame supported

Item	Justification control interpretation for P31e/P22e_A_Sk	Reference	Status	Support
1	The function performs justification control interpretation according ITU-T Recommendation G.751.	5.3.4, G.751	m	
2	If the majority of the C bits is "0" the J bit is taken as a data bit.	5.3.4, G.751	m	
3	If the majority of C bits is "1", J bit is taken as a justification bit and consequently ignored.	5.3.4, G.751	m	

Table C.36: Smoothing and jitter limiting process(P31e/P22e_A_Sk)

Prerequisite: C.34/1 -- demapping of P22e_CI from the P31e frame supported

Item	Smoothing and jitter limiting process(P31e/P22e_A_Sk)	Reference	Status	Support
1	The function provides for a clock smoothing and elastic store (buffer) process.	5.3.4, G.751	m	
2	The 8 448 kbit/s data signal is written into the buffer under control of the associated (gapped) input clock.	5.3.4, G.751	m	
3	The data signal is read out of the buffer under control of a smoothed (equally spaced) 8 448 kHz ± 30 ppm clock.	5.3.4	m	
4	The residual jitter is for further study.	5.3.4	n/a	
5	The buffer size is such that in the presence of jitter as specified in ITU-T Recommendation G.823 and a frequency within the range 8 448 kbit/s ± 30 ppm, this justification process does not introduce any errors.	5.3.4, G.823	m	
6	Following a step in frequency of the P22e signal transported by the P31e_AI there will be a maximum recovery time of X seconds after which this process does not generate any bit errors.	5.3.4, G.823	n/a (note)	
NOTE: The Status will be changed to „m" as soon as the value X will be standardized. A value of 1 second has been proposed.				

Table C.37: Activation of P31e/P22e_A_Sk functions and timeslot access

Prerequisite: C.34/1 -- demapping of P22e_CI from the P31e frame supported

Item	Activation of P31e/P22e_A_Sk functions and timeslot access	Reference	Status	Support
1	The adaptation sink function has access to a PU-22 #i of the P31e access point.	5.3.4	m	
2	The function performs the operation specified above when it is activated (MI_Active is true).	5.3.4	c3701	
3	If the function is not active (MI_Active is False) it transmits the all-ONEs signal at its output (CI_D).	5.3.4	c3701	
4	If the function is not active (MI_Active is False) it does not report its status via the management point.	5.3.4	c3701	

c3701: IF C.32/1 THEN m ELSE n/a -- P31e/P22e_A_Sk_MI_Active provisionable

Table C.38: Frame alignment recovery for P31e/P22e_A_Sk

Prerequisite: C.34/2 -- frame alignment supported

Item	Frame alignment recovery for P31e/P22e_A_Sk	Reference	Status	Support
1	Loss of frame alignment is assumed to have taken place when four consecutive frame alignment signals have been incorrectly received in their predicted positions.	5.3.4	m	
2	When frame alignment is assumed to be lost, the frame alignment device decides that such alignment has effectively been recovered when it detects the presence of three consecutive frame alignment signals.	5.3.4	m	
3	The frame alignment device having detected the appearance of a single correct frame alignment signal, begins a new search for the frame alignment signal when it detects the absence of the frame alignment signal in one of the two following frames.	5.3.4	m	

C.4.3.4.3 Defects (P31e/P22e_A_Sk)

Table C.39: Defects for P31e/P22e_A_Sk

Item	Defects for P31e/P22e_A_Sk	Reference	Status	Support
1	The function detects a loss of frame defect (dLOF) when four consecutive frame alignment signals have been incorrectly received in their predicted positions.	5.3.4	m	
2	The dLOF defect is cleared when three consecutive frame alignment signals are detected.	5.3.4	m	
3	The function detects an AIS defect (dAIS) according to the specification in subclause 8.2.1.7 in EN 300 417-1-1.	5.3.4, EN 300 417-1-1 subclause 8.2.1.7	m	
4	For the dAIS detection/clearance procedure the value of X is: X = 4.	5.3.4	m	
5	For the dAIS detection/clearance procedure the value of Y is: Y = 848.	5.3.4	m	
6	For the dAIS detection/clearance procedure the value of Z is: Z = 5.	5.3.4	m	

C.4.3.4.4 Consequent actions (P31e/P22e_A_Sk)

Table C.40: Consequent Actions for P31e/P22e_A_Sk

Item	Consequent Actions for P31e/P22e_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- dAIS or dLOF.	5.3.4	m	
2	On declaration of aAIS the function outputs an all-ONEs (AIS) signal - complying to the frequency limits for this signal (a bit rate in range 8 448 kbit/s ± 30 ppm) - within 250 µs.	5.3.4	m	
3	On clearing of aAIS the function outputs normal data within 250 µs.	5.3.4	m	
4	The function implements the following logical equation: aSSF <-- dAIS or dLOF.	5.3.4	m	

C.4.3.4.5 Defect Correlations (P31e/P22e_A_Sk)

Table C.41: Defect correlations for P31e/P22e_A_Sk

Item	Defect correlations for P31e/P22e_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: cAIS <-- dAIS and (not AI_TSF) and AIS_Reported.	5.3.4	c4101	
2	The function implements the following logical equation: cLOF <-- dLOF and not dAIS.	5.3.4	c4102	

c4101: IF C.33/2 THEN m ELSE n/a -- cAIS supported
c4102: IF C. 33/1 THEN m ELSE n/a -- cLOF supported

C.4.4 P31e Layer Monitoring Functions

C.4.4.1 P31e Layer Non-intrusive Monitoring Function P31em_TT_Sk

Prerequisite: C.1/9 -- a non-intrusive trail termination sink function exists

C.4.4.1.1 Management information (P31em_TT_Sk)

Table C.42: Configuration/provisioning information from EMF to P31em_TT_Sk

Item	Configuration/provisioning information from EMF to P31em_TT_Sk	Reference	Status	Support
1	P31em_TT_Sk_MI_TPMode is provisionable from the EMF.	5.4.1	m	
2	P31em_TT_Sk_MI_SSF_Reported is provisionable from the EMF.	5.4.1	m	
3	P31em_TT_Sk_MI_RDI_Reported is provisionable from the EMF.	5.4.1	c4201	

c4201: IF C.1/2 AND C.1/3 THEN m ELSE x -- bi-directional layer supported

Table C.43: Signal reports from P31em_TT_Sk to EMF

Item	Signal reports from P31em_TT_Sk to EMF	Reference	Status	Support
1	P31em_TT_Sk_MI_cRDI is reported to the EMF.	5.4.1	c4301	
2	P31em_TT_Sk_MI_cSSF is reported to the EMF.	5.4.1	m	
3	P31em_TT_Sk_MI_pN_DS is reported to the EMF.	5.4.1	m	
4	P31em_TT_Sk_MI_pN_EBC is reported to the EMF.	5.4.1	m	
5	P31em_TT_Sk_MI_pF_DS is reported to the EMF.	5.4.1	c4301	

c4301: IF C.1/2 AND C.1/3 THEN m ELSE x -- bi-directional layer supported

NOTE: Reporting shall be understood as reporting at Management point (i.e. to the Equipment Management Function), not as reporting at the user through a management interface.

C.4.4.1.2 Processes

Table C.44: Trail Termination Point mode process

Prerequisite: C.56/11 -- MI_TPmode supported

Item	Trail Termination Point mode process	Reference	Status	Support
1	The Trail Termination Point Mode supports "not monitored" (NMON) status.	EN 300 417-1-1 subclause 8.5	m	
2	The Trail Termination Point Mode supports "monitored" (MON) status.	EN 300 417-1-1 subclause 8.5	m	

Table C.45: FAS and error detection

Item	FAS and error detection	Reference	Status	Support
1	The FAS bits of each received frame are compared to their expected value "11110 10000" and a difference is taken as evidence of one or more errors (nN_B) in the block.	5.4.1	m	

Table C.46: RDI processing

Prerequisite: C.1/2 AND C.1/3 -- bi-directional layer supported

Item	RDI processing	Reference	Status	Support
1	A "1" in the RDI bit indicates an RDI state.	5.4.1	m	
2	A "0" in the RDI bit indicates the normal state.	5.4.1	m	

C.4.4.1.3 Defects (P31em_TT_Sk)

Table C.47: Defects for P31em_TT_Sk

Prerequisite: C.1/2 AND C.1/3 -- bi-directional layer supported

Item	Defects for P31em_TT_Sk	Reference	Status	Support
1	The function detects for dRDI defect according to the specification in EN 300 417-1-1, subclauses 7.4.1, 8.2.1.5, 8.2.2.2.	5.4.1, EN 300 417-1 subclause 7.4.1, 8.2.1.5, 8.2.2.2	m	

C.4.4.1.4 Consequent actions (P31em_TT_Sk)

Table C.48: Consequent actions for P31em_TT_Sk

Item	Consequent actions for P31em_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: aTSF <-- CI_SSF.	5.4.1	m	

C.4.4.1.5 Defect Correlations (P31em_TT_Sk)

Table C.49: Defect Correlations for P31em_TT_Sk

Item	Defect Correlations (P31em_TT_Sk)	Reference	Status	Support
1	The function implements the following logical equation: cRDI <-- dRDI and MON and RDI_Reported.	5.4.1	c4901	
2	The function implements the following logical equation: cSSF <-- CI_SSF and MON and SSF_Reported.	5.4.1	c4902	

c4901: IF C.43/1 THEN m ELSE n/a -- cRDI is reported
c4902: IF C.43/2 THEN m ELSE n/a -- cSSF is reported

C.4.4.1.6 Performance Monitoring (P31em_TT_Sk)

Table C.50: Performance Monitoring (P31em_TT_Sk)

Item	Performance Monitoring (P31em_TT_Sk)	Reference	Status	Support
1	The function implements the following logical equation: pN_DS <-- aTSF or dEQ.	5.4.1	c5001	
2	The function implements the following logical equation: pF_DS <-- dRDI.	5.4.1	c5002	
3	The function implements the following logical equation: pN_EBC <-- Sum(nN_B) The "Sum" is calculated over a one-second period.	5.4.1	c5003	

c5001: IF C.43/3 THEN m ELSE n/a -- pN_DS is reported
c5002: IF C.43/5 THEN m ELSE n/a -- pF_DS is reported
c5003: IF C.43/4 THEN m ELSE n/a -- pN_EBC is reported

C.4.5 P31e PDH Equipment Clock Adaptation Source P31e_PEC

Prerequisite: C.1/8 -- P31e_PEC exists

C.4.5.1 Processes (P31em_TT_Sk)

Table C.51: Processes (P31em_TT_Sk)

Item	Processes (P31em_TT_Sk)	Reference	Status	Support
1	The function generates the clock (bit) reference signal P31e_TI_CK for the P31e signal, in the range of 34 368 kbit/s ± 20 ppm.	5.5	m	
2	The function generates the clock signal such that the peak-to-peak jitter at the 34 368 kbit/s kbit/s output does not exceed 0,05 UI when it is measured within the frequency range from 100 Hz to 800 kHz.	5.5	m	
3	The function generates the frame start reference signal P31e_TI_FS for the P31e signal, which is active once per 1 536 bits.	5.5	m	

Annex D (normative): ICS proforma for P22e Path Layer

D.1 Identification of the implementation

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.

In the present document, an IUT, and of course the identification of an IUT refers to a P22e Path Layer instance implemented inside the SUT.

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.

D.1.1 Date of the statement

.....

D.1.2 Implementation Under Test (IUT) identification

IUT name:

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.....

IUT version

Hardware version:

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Software version:

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Firmware version:

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D.1.3 System Under Test (SUT) identification

SUT name:

.....

.....

Hardware configuration:

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.....

SUT Software version:

.....

.....

SUT Firmware version:

.....

Operating system:

.....

.....

D.1.4 Product supplier

Name:

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Address:

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.....

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Telephone number:

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Facsimile number:

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E-mail address:

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Additional information:

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D.1.5 Client

Name:

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Address:

.....

.....

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Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

D.1.6 ICS contact person

Name:

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Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

D.2 Identification of the ETS

This ICS proforma applies to the following standard:

EN 300 417-5-1 [1]: "Transmission and Multiplexing (TM); Generic requirement of transport functionality of equipment; Part 5-1: Plesiochronous Digital Hierarchy (PDH) path layer functions".

D.3 Global statement of conformance of P22e Path Layer

Due to the model used for this layer the "Global statement of conformance" sentence used in ETSI ICS is not applicable to this layer.

D.4 P22e Path Layer Functions

D.4.0 P22e Path Layer Description

Table D.1: P22e Path Layer functions

Item	P22e Path Layer functions	Reference	Status	Support
1	P22e Connection function (P22e_C).	6	o.101	
2	P22e Layer Trail Termination Source function (P22e_TT_So).	6, figure 28	o.101	
3	P22e Layer Trail Termination Source function (P22e_TT_Sk).	6, figure 28	o.101	
4	P22e/P12s Layer Trail Adaptation Source function (P22e/P12s_A_So).	6, figure 28	c101	
5	P22e/P12s Layer Trail Adaptation Sink function (P22e/P12s_A_Sk).	6, figure 28	c102	
6	P22e/P12x Layer Trail Adaptation Source function (P22x/P12x_A_So).	6, figure 28	c101	
7	P22e/P12x Layer Trail Adaptation Sink function (P22x/P12x_A_Sk).	6, figure 28	c102	
8	P22e Timing Atomic function (P22e_PEC).	6, figure 28	c103	
9	P22e Layer non-intrusive monitoring function (P22em_TT_Sk).	6, figure 28	o	
10	P22e Layer to Xxx Layer Adaptation Source function (P22e/Xxx_A_So)	n/a	c101	
11	P22e Layer to Xxx Layer Adaptation Sink function (P22e/Xxx_A_Sk)	n/a	c102	

o.101: It is mandatory to support at least one of these items -- connection function and/or trail termination source and/or trail termination sink present

o.102: It is mandatory to support at least one of these items -- at least one Payload Adaptation Source present

o.103: It is mandatory to support at least one of these items -- at least one Payload Adaptation Sink present

c101: IF D.1/2 THEN o.102 ELSE x -- a TT_So function should exist for A_So function

c102: IF D.1/3 THEN o.103 ELSE x -- a TT_Sk function should exist for A_Sk function

c103: IF D.1/4 OR D.1/6 THEN m ELSE x -- At least one P22e_A_So function exists

Comment: Items dealing with P22e/Xxx_A functions take into account the implementation of adaptation functions not specified or referenced in EN 300 417-x-1 standards.

Table D.2: Number of adaptation to P12 Layers source functions

Prerequisite: D.1/4 OR D.1/6 -- at least one adaptation source function exists

Item	Number of adaptation to P12 layers source functions	Reference	Status	Support	Values	
					Allowed	Supported
1	Number of supported P22e/P12s_A_So functions.	6, figure 28	c201		1≤ j1 ≤4	
2	Number of supported P22e/P12x_A_So functions.	6, figure 28	c202		1≤ j2 ≤4	
3	Number of P22e/P12w_A_So (w = s, x) functions supported: j1+j2.	6, figure 28	m		j1 + j2 ≥ 4	
4	The equivalent capacity of P22e/P12w_A_So (w = s, x) functions supported exceeds the 4 PU12 timeslots available in the P22e_CI (j1+j2 >4).		c203		___	

c201: IF D.1/4 THEN m ELSE n/a -- P22/P12s_A_So supported
c202: IF D.1/6 THEN m ELSE n/a -- P22/P12x_A_So supported
c203: IF (D.1/4 AND D.1/6) THEN o ELSE n/a -- multiple P22e/P12w_A_So (w = x, s) supported

Table D.3: Number of adaptation to P12 Layers sink functions

Prerequisite: D.1/5 OR D.1/7 -- at least one adaptation sink function exists

Item	Number of adaptation to P12 layers sink functions	Reference	Status	Support	Values	
					Allowed	Supported
1	Number of supported P22e/P12s_A_Sk functions.	6, figure 28	c301		1≤ j3 ≤ 4	
2	Number of supported P22e/P12x_A_Sk functions.	6, figure 28	c302		1≤ j4 ≤ 4	
3	Number of P22e/P12w_A_Sk (w = s, x) functions supported: j3+j4.	6, figure 28	m		j3 + j4 ≥ 4	
4	The equivalent capacity of P22e/P12w_A_Sk (w = s, x) functions supported exceeds the 4 PU12 timeslots available in the P22e_CI (j3+j4 >4).		c303		___	

c301: IF D.1/5 THEN m ELSE n/a -- P22/P12s_A_Sk supported
c302: IF D.1/7 THEN m ELSE n/a -- P22/P12x_A_Sk supported
c303: IF (D.1/5 AND D.1/7) THEN o ELSE n/a -- multiple P22e/P12w_A_Sk (w = x, s) supported

D.4.0.1 Characteristic Information

Table D.4: P22e Characteristic Information

Prerequisite: D.1/1 OR D.1/2 OR D.1/3 -- implies that at least one P22e Layer Trail Termination or Connection function is present

Item	P22e Characteristic Information	Reference	Status	Support
1	The characteristic information (CI) is a 8 448 kbits/s signal with co-directional bit timing and frame start information and conforms to G.742.	6, figure 28, G.742	m	
2	The CI is structured to form a 848 bit long frame with 12 bit frame overhead.	6, figure 29, G.742	m	
3	The CI contains a FAS overhead in bits 1 to 10.	6, figure 29, G.742	m	
4	The CI contains a RDI bit in bit 11.	6, figure 29, G.742	m	
5	The CI contains one user bit for National Use in bit12.	6, figure 29, G.742	m	

D.4.0.2 Adapted information

Table D.5: P22e Adapted Information

Prerequisite: D.1/2 OR D.1/3 -- implies that at least one P22e Layer Trail Termination function is present

Item	P22e Adapted Information	Reference	Status	Support
1	The adapted information (AI) is a multiplexed signal containing four tributary signals PU12 with co-directional bit timing and frame start information.	6	m	
2	The PU12 is a 2 048 kbit/s non-structured signal (P12x_CI).	6	c501	
3	The PU12 is a 2 048 kbit/s signal with a frame structure conforming to ETS 300 167, with justification overhead bits (P12s_CI).	6, ETS 300 167	c502	

o.501: It is mandatory to support at least one of these items -- at least one type of payload supported
c501: IF D.1/6 OR D.1/7 THEN o.501 ELSE n/a -- a P22e/P12x_A exists
c502: IF D.1/4 OR D.1/5 THEN o.501 ELSE n/a -- a P22e/P12s_A exists

D.4.1 P22e Connection function

Table D.6: P22e Connection function

Prerequisite: D.1/1 -- a connection function exists

Item	P22e Connection function	Reference	Status	Support
1	No requirements	6.1	n/a	

D.4.2 P22e Trail Termination functions

Prerequisite: D.1/2 OR D.1/3 -- a trail termination function exists

D.4.2.1 P22e Trail Termination Source P22e_TT_So

Prerequisite: D.1/2 -- a trail termination source function exists

D.4.2.1.1 Processes (P22e_TT_So)

Table D.7: Frame Alignment Signal insertion (P22e_TT_So)

Item	Frame Alignment Signal insertion (P22e_TT_So)	Reference	Status	Support
1	The Frame Alignment Signal (11110 10000) is inserted into the frame overhead.	6.2.1	m	

Table D.8: RDI insertion/removal (P22e_TT_So)

Prerequisite: D.1/2 AND D.1/3 -- bi-directional layer supported

Item	RDI insertion (P22e_TT_So)	Reference	Status	Support
1	The RDI bit is set to "1" within 600 µs on activation of P22e_RI_RDI.	6.2.1	m	
2	The RDI bit is set to "0" within 600 µs on removal of P22e_RI_RDI.	6.2.1	m	

D.4.2.2 P22e Trail Termination Sink P22e_TT_Sk

Prerequisite: D.1/3 -- a termination sink function exists

D.4.2.2.1 Management information (P22e_TT_Sk)

Table D.9: Configuration/provisioning of information from EMF to P22e_TT_Sk

Item	Configuration/provisioning of information from EMF to P22e_TT_Sk	Reference	Status	Support
1	P22e_TT_Sk_MI_TPmode is provisionable from the EMF.	6.2.2	m	
2	P22e_TT_Sk_MI_SSF_Reported is provisionable from the EMF.	6.2.2	m	
3	P22e_TT_Sk_MI_RDI_Reported is provisionable from the EMF.	6.2.2	c901	
4	P22e_TT_Sk_MI_1second is provisioned by the EMF.	6.2.2	m	

c901: IF D.1/2 AND D.1/3 THEN m ELSE x -- bi-directional layer supported

Table D.10: Signal reports from P22e_TT_Sk to EMF

Item	Signal reports from P22e_TT_Sk to EMF	Reference	Status	Support
1	P22e_TT_Sk_MI_cRDI is reported to the EMF.	6.2.2	m	
2	P22e_TT_Sk_MI_cSSF is reported to the EMF.	6.2.2	m	
3	P22e_TT_Sk_MI_pN_DS is reported to the EMF.	6.2.2	m	
4	P22e_TT_Sk_MI_pN_EBC is reported to the EMF.	6.2.2	m	
5	P22e_TT_Sk_MI_pF_DS is reported to the EMF.	6.2.2	c1001	

c1001: IF D.1/2 AND D.1/3 THEN m ELSE x -- bi-directional layer supported

D.4.2.2.2 Processes (P22e_TT_Sk)

Table D.11: Trail Termination Point mode process

Prerequisite: D.9/11 -- MI_TPmode provisionable from the EMF

Item	Trail Termination Point mode process	Reference	Status	Support
1	The Trail Termination Point Mode supports "not monitored" (NMON) status.	EN 300 417-1-1 subclause 8.5	m	
2	The Trail Termination Point Mode supports "monitored" (MON) status.	EN 300 417-1-1 subclause 8.5	m	

Table D.12: FAS and error detection

Item	FAS and error detection	Reference	Status	Support
1	The FAS bits of each received frame are compared to their expected value "11110 10000" and a difference is taken as evidence of one or more errors (nN_B) in the block.	6.2.2	m	

Table D.13: RDI processing

Prerequisite: D.1/2 AND D.1/3 -- bi-directional layer supported

Item	RDI processing	Reference	Status	Support
1	A "1" in the RDI bit indicates an RDI state.	6.2.2	m	
2	A "0" in the RDI bit indicates the normal state.	6.2.2	m	

D.4.2.2.3 Defects (P22e_TT_Sk)

Table D.14: Defects for P22e_TT_Sk

Prerequisite: D.1/2 AND D.1/3 -- bi-directional layer supported

Item	Defects for P22e_TT_Sk	Reference	Status	Support
1	The function detects the dRDI defect according to the specification in EN 300 417-1-1, subclauses 7.4.1, 8.2.1.5, 8.2.2.2.	6.2.2, EN 300 417-1-1 [2] subclause 7.4.1, 8.2.1.5, 8.2.2.2	m	

D.4.2.2.4 Consequent actions (P22e_TT_Sk)

Table D.15: Consequent actions for P22e_TT_Sk

Item	Consequent actions for P22e_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: aTSF <-- CI_SSF.	6.2.2	m	
2	The function implements the following logical equation: aRDI <-- CI_SSF.	6.2.2	c1501	

c1501: IF D.1/2 AND D.1/3 THEN m ELSE n/a -- bi-directional layer supported

D.4.2.2.5 Defect Correlations (P22e_TT_Sk)

Table D.16: Defect Correlations for P22e_TT_Sk

Item	Defect Correlations for P22e_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: cRDI <-- dRDI and MON and RDI_Reported.	6.2.2	c1601	
2	The function implements the following logical equation: cSSF <-- CI_SSF and MON and SSF_Reported.	6.2.2	c1602	

c1601: IF D.10/1 THEN m ELSE n/a -- cRDI is reported
c1602: IF D.10/2 THEN m ELSE n/a -- cSSF is reported

D.4.2.2.6 Performance monitoring (P22e_TT_Sk)

Table D.17: Performance Monitoring (P22e_TT_Sk)

Item	Performance Monitoring (P22e_TT_Sk)	Reference	Status	Support
1	The function implements the following logical equation: pN_DS <-- aTSF or dEQ.	6.2.2	c1701	
2	The function implements the following logical equation: pF_DS <-- dRDI.	6.2.2	c1702	
3	The function implements the following logical equation: pN_EBC <-- Sum(nN_B) The "Sum" is calculated over a one-second period.	6.2.2	c1703	

c1701: IF D.10/3 THEN m ELSE n/a -- pN_DS is reported
c1702: IF D.10/5 THEN m ELSE n/a -- pF_DS is reported
c1703: IF D.10/4 THEN m ELSE n/a -- pN_EBC is reported

D.4.3 P22e Adaptation functions

D.4.3.1 P22e to P12x Adaptation Source P22e/P12x_A_So/i

Prerequisite: D.1/8 -- P22e to P12x adaptation source function exists

D.4.3.1.1 Management information (P22e/P12x_A_So)

Table D.18: Configuration/provisioning information from EMF to P22e/P12x_A_So

Item	Configuration/provisioning information from EMF to P22e/P12x_A_So	Reference	Status	Support
1	P22e/P12x_A_So_MI_Active is provisionable from the EMF.	6.3.1	c1801	
2	The function can be activated (P22e/P12x_A_So_MI_Active is TRUE) and deactivated (P22e/P12x_A_So_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	6.3.1	c1802	

c1801: IF D.2/4 THEN m ELSE n/a -- equivalent capacity of P22e/P12w_A_So (w = s, x) functions exceeds 4 PU12 timeslots
c1802: IF D.18/1 THEN m ELSE n/a -- P22e/P12x_A_So_MI_Active provisionable

D.4.3.1.2 Processes (P22e/P12x_A_So)

Table D.19: Adaptation process for P22e/P12x_A_So

Item	Adaptation process for P22e/P12x_A_So	Reference	Status	Support
1	The function maps one plesiochronous, 2 048 kbit/s, P12 information stream into the P22e frame, as specified in ITU-T Recommendation G.742, clause 5.	6.3.1, figure 29, G.742 clause 5	m	
2	The function takes P12x_CI, a bit-stream with a rate of 2 048 kbit/s ± 50 ppm and inserts it into the PU12 #i.	6.3.1, figure 30	m	

Table D.20: Frequency justification and bitrate adaptation (P22e/P12x_A_So)

Prerequisite: D.19/1 -- mapping of P12x_CI into the P22e frame supported

Item	Frequency justification and bitrate adaptation (P22e/P12x_A_So)	Reference	Status	Support
1	The function provides for an elastic store (buffer) process.	6.3.1	m	
2	The data signal is written into the buffer under control of the associated input clock.	6.3.1	m	
3	The data signal is read out of the buffer under control of the P22e clock, frame position (P22e_TI), and justification decisions.	6.3.1	m	
4	Each justification decision results in a corresponding positive justification action. Upon a positive justification action, the reading of 1 data bit is cancelled once and no data are written at the justification opportunity bit J.	6.3.1, G.742	m	
5	The buffer size is such that this justification process does not introduce any errors when the input clock (P12x CI_CK) has a frequency within the range 2 048 kbit/s ± 50 ppm and a jitter specified by ITU-T Recommendation G.823, and the P22e clock (P22e_TI_CK) has a frequency and jitter within the range specified in subclause 6.5.	6.3.1, 6.5, G.823	m	
6	The function generates the justification control (CCC) bits according to the specification in ITU-T Recommendation G.742 and inserts them in the appropriate C bit positions.	6.3.1, G.742	m	

Table D.21: Activation of P22e/P12x_A_So functions and timeslot access

Prerequisite: D.19/1 -- mapping of P12x_CI into the P22e frame supported

Item	Activation of P22e/P12x_A_So functions and timeslot access	Reference	Status	Support
1	The adaptation source function has access to a PU-12 #i of the P22e access point.	6.3.1	m	
2	The function accesses the access point only when it is activated (MI_Active is true).	6.3.1	c2101	

c2101: IF D.18/1 THEN m ELSE n/a -- P22e/P12x_A_So_MI_Active provisionable

D.4.3.2 P22

e to P12x Adaptation Sink P22e/P12x_A_Sk/i

Prerequisite: D.1/9 -- P22e to P12x adaptation sink function exists

D.4.3.2.1 Management information (P22e/P12x_A_Sk)

Table D.22: Configuration/provisioning information from EMF to P22e/P12x_A_Sk

Item	Configuration/provisioning information from EMF to P22e/P12x_A_Sk	Reference	Status	Support
1	P22e/P12x_A_Sk_MI_Active is provisionable from the EMF.	6.3.2	c2201	
2	The function can be activated (P22e/P12x_A_Sk_MI_Active is TRUE) and deactivated (P22e/P12x_A_Sk_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	6.3.2	c2202	

c2201: IF D.3/4 THEN m ELSE n/a -- equivalent capacity of P22e/P12w_A_Sk (w = s, x) functions exceeds 4 PU12 timeslots

c2202: IF D.22/1 THEN m ELSE n/a -- P22e/P12x_A_Sk_MI_Active provisionable

D.4.3.2.2 Processes (P22e/P12x_A_Sk)

Table D.23: Adaptation process for P22e/P12x_A_Sk

Item	Adaptation process for P22e/P12x_A_Sk	Reference	Status	Support
1	This function recovers one plesiochronous, 2 048 kbit/s, information stream P12 from the P22e frame as specified in ITU-T Recommendation G.742, clause 5.	6.3.2, figure 29, figure 30, G.742 clause 5	m	

Table D.24: Justification control interpretation for P22e/P12x_A_Sk

Prerequisite: D.23/1 -- demapping of P12x_CI from the P22e frame supported

Item	Justification control interpretation for P22e/P12x_A_Sk	Reference	Status	Support
1	The function performs justification control interpretation according ITU-T Recommendation G.742.	6.3.2, G.742	m	
2	If the majority of the C bits is "0" the J bit is taken as a data bit.	6.3.2, G.742	m	
3	If the majority of C bits is "1" J bit is taken as a justification bit and consequently ignored.	6.3.2, G.742	m	

Table D.25: Smoothing and jitter limiting process for P22e/P12x_A_Sk

Prerequisite: D.23/1 -- demapping of P12x_CI from the P22e frame supported

Item	Smoothing and jitter limiting process for P22e/P12x_A_Sk	Reference	Status	Support
1	The function provides for a clock smoothing and elastic store (buffer) process.	6.3.2, G.742	m	
2	The 2 048 kbit/s data signal is written into the buffer under control of the associated (gapped) input clock.	6.3.2, G.742	m	
3	The data signal is read out of the buffer under control of a smoothed (equally spaced) 2 048 kHz ± 50 ppm clock.	6.3.2	m	
4	The residual jitter caused by bit justifications (measured at the 2 048 kbit/s interface) is such that the peak-to-peak jitter at the 2 048 kbit/s output (being a tributary) in the absence of input jitter does not exceed 0,25 UI when measured in the frequency range up to 100 kHz.	6.3.2	m	
5	When measured with an instrument incorporating a bandpass filter having a lower cut-off frequency of 18 kHz, a roll-off of 20 dB/decade and an upper limit of 100 kHz, the peak-to-peak output jitter does not exceed 0,05 UI with a probability of 99,9 % during a measurement period of 10 s.	6.3.2	m	
6	A 2 048 kbit/s signal, modulated by sinusoidal jitter, applied to an adaptation source and retrieved from the adaptation sink, has a jitter transfer characteristic within the gain/frequency limits given in figure 35.	6.3.2, figure 35	m	
7	The buffer size is such that in the presence of jitter as specified in ITU-T Recommendation G.823 and a frequency within the range 2 048 kbit/s ± 50 ppm, this justification process does not introduce any errors.	6.3.2 G.823	m	
8	Following a step in frequency of the P12x signal transported by the P22e_AI there will be a maximum recovery time of X seconds after which this process does not generate any bit errors.	6.3.2, G.823	n/a	

Table D.26: Activation of P22e/P12x_A_Sk functions and timeslot access

Prerequisite: D.23/1 -- demapping of P12x_CI from the P22e frame supported

Item	Activation of P22e/P12x_A_Sk functions and timeslot access	Reference	Status	Support
1	The adaptation sink function has access to a PU-12 #i of the P22e access point.	6.3.2	m	
2	The function performs the operation specified above when it is activated (MI_Active is true).	6.3.2	c2601	
3	If the function is not active (MI_Active is False) it transmits the all-ONEs signal at its output (CI_D).	6.3.2	c2601	
4	If the function is not active (MI_Active is False) it does not report its status via the management point.	6.3.2	c2601	

c2601: IF D.22/1 THEN m ELSE n/a -- P22e/P12x_A_Sk_MI_Active provisionable

D.4.3.2.3 Consequent actions (P22e/P12x_A_Sk)

Table D.27: Consequent actions for P22e/P12x_A_Sk

Item	Consequent actions for P22e/P12x_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- AI_TSF.	6.3.2	m	
2	On declaration of aAIS the function outputs an all-ONEs (AIS) - complying to the frequency limits for this signal (a bit rate in range 2 048 kbit/s ± 50 ppm) - signal within 200 µs.	6.3.2	m	
3	On clearing of aAIS the function outputs normal data within 200 µs.	6.3.2	m	
4	The function implements the following logical equation: aSSF <-- AI_TSF.	6.3.2	m	

D.4.3.3 P22e to P12s Adaptation Source P22e/P12s_A_So/i

Prerequisite: D.1/4 -- a P22/P12s Adaptation source function exists

D.4.3.3.1 Management information (P22e/P12s_A_So/i)

Table D.28: Configuration/provisioning information from EMF to P22e/P12s_A_So

Item	Configuration/provisioning information from EMF to P22e/P12s_A_So	Reference	Status	Support
1	P22e/P12s_A_So_MI_Active is provisionable from the EMF.	6.3.3	c2801	
2	The function can be activated (P22e/P12s_A_So_MI_Active is TRUE) and deactivated (P22e/P12s_A_So_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	6.3.3	c2802	

c2801: IF D.2/4 THEN m ELSE n/a -- equivalent capacity of P22e/P12w_A_So (w = s, x) functions exceeds 4 PU12 timeslots

c2802: IF D.28/1 THEN m ELSE n/a -- P22e/P12s_A_So_MI_Active provisionable

D.4.3.3.2 Processes (P22e/P12s_A_So/i)

Table D.29: Adaptation process for P22e/P12s_A_So

Item	Adaptation process for in P22e/P12s_A_So	Reference	Status	Support
1	This function maps one synchronous, 2 048 kbit/s, P12 information stream into the P22e frame as specified in ITU-T Recommendation G.742, clause 5.	6.3.3, figure 29, G.742 clause 5	m	
2	The function takes P12s_CI, a bit-stream with a rate of 2 048 kbit/s ± 50 ppm and inserts it into the PU12 #i.	6.3.3, figure 30	m	

Table D.30: Frequency justification and bitrate adaptation for P22e/P12s_A_So

Prerequisite: D.29/1 -- mapping of P12s_CI into the P22e frame supported

Item	Frequency justification and bitrate adaptation for P22e/P12s_A_So	Reference	Status	Support
1	The function provides for an elastic store (buffer) process.	6.3.3	m	
2	The data signal is written into the buffer under control of the associated input clock.	6.3.3	m	
3	The data signal is read out of the buffer under control of the P22e clock, frame position (P22e_TI), and justification decisions.	6.3.3	m	
4	Each justification decision results in a corresponding positive justification action. Upon a positive justification action, the reading of 1 data bit is cancelled once and no data are written at the justification opportunity bit J.	6.3.3, G.742	m	
5	The buffer size is such that this justification process does not introduce any errors when the input clock (P12s CI_CK) has a frequency within the range 2 048 kbit/s ± 50 ppm and a jitter specified by ITU-T Recommendation G.823, and the P22e clock (P22e_TI_CK) has a frequency and jitter within the range specified in subclause 6.5.	6.3.3, 4.5, G.823	m	
6	The function generates the justification control (CCC) bits according to the specification in ITU-T Recommendation G.742 and inserts them in the appropriate C bit positions.	6.3.3, G.742	m	

Table D.31: Activation of P22e/P12s_A_So functions and timeslot access

Prerequisite: D.29/1 -- mapping of P12s_CI into the P22e frame supported

Item	Activation of P22e/P12s_A_So functions and timeslot access	Reference	Status	Support
1	The adaptation source function has access to a PU-12 #i of the P22e access point.	6.3.3	m	
2	The function accesses the access point only when it is activated (MI_Active is true).	6.3.3	c3101	

c3101: IF D.28/1 THEN m ELSE n/a -- P22e/P12s_A_So_MI_Active is provisionable

D.4.3.4 P22e to P12s Adaptation Sink P22e/P12s_A_Sk/i

Prerequisite: D.1/5 -- P22e to P12s adaptation sink function exists

D.4.3.4.1 Management information (P22e/P12s_A_Sk)

Table D.32: Configuration/provisioning information from EMF to P22e/P12s_A_Sk

Item	Configuration/provisioning information from EMF to P22e/P12s_A_Sk	Reference	Status	Support
1	P22e/P12s_A_So_MI_Active is provisionable from the EMF.	6.3.4	c3201	
2	P22e/P12x_A_So_MI_AIS_Reported is provisionable from the EMF.	6.3.4	m	
3	P22e/P12x_A_So_MI_CRC4mode is provisionable from the EMF.	6.3.4	m	
4	The function can be activated (P22e/P12s_A_Sk_MI_Active is TRUE) and deactivated (P22e/P12s_A_Sk_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	6.3.4	c3202	

c3201: IF D.3/4 THEN m ELSE n/a -- equivalent capacity of P22e/P12w_A_Sk (w = s, x) functions exceeds 4 PU12 timeslots

c3202: IF D.32/1 THEN m ELSE n/a -- P22e/P12s_A_Sk_MI_Active provisionable

Table D.33: Signal reports from P22e/P12s_A_Sk to EMF

Item	Signal reports from P22e/P12s_A_Sk to EMF	Reference	Status	Support
1	P22e/P12s_A_Sk_MI_cLOF is reported to the EMF.	6.3.4	m	
2	P22e/P12s_A_Sk_MI_cAIS is reported to the EMF.	6.3.4	m	
3	P22e/P12s_A_Sk_MI_NCI is reported to the EMF.	6.3.4	m	

D.4.3.4.2 Processes (P22e/P12s_A_Sk)

Table D.34: Adaptation process for P22e/P12s_A_Sk

Item	Adaptation process for P22e/P12s_A_Sk	Reference	Status	Support
1	This function recovers one plesiochronous, 2 048 bit/s, information stream P12 from the P22e frame as specified in ITU-T Recommendation G.742, clause 5.	6.3.4, figure 29, figure 30, G.742, clause 5	m	
2	The function performs the frame alignment of the 2 048 kbit/s signal to recover the frame start signal FS.	6.3.4	m	

Table D.35: Justification control interpretation(P22e/P12s_A_Sk)

Prerequisite: D.34/1 -- demapping of P12s_CI from the P22e frame supported

Item	Justification control interpretation (P22e/P12s_A_Sk)	Reference	Status	Support
1	The function performs justification control interpretation according ITU-T Recommendation G.742.	6.3.4, G.742	m	
2	If the majority of the C bits is "0" the J bit is taken as a data bit.	6.3.4, G.742	m	
3	If the majority of C bits is "1", J bit is taken as a justification bit and consequently ignored.	6.3.4, G.742	m	

Table D.36: Smoothing and jitter limiting process (P22e/P12s_A_Sk)

Prerequisite: D.34/1 -- demapping of P12s_CI from the P22e frame supported

Item	Smoothing and jitter limiting process (P22e/P12s_A_Sk)	Reference	Status	Support
1	The function provides for a clock smoothing and elastic store (buffer) process.	6.3.4, G.742	m	
2	The 2 048 kbit/s data signal is written into the buffer under control of the associated (gapped) input clock.	6.3.4, G.742	m	
3	The data signal is read out of the buffer under control of a smoothed (equally spaced) 2 048 kHz ± 50 ppm clock.	6.3.4	m	
4	The residual jitter is for further study.	6.3.4	n/a	
5	The buffer size is such that in the presence of jitter as specified in ITU-T Recommendation G.823 and a frequency within the range 2 048 kbit/s ± 50 ppm, this justification process does not introduce any errors.	6.3.4, G.823	m	
6	Following a step in frequency of the P12s signal transported by the P22e_AI there will be a maximum recovery time of X seconds after which this process does not generate any bit errors.	6.3.4, G.823	n/a	

Table D.37: Activation of P22e/P12s_A_Sk functions and timeslot access

Prerequisite: D.34/1 -- demapping of P12s_CI from the P22e frame supported

Item	Activation of P22e/P12s_A_Sk functions and timeslot access	Reference	Status	Support
1	The adaptation sink function has access to a PU-12 #i of the P22e access point.	6.3.4	m	
2	The function performs the operation specified above when it is activated (MI_Active is true).	6.3.4	c3701	
3	If the function is not active (MI_Active is False) it transmits the all-ONEs signal at its output (CI_D).	6.3.4	c3701	
4	If the function is not active (MI_Active is False) it does not report its status via the management point.	6.3.4	c3701	

c3701: IF D.32/1 THEN m ELSE n/a -- P22e/P12s_A_Sk_MI_Active provisionable

Table D.38: Basic frame and CRC4 multiframe alignment for P22e/P12s_A_Sk

Item	Basic frame and CRC4 multiframe alignment for P22e/P12s_A_Sk	Reference	Status	Support
1	The function recovers the (250 μs) basic frame and (2 ms) CRC-4 multiframe phase, as specified by ETS 300 167.	6.3.4, ETS 300 167	m	
2	Either the manual or the automatic modes are supported.	6.3.4	m	
3	Both manual and automatic interworking modes are supported.	6.3.4	m	
4	The process generates a multiframe present signal (CI_MFP) according the following rule: • CI_MFP is FALSE when the CRC4mode is OFF.	6.3.4	m	
5	The process generates a multiframe present signal (CI_MFP) according the following rule: • CI_MFP is FALSE when the CRC4mode is ON and the frame alignment process has not yet found multiframe alignment. CI_MFP is TRUE when multiframe alignment has been found.	6.3.4	m	
6	The process generates a multiframe present signal (CI_MFP) according the following rule: • CI_MFP is FALSE when the CRC4mode is AUTO and the frame alignment process is in the states out-of-primary-BFA, in-primary-BFA, CRC-4 MFA search, assume-crc-to-non-crc-interworking CI_MFP is TRUE if the frame alignment process is in the state assume-crc-to-crc-interworking.	6.3.4	m	

D.4.3.4.3 Defects (P22e/P12s_A_Sk)

Table D.39: Defects for P22e/P12s_A_Sk

Item	Defects for P22e/P12s_A_Sk	Reference	Status	Support
1	The function detects a loss of frame defect (dLOF) if the frame alignment state machine (figure 283) is in (one of) the OOF state(s).	6.3.4, figure 283	m	
2	The dLOF defect is cleared when the frame alignment state machine is in (one of) the IF state(s).	6.3.4, figure 283	m	
3	The function detects an AIS defect (dAIS) according to the specification in subclause 8.2.1.7 in EN 300 417-1-1.	6.3.4, EN 300 417-1-1 subclause 8.2.1.7	m	
4	For the dAIS detection/clearance procedure the value of X is: X = 7.	6.3.4	m	
5	For the dAIS detection/clearance procedure the value of Y is: Y = 4296.	6.3.4	m	
6	For the dAIS detection/clearance procedure the value of Z is: Z = 8.	6.3.4	m	

D.4.3.4.4 Consequent actions (P22e/P12s_A_Sk)

Table D.40: Consequent Actions for P22e/P12s_A_Sk

Item	Consequent Actions for P22e/P12s_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- dAIS or dLOF.	6.3.4	m	
2	On declaration of aAIS the function outputs an all-ONEs (AIS) signal - complying to the frequency limits for this signal (a bit rate in range 2 048 kbit/s ± 50 ppm) - within 250 µs.	6.3.4	m	
3	On clearing of aAIS the function outputs normal data within 250 µs.	6.3.4	m	
4	The function implements the following logical equation: aSSF <-- dAIS or dLOF.	6.3.4	m	

D.4.3.4.5 Defect correlation (P22e/P12s_A_Sk)

Table D.41: Defect correlations for P22e/P12s_A_Sk

Item	Defect correlations for P22e/P12s_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: cAIS <-- dAIS and (not AI_TSF) and AIS_Reported.	4.3.2	c4101	
2	The function implements the following logical equation: cLOF <-- dLOF and not dAIS.	4.3.2	c4102	

c4101: IF D.33/2 THEN m ELSE n/a -- MI_cAIS supported
c4102: IF D.33/1 THEN m ELSE n/a -- MI_cLOF supported

D.4.4 P22e Layer Monitoring Functions

D.4.4.1 P22e Layer Non-intrusive Monitoring Function P22em_TT_Sk

Prerequisite: D.1/9 -- a non-intrusive trail termination sink function exists

D.4.4.1.1 Management information (P22em_TT_Sk)

Table D.42: Configuration/provisioning information from EMF to P22em_TT_Sk

Item	Configuration/provisioning information from EMF to P22em_TT_Sk	Reference	Status	Support
1	P22em_TT_Sk_MI_TPMode is provisionable from the EMF.	6.4.1	m	
2	P22em_TT_Sk_MI_SSF_Reported is provisionable from the EMF.	6.4.1	m	
3	P22em_TT_Sk_MI_RDI_Reported is provisionable from the EMF.	6.4.1	m	

Table D.43: Signal reports from P22em_TT_Sk to EMF

Item	Signal reports from P22em_TT_Sk to EMF	Reference	Status	Support
1	P22em_TT_Sk_MI_cRDI is reported to the EMF.	6.4.1	c4301	
2	P22em_TT_Sk_MI_cSSF is reported to the EMF.	6.4.1	m	
3	P22em_TT_Sk_MI_pN_DS is reported to the EMF.	6.4.1	m	
4	P22em_TT_Sk_MI_pN_EBC is reported to the EMF.	6.4.1	m	
5	P22em_TT_Sk_MI_pF_DS is reported to the EMF.	6.4.1	c4301	

c4301: IF D.1/2 AND D.1/3 THEN m ELSE x -- bi-directional layer supported

NOTE: Reporting should be understood as reporting at Management point (i.e. to the Equipment Management Function), not as reporting at the user through a management interface.

D.4.4.1.2 Processes

Table D.44: Trail Termination Point mode process

Prerequisite: D.42/11 -- MI_TPmode supported

Item	Trail Termination Point mode process	Reference	Status	Support
1	The Trail Termination Point Mode supports "not monitored" (NMON) status.	EN 300 417-1-1 subclause 8.5	m	
2	The Trail Termination Point Mode supports "monitored" (MON) status.	EN 300 417-1-1 subclause 8.5	m	

Table D.45: FAS and error detection

Item	FAS and error detection	Reference	Status	Support
1	The FAS bits of each received frame are compared to their expected value "11110 10000" and a difference is taken as evidence of one or more errors (nN_B) in the block.	6.4.1	m	

Table D.46: RDI processing

Prerequisite: D.1/2 AND D.1/3 -- bi-directional layer supported

Item	RDI processing	Reference	Status	Support
1	A "1" in the RDI bit indicates an RDI state.	6.4.1	m	
2	A "0" in the RDI bit indicates the normal state.	6.4.1	m	

D.4.4.1.3 Defects (P22em_TT_Sk)

Table D.47: Defects for P22em_TT_Sk

Prerequisite: D.1/2 AND D.1/3 -- bi-directional layer supported

Item	Defects for P22em_TT_Sk	Reference	Status	Support
1	The function detects for dRDI defect according to the specification in EN 300 417-1-1, subclauses 7.4.1, 8.2.1.5, 8.2.2.2.	6.4.1, EN 300 417-1 subclause 7.4.1, 8.2.1.5, 8.2.2.2	m	

D.4.4.1.4 Consequent actions (P22em_TT_Sk)

Table D.48: Consequent actions for P22em_TT_Sk

Item	Consequent actions for P22em_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: aTSF <-- CI_SSF.	6.4.1	m	

D.4.4.1.5 Defect Correlations (P22em_TT_Sk)

Table D.49: Defect Correlations for P22em_TT_Sk

Item	Defect Correlations (P22em_TT_Sk)	Reference	Status	Support
1	The function implements the following logical equation: cRDI <-- dRDI and MON and RDI_Reported.	6.4.1	c4901	
2	The function implements the following logical equation: cSSF <-- CI_SSF and MON and SSF_Reported.	6.4.1	c4902	

c4901: IF D.43/1 THEN m ELSE n/a -- cRDI is reported
c4902: IF D.43/2 THEN m ELSE n/a -- cSSF is reported

D.4.4.1.6 Performance Monitoring (P22em_TT_Sk)

Table D.50: Performance Monitoring (P22em_TT_Sk)

Item	Performance Monitoring (P22em_TT_Sk)	Reference	Status	Support
1	The function implements the following logical equation: pN_DS <-- aTSF or dEQ.	6.4.1	c5001	
2	The function implements the following logical equation: pF_DS <-- dRDI.	6.4.1	c5002	
3	The function implements the following logical equation: pN_EBC <-- Sum(nN_B) The "Sum" is calculated over a one-second period.	6.4.1	c5003	

c5001: IF D.43/3 THEN m ELSE n/a -- pN_DS is reported
c5002: IF D.43/5 THEN m ELSE n/a -- pF_DS is reported
c5003: IF D.43/4 THEN m ELSE n/a -- pN_EBC is reported

D.4.5 P22e PDH Equipment Clock Adaptation Source P22e_PEC

Prerequisite: D.1/8 -- P22e_PEC exists

D.4.5.1 Processes (P22em_TT_Sk)

Table D.51: Processes (P22em_TT_Sk)

Item	Processes (P22em_TT_Sk)	Reference	Status	Support
1	The function generates the clock (bit) reference signal P22e_TI_CK for the P22e signal, in the range of 8 448 kbit/s ± 30 ppm.	6.5	m	
2	The function generates the clock signal such that the peak-to-peak jitter at the 8 448 kbit/s output does not exceed 0,05 UI when it is measured within the frequency range from 20 Hz to 400 kHz.	6.5	m	
3	The function generates the frame start reference signal P22e_TI_FS for the P22e signal, which is active once per 848 bits.	6.5	m	

Annex E (normative): ICS proforma for P12s Path Layer

E.1 Identification of the implementation

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.

In the present document, an IUT, and of course the identification of an IUT refers to a P12s Path Layer instance implemented inside the SUT.

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.

E.1.1 Date of the statement

.....

E.1.2 Implementation Under Test (IUT) identification

IUT name:

.....

.....

IUT version

Hardware version:

.....

.....

Software version:

.....

.....

Firmware version:

.....

.....

E.1.3 System Under Test (SUT) identification

SUT name:

.....

.....

Hardware configuration:

.....

.....

SUT Software version:

.....

.....

SUT Firmware version:

.....

Operating system:

.....

.....

E.1.4 Product supplier

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

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.....

.....

E.1.5 Client

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

E.1.6 ICS contact person

Name:

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

E.2 Identification of the ETS

This ICS proforma applies to the following standard:

EN 300 417-5-1 [1]: "Transmission and Multiplexing (TM); Generic requirement of transport functionality of equipment; Part 5-1: Plesiochronous Digital Hierarchy (PDH) path layer functions".

E.3 Global statement of conformance of P12s Path Layer

Due to the model used for this layer the "Global statement of conformance" sentence used in ETSI ICS is not applicable to this layer.

E.4 P12s Path Layer Functions

E.4.0 P12s Path Layer Description

Table E.1: P12s Path Layer functions

Item	P12s Path Layer functions	Reference	Status	Support
1	P12s Connection function (P12s_C).	7	o.101	
2	P12s Layer Trail Termination Source function (P12s_TT_So).	7, figure 40	o.101	
3	P12s Layer Trail Termination Source function (P12s_TT_Sk).	7, figure 40	o.101	
4	P12s/P0-31c Layer Trail Adaptation Source function (P12s/P0-31c_A_So).	7, figure 40	c101	
5	P12s/P0-31c Layer Trail Adaptation Sink function (P12s/P0-31c_A_Sk).	7, figure 40	c102	
6	P12s/Avp Layer Trail Adaptation Source function (P12s/Avp_A_So).	7, figure 40	c101	
7	P12s/Avp Layer Trail Adaptation Sink function (P12s/Avp_A_Sk).	7, figure 40	c102	
8	P12s/SD Layer Trail Adaptation Source function (P12s/SD_A_So).	7, figure 40	c101	
9	P12s/SD Layer Trail Adaptation Sink function (P12s/SD_A_Sk).	7, figure 40	c102	
10	P12s Layer Clock Adaptation Source function (P12s-LC_A_So).	7, figure 40	c103	
11	P12s Layer non-intrusive monitoring function (P12sm_TT_Sk).	7, figure 40	o	
12	P12s Layer to Xxx Layer Adaptation Source function (P12s/Xxx_A_So)	n/a	c101	
13	P12s Layer to Xxx Layer Adaptation Sink function (P12s/Xxx_A_Sk)	n/a	c102	

o.101: It is mandatory to support at least one of these items -- connection function and/or trail termination source and/or trail termination sink present

o.102: It is mandatory to support at least one of these items -- at least one Payload Adaptation or SD Source present

o.103: It is mandatory to support at least one of these items -- at least one Payload Adaptation or SD Sink present

c101: IF E.1/2 THEN o.102 ELSE x -- a TT_So function should exist for A_So function

c102: IF E.1/3 THEN o.103 ELSE x -- a TT_Sk function should exist for A_Sk function

c103: IF E.1/6 OR E.1/8 THEN m ELSE x -- At least one between P12s/Avp_A_So and P12s/SD_A_So function exists

Comment: Items dealing with P12s/Xxx_A functions take into account the implementation of adaptation functions not specified or referenced in EN 300 417-x-1 standards.

Table E.2: Multiple Adaptation functions

Item	Multiple Adaptation functions	Reference	Status	Support
1	The layer supports two or more Adaptation source functions of the group: P12s/SD_A_So, P12s/Avp_A_So, P12s/P0-31c_A_So.	7	o	
2	The layer supports two or more Adaptation Sink functions of the group: P12s/SD_A_Sk, P12s/Avp_A_Sk, P12s/P0-31c_A_Sk.	7	o	

E.4.0.1 Characteristic Information

Table E.3: P12s Characteristic Information

Prerequisite: E.1/1 OR E.1/2 OR E.1/3 -- implies that at least one P12s Layer Trail Termination or Connection function is present

Item	P12s Characteristic Information	Reference	Status	Support
1	The characteristic information (CI) is a 2 048 kbits/s signal with co-directional bit timing and frame start information and conforms to ETS 300 167.	7, figure 40 ETS 300 167	m	
2	The CI is structured to form a 2 × 256 bit long (basic) frame with 2x8 bit frame overhead.	7, figure 41	o.301	
3	The CI is structured to form a 16x256 bit long (multi) frame with 16x8 bit frame overhead.	7, figure 43	o.301	
4	The CI contains a FAS as shown in figure 41 and figure 43.	7, figure 41, figure 43	m	
5	The CI contains a RDI bit (A bit) as shown in figure 41 and figure 43.	7, figure 41, figure 43	m	
6	The CI contains User Characteristic Information bits (Si and Sa bits) as shown in figure 41.	7, figure 41	c301	
7	The CI contains User Characteristic Information bits (Sa bits) as shown in figure 43.	7, figure 43	c302	
8	The CI contains a CRC-4 MFAS as shown in figure 43.	7, figure 43	c302	
9	The CI contains a CRC-4 code as shown in figure 43.	7, figure 43	c302	
10	The CI contains a REI bit (E bit) as shown in figure 43.	7, figure 43	c302	
11	The CI contains a Synchronization Status Message channel as shown in figure 43.	7, figure 43	c303	

o.301: It is mandatory to support at least one of these items -- at least one frame structure supported
c301: IF E.3/2 THEN m ELSE n/a -- basic frame structure supported
c302: IF E.3/3 THEN m ELSE n/a -- multi-frame structure supported
c303: IF E.1/8 OR E.1/9 THEN m ELSE n/a -- one P12s/SD_A exists

E.4.0.2 Adapted information

Table E.4: P12s Adapted Information

Prerequisite: E.1/2 OR E.1/3 -- implies that at least one P12s Layer Trail Termination function is present

Item	P12s Adapted Information	Reference	Status	Support
1	The transported signal is a 1 984 kbit/s signal P0-31c_CI with unspecified content (to be passed through transparently).	7	c401	
2	The transported signal is an ATM 1 920 kbit/s cell stream signal as specified in ETS 300 337.	7, ETS 300 337	c402	
3	The transported signal contains a dummy payload for P12s/SD_A functions use.	7	c403	
4	The transported signal is one of those allowed in T.B.D	7	T.B.D	

o.401: It is mandatory to support at least one of these items -- at least one type of payload supported
c401: IF E.1/4 OR E.1/5 THEN o.401 ELSE n/a -- a P12s/P0-31c_A exists
c402: IF E.1/6 OR E.1/7 THEN o.401 ELSE n/a -- a P12s/Avp_A exists
c403: IF E.1/8 OR E.1/9 THEN o.401 ELSE n/a -- a P12s/SD_A exists

E.4.1 P12s Connection function

Table E.5: P12s Connection function

Prerequisite: E.1/1 -- a connection function exists

Item	P12s Connection function	Reference	Status	Support
1	No requirements	7.1	n/a	

E.4.2 P12s Trail Termination functions

Prerequisite: E.1/2 OR E.1/3 -- a trail termination function exists

E.4.2.1 P12s Trail Termination Source P12s_TT_So

Prerequisite: E.1/2 -- a trail termination source function exists

E.4.2.1.1 Management information (P12s_TT_So)

Table E.6: Configuration/provisioning of information from EMF to P12s_TT_Sk

Item	Configuration/provisioning of information from EMF to P12s_TT_So	Reference	Status	Support
1	P12s_TT_So_MI_CRC4mode is provisionable from the EMF.	7.2.1	m	

Table E.7: So_MI_CRC4mode values

Item	So_MI_CRC4mode values	Reference	Status	Support
1	P12s_TT_So_MI_CRC4mode can take the value OFF.	7.2.1	m	
2	P12s_TT_So_MI_CRC4mode can take the value ON.	7.2.1	m	
3	P12s_TT_So_MI_CRC4mode can take the value AUTO.	7.2.1	m	

E.4.2.1.2 Processes (P12s_TT_So)

Table E.8: Frame Alignment Signal insertion (P12s_TT_So)

Item	Frame Alignment Signal insertion (P12s_TT_So)	Reference	Status	Support
1	The Frame Alignment Signal (0011011) is inserted in bits 2 to 8 of TS0 in even frames, and "1" in bit 2 of TS0 in odd frames as defined in ETS 300 167.	7.2.1, ETS 300 167	m	

Table E.9: RDI (A-bit) insertion/removal (P12s_TT_So)

Prerequisite: E.1/2 AND E.1/3 -- bi-directional layer supported

Item	RDI (A-bit) insertion (P12s_TT_So)	Reference	Status	Support
1	The RDI bit is set to "1" within 5 ms on activation of P12s_RI_RDI.	7.2.1	m	
2	The RDI bit is set to "0" within 5 ms on removal of P12s_RI_RDI.	7.2.1	m	

Table E.10: S_i bits insertion (P12s_TT_So)

Prerequisite: E.6/1 -- P12s_TT_So_MI_CRC4mode provisionable

Item	S_i bits insertion (P12s_TT_So)	Reference	Status	Support
1	If CRC4mode is OFF, the function inserts "1" into S_i bits (bit 1 of TimeSlot 0).	7.2.1	c1001	
2	If CRC4mode is ON or AUTO, the function generates the CRC-4 multiframe and performs the MFAS, E bit and C1C2C3C4 processes.	7.2.1	c1002	

c1001: IF E.7/1 THEN m ELSE n/a -- P12sm_So_MI_CRC4mode can take the value OFF

c1002: IF (E.7/2 OR E.7/3)THEN m ELSE n/a -- P12sm_TT_So_MI_CRC4mode can take the value ON or AUTO

Table E.11: CRC-4 MFAS insertion (P12s_TT_So)

Prerequisite: E.3/3 -- multi-frame structure supported

Item	CRC-4 MFAS insertion (P12s_TT_So)	Reference	Status	Support
1	The function inserts the CRC-4 multiframe alignment signal "001011" in bit 1 of TS0 in frames 1,3,5,7,9,11 of the 16 frame CRC-4 multiframe as defined in ETS 300 167.	7.2.1, ETS 300 167	m	

Table E.12: REI (E-bits) insertion (P12s_TT_So)

Prerequisite: E.3/3 AND (E.1/2 AND E.1/3) -- multi-frame structure and bi-directional layer supported

Item	REI (E-bits) insertion (P12s_TT_So)	Reference	Status	Support
1	Any of the two E-bits is set to "1"when RI_REI (from the associated P12s_TT_Sk function) is FALSE.	7.2.1	m	
2	For each RI_REI value which is TRUE, one of the E-bits is set to "0" within 1 second after RI_REI reception.	7.2.1	m	

Table E.13: CRC-4 code insertion (P12s_TT_So)

Prerequisite: E.3/3 -- multi-frame structure supported

Item	CRC-4 code insertion (P12s_TT_So)	Reference	Status	Support
1	The function computes the CRC-4 code value of the 2 Mbit/s signal as specified in subclause 2.3.3.5 in ITU-T Recommendation G.704.	7.2.1, G704 subclause 2.3.3.5	m	
2	The computed value is inserted in the C1 to C4 bits of the following SubMultiFrame.	7.2.1, G704 subclause 2.3.3.5	m	

E.4.2.1.3 Consequent actions (P12s_TT_So)

Table E.14: Consequent actions for P12s_TT_So

Item	Consequent actions for P12s_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- AI_AISinsert.	7.2.1	m	
2	On activation of aAIS the function outputs an all-ONEs (AIS) within the frequency range 2 048 kbit/s ± 50 ppm - signal within 250 µs.	5.3.2	m	
3	On clearing of aAIS the function outputs normal data within 250 µs.	5.3.2	m	

NOTE: Note 2 in subclause 7.2.1 of EN 300 417-5-1 [1] is assumed to be dealt with in the future part 6-2.

E.4.2.2 P12s Trail Termination Sink P12s_TT_Sk

Prerequisite: E.1/3 -- a termination sink function exists

E.4.2.2.1 Management information (P12s_TT_Sk)

Table E.15: Configuration/provisioning of information from EMF to P12s_TT_Sk

Item	Configuration/provisioning of information from EMF to P12s_TT_Sk	Reference	Status	Support
1	P12s_TT_Sk_MI_TPmode is provisionable from the EMF.	7.2.2	m	
2	P12s_TT_Sk_MI_SSF_Reported is provisionable from the EMF.	7.2.2	m	
3	P12s_TT_Sk_MI_RDI_Reported is provisionable from the EMF.	7.2.2	c1501	
4	P12s_TT_Sk_MI_1second is provisioned by the EMF.	7.2.2	m	
5	P12s_TT_Sk_MI_DEGM is provisionable from the EMF.	7.2.2	m	
6	P12s_TT_Sk_MI_DEGTHR is provisionable from the EMF.	7.2.2	m	
7	P12s_TT_Sk_MI_CRC4mode is provisionable from the EMF.	7.2.2	m	

c1501: IF E.1/2 AND E.1/3 THEN m ELSE n/a -- bi-directional layer supported

Table E.16: Sk_MI_CRC4mode values

Item	Sk_MI_CRC4mode values	Reference	Status	Support
1	P12s_TT_Sk_MI_CRC4mode can take the value OFF.	7.2.1	m	
2	P12s_TT_Sk_MI_CRC4mode can take the value ON.	7.2.1	m	
3	P12s_TT_Sk_MI_CRC4mode can take the value AUTO.	7.2.1	m	

Table E.17: Signal reports from P12s_TT_Sk to EMF

Item	Signal reports from P12s_TT_Sk to EMF	Reference	Status	Support
1	P12s_TT_Sk_MI_cRDI is reported to the EMF.	7.2.2	c1701	
2	P12s_TT_Sk_MI_cSSF is reported to the EMF.	7.2.2	m	
3	P12s_TT_Sk_MI_cDEG is reported to the EMF.	7.2.2	m	
4	P12s_TT_Sk_MI_RNCI is reported to the EMF.	7.2.2	c1702	
5	P12s_TT_Sk_MI_MFP is reported to the EMF.	7.2.2	m	
6	P12s_TT_Sk_MI_pN_DS is reported to the EMF.	7.2.2	m	
7	P12s_TT_Sk_MI_pN_EBC is reported to the EMF.	7.2.2	m	
8	P12s_TT_Sk_MI_pF_DS is reported to the EMF.	7.2.2	c1701	
9	P12s_TT_Sk_MI_pF_EBC is reported to the EMF.	7.2.2	c1703	

c1701: IF E.1/2 AND E.1/3 THEN m ELSE n/a -- bi-directional layer supported
c1702: IF E.16/3 THEN m ELSE n/a -- P12sm_TT_Sk_MI_CRC4mode can take the value AUTO
c1703: IF E.3/3 AND (E.1/2 AND E.1/3) THEN m ELSE n/a -- multi-frame structure and bi-directional layer supported

NOTE: Reporting should be understood as reporting to the Management Point (i.e. to the Equipment Management Function), not as reporting to the user through a management interface.

E.4.2.2.2 Processes (P12s_TT_Sk)

Table E.18: Trail Termination Point mode process

Prerequisite: E.15/1 -- MI_TPmode provisionable from the EMF

Item	Trail Termination Point mode process	Reference	Status	Support
1	The Trail Termination Point Mode supports "not monitored" (NMON) status.	EN 300 417-1-1 subclause 8.5	m	
2	The Trail Termination Point Mode supports "monitored" (MON) status.	EN 300 417-1-1 subclause 8.5	m	

Table E.19: FAS and error detection

Item	FAS and error detection	Reference	Status	Support
1	The FAS bits of each received frame are compared to their expected value "0011011" and if CI_MFP is FALSE, a difference is taken as evidence of one or more errors (nN_B) in the block.	7.2.2	m	
2	If CI_MFP is FALSE, a difference is taken as evidence of one or more errors (nN_B) in the block.	7.2.2	m	

Table E.20: RDI (A-bit) processing

Prerequisite: E.1/2 AND E.1/3 -- bi-directional layer supported

Item	RDI (A-bit) processing	Reference	Status	Support
1	The information carried in the RDI bit is extracted to enable single ended maintenance of a bi-directional Trail (Path).	7.2.2	m	
2	An A-bit set to "1" indicates an RDI state.	7.2.2, EN 300 417-1-1 subclauses 7.4.11 and 8.2	m	
3	An A-bit set to "0" indicates the normal state.	7.2.2	m	

Table E.21: S_i bits processing (P12s_TT_Sk)

Prerequisite: E.6/1 -- P12s_TT_So_MI_CRC4mode provisionable

Item	S_i bits processing (P12s_TT_Sk)	Reference	Status	Support
1	If CRC4mode is OFF, the function ignores the content of S_i bits (bit 1 of TimeSlot 0).	7.2.2	c2101	
2	If CRC4mode is ON or AUTO, the function processes the CRC-4 multiframe and performs the MFAS, E bit and C1C2C3C4 processes.	7.2.2	c2102	

c2101: IF E.16/1 THEN m ELSE n/a -- P12sm_TT_Sk_MI_CRC4mode can take the value OFF

c2102: IF (E.16/2 OR E.16/3)THEN m ELSE n/a -- P12sm_TT_Sk_MI_CRC4mode can take the value ON or AUTO

Table E.22: REI (E-bits) processing

Prerequisite: E.3/3 AND (E.1/2 AND E.1/3) -- multi-frame structure and bi-directional layer supported

Item	REI (E-bits) processing	Reference	Status	Support
1	The information carried in the REI bits is extracted to enable single ended maintenance of a bi-directional Trail (Path).	7.2.2	m	
2	If CI_MFP is TRUE, each E-bit set to "0" is an indication for nF_B.	7.2.2, EN 300 417-1-1 subclause 7.4.2	m	
3	If CI_MFP is FALSE nF_B is set to 0.	7.2.2, EN 300 417-1-1 subclause 7.4.2	m	

Table E.23: CRC-4 code processing (P12s_TT_Sk)

Prerequisite: E.3/3 -- multi-frame structure supported

Item	CRC-4 code processing (P12s_TT_Sk)	Reference	Status	Support
1	If CI_MFP is TRUE, CRC-4 is computed for each bit of the preceding P12s submultiframe and compared with bits C1C2C3C4 recovered from the current submultiframe.	7.2.2	m	
2	A difference between the computed and recovered C1C2C3C4 values is taken as evidence of one or more errors (nN_B) in the computation block.	7.2.2	m	

E.4.2.2.3 Defects (P12s_TT_Sk)

Table E.24: Defects for P12s_TT_Sk

Item	Defects for P12s_TT_Sk	Reference	Status	Support
1	The function detects the dRDI defect according to the specification in EN 300 417-1-1, subclauses 7.4.1, 8.2.1.5, 8.2.2.2.	7.2.2, EN 300 417-1-1 subclauses 7.4.1, 8.2.1.5, 8.2.2.2	c2401	
2	The function detects the dDEG defect as specified in EN 300 417-1-1 with the following extensions (figure 48): the Error Detection Code Violation (EDCV) process assumes "zero" EDCVs in the incoming signal if CI_MFP is FALSE.	7.2.2, figure 48, EN 300 417-1-1 subclause 8.2.1.4	m	
3	The dDEG defect is cleared when CI_MFP is FALSE.	7.2.2, figure 48, EN 300 417-1-1 subclause 8.2.1.4	m	
4	The function detects a CRC-4 multiframe generator/detector status (MI_RNCI) if (pF_EBC > 990 and pF_DS = false) for five consecutive seconds. The MI_RNCI is cleared if (pF_EBC < 990 or pF_DS = true) for five consecutive seconds.	7.2.2	c2402	
5	The MI_RNCI status is cleared if (pF_EBC < 990 or pF_DS = true) for five consecutive seconds.	7.2.2	c2402	

c2401: IF E.1/2 AND E.1/3 THEN m ELSE n/a -- bi-directional layer supported

c2402: IF E.16/3 THEN m ELSE n/a -- P12sm_TT_Sk_MI_CRC4mode can take the value AUTO

E.4.2.2.4 Consequent actions (P12s_TT_Sk)

Table E.25: Consequent actions for P12s_TT_Sk

Item	Consequent actions for P12s_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: aTSF <-- CI_SSF.	7.2.2	m	
2	The function implements the following logical equation: aRDI <-- CI_SSF.	7.2.2	c2501	
3	The function implements the following logical equation: aTSD <-- dDEG.	7.2.2	m	
4	The function implements the following logical equation: aREI <-- nN_B or (not CI_MFP).	7.2.2	c2502	
5	The function implements the following logical equation: AI_MFP <-- CI_MFP.	7.2.2	m	
6	The function implements the following logical equation: MI_MFP <-- CI_MFP.	7.2.2	m	

c2501: IF E.1/2 AND E.1/3 THEN m ELSE n/a -- bi-directional layer supported
c2502: IF E.3/3 AND (E.1/2 AND E.1/3) THEN m ELSE n/a -- multi-frame structure and bi-directional layer supported

Comment: per CRC-4 multiframe, two RI_REI values are to be conveyed to the associated P12s_TT_So function.

E.4.2.2.5 Defect Correlations (P12s_TT_Sk)

Table E.26: Defect Correlations for P12s_TT_Sk

Item	Defect Correlations for P12s_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: cRDI <-- dRDI and MON and RDI_Reported.	7.2.2	c2601	
2	The function implements the following logical equation: cSSF <-- CI_SSF and MON and SSF_Reported.	7.2.2	c2602	
3	The function implements the following logical equation: cDEG <-- dDEG and MON.	7.2.2	c2603	

c2601: IF E.17/1 THEN m ELSE n/a -- cRDI is reported
c2602: IF E.17/2 THEN m ELSE n/a -- cSSF is reported
c2603: IF E.17/3 THEN m ELSE n/a -- cDEG is reported

E.4.2.2.6 Performance monitoring (P12s_TT_Sk)

Table E.27: Performance Monitoring (P12s_TT_Sk)

Item	Performance Monitoring (P12s_TT_Sk)	Reference	Status	Support
1	The function supports performance monitoring on CRC-4 violations (CRC4V) and on frame alignment signal errors (FASE). This is controlled via the CI_MFP signal. For the case CI_MFP is TRUE CRC4V will be applied. Otherwise (CI_MFP is FALSE) FASE will be applied (figure 48).	7.2.2, figure 48	m	
2	The function implements the following logical equation: pN_DS <-- aTSF or dEQ.	7.2.2	c2701	
3	The function implements the following logical equation: pF_DS <-- dRDI.	7.2.2	c2702	
4	The function implements the following logical equation: pN_EBC <-- Sum(nN_B) The "Sum" is calculated over a one-second period.	7.2.2	c2703	
5	The function implements the following logical equation: pF_EBC <-- Sum(nF_B) The "Sum" is calculated over a one-second period.	7.2.2	c2704	

c2701: IF E.17/6 THEN m ELSE n/a -- pN_DS is reported
c2702: IF E.17/7 THEN m ELSE n/a -- pF_DS is reported
c2703: IF E.17/8 THEN m ELSE n/a -- pN_EBC is reported
c2704: IF E.17/9 THEN m ELSE n/a -- pF_EBC is reported

E.4.3 P12s Adaptation functions

E.4.3.1 P12s to P0-31c Adaptation Source P12s/P0-31c_A_So

Prerequisite: E.1/4 -- P12s to P0-31c adaptation source function exists

E.4.3.1.1 Management information (P12s/P0-31c_A_So)

Table E.28: Configuration/provisioning information from EMF to P12s/P0-31c_A_So

Item	Configuration/provisioning information from EMF to P12s/P0-31c_A_So	Reference	Status	Support
1	P12s/P0-31c_A_So_MI_Active is provisionable from the EMF.	7.3.1	c2801	
2	The function can be activated (P12s/P0-31c_A_So_MI_Active is TRUE) and deactivated (P12s/P0-31c_A_So_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	7.3.1	c2802	

c2801: IF E.2/1 THEN m ELSE n/a -- multiple Adaptation Source functions exist
c2802: IF E.28/1 THEN m ELSE n/a -- P12s/P0-31c_A_So_MI_Active provisionable

E.4.3.1.2 Processes (P12s/P0-31c_A_So)

Table E.29: Adaptation process for P12s/P0-31c_A_So

Item	Adaptation process for P12s/P0-31c_A_So	Reference	Status	Support
1	The function passes a 1 984 kbit/s signal without further processing into the appropriate 31 timeslots (TS1 to TS31) of a P12s signal.	7.3.1	m	
2	The function converts the P0-31c frame start signal (P0-31c_CI_FS) identifying TS1 position into a P12s multiframe start signal (P12s_AI_MFS) identifying TS0 byte positions in a 16 frame multiframe structure.	7.3.1	m	

Table E.30: Activation of P12s/P0-31c_A_So functions and timeslot access

Item	Activation of P12s/P0-31c_A_So functions and timeslot access	Reference	Status	Support
1	The function accesses the access point only when it is activated (MI_Active is true).	7.3.1	c3001	
2	This function shall not be activated when also P12s/SD_A_So function is active.	7.3.1	c3002	

c3001: IF E.28/1 THEN m ELSE n/a -- P12s/P0-31c_A_So_MI_Active provisionable
c3002: IF E.1/8 THEN m ELSE n/a -- P12s/SD_A_So function exists

E.4.3.2 P12s to P0-31c Adaptation Sink P12s/P0-31c_A_Sk

Prerequisite: E.1/5 -- P12s to P0-31c adaptation sink function exists

E.4.3.2.1 Management information (P12s/P0-31c_A_Sk)

Table E.31: Configuration/provisioning information from EMF to P12s/P0-31c_A_Sk

Item	Configuration/provisioning information from EMF to P12s/P0-31c_A_Sk	Reference	Status	Support
1	P12s/P0-31c_A_Sk_MI_Active is provisionable from the EMF.	7.3.2	c3101	
2	The function can be activated (P12s/P0-31c_A_Sk_MI_Active is TRUE) and deactivated (P12s/P0-31c_A_Sk_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	7.3.2	c3102	

c3101: IF E.2/2 THEN m ELSE n/a -- multiple Adaptation Sink functions exist
c3102: IF E.31/1 THEN m ELSE n/a -- P12s/P0-31c_A_Sk_MI_Active provisionable

E.4.3.2.2 Processes (P12s/P0-31c_A_Sk)

Table E.32: Adaptation process for P12s/P0-31c_A_Sk

Item	Adaptation process for P12s/P0-31c_A_Sk	Reference	Status	Support
1	The function extracts the 1 984 kbit/s synchronous signal from the TS1 through TS31 of the P12s_AI (figures 42 and 45).	7.3.2, figure 42, figure 45	m	

Table E.33: Activation of P12s/P0-31c_A_Sk functions and timeslot access

Item	Activation of P12s/P0-31c_A_Sk functions and timeslot access	Reference	Status	Support
1	The function performs the operation specified above when it is activated (MI_Active is true).	7.3.2	c3301	
2	If the function is not active (MI_Active is False) it transmits the all-ONEs signal at its output (CI_D).	7.3.2	c3301	
3	If the function is not active (MI_Active is False) it does not report its status via the management point.	7.3.2	c3301m	

c3301: IF E.31/1 THEN m ELSE n/a -- P12s/P0-31c_A_Sk_MI_Active provisionable

E.4.3.2.3 Consequent actions (P12s/P0-31c_A_Sk)

Table E.34: Consequent actions for P12s/P0-31c_A_Sk

Item	Consequent actions for P12s/P0-31c_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- AI_TSF.	7.3.2	m	
2	On declaration of aAIS the function outputs an all-ONEs (AIS) - complying to the frequency limits for this signal (a bit rate in range 1 984 kbit/s ± 4,6 ppm) - signal within 250 µs.	7.3.2	m	
3	On clearing of aAIS the function outputs normal data within 250 µs.	7.3.2	m	
4	The function implements the following logical equation: aSSF <-- AI_TSF.	7.3.2	m	

E.4.3.3 P12s to SD adaptation source P12s/SD_A_So

Under study (EN 300 417-6-2 [18]).

E.4.3.4 P12s to SD adaptation sink P12s/SD_A_Sk

Under study (EN 300 417-6-2 [18]).

E.4.3.5 P12s to ATM VP compound adaptation source P12s/Avp_A_So

For further study.

E.4.3.6 P12s to ATM VP compound adaptation sink P12s/Avp_A_Sk

For further study.

E.4.3.7 P12s Layer Clock adaptation source P12s-LC_A_So

Under study (EN 300 417-6-2 [18]).

E.4.4 P12s Layer Monitoring Functions

E.4.4.1 P12s Layer Non-intrusive Monitoring Function P12sm_TT_Sk

Prerequisite: E.1/11 -- a non-intrusive trail termination sink function exists

E.4.4.1.1 Management information (P12sm_TT_Sk)

Table E.35: Configuration/provisioning of information from EMF to P12sm_TT_Sk

Item	Configuration/provisioning of information from EMF to P12sm_TT_Sk	Reference	Status	Support
1	P12sm_TT_Sk_MI_Tpmode is provisionable from the EMF.	7.4.1	m	
2	P12sm_TT_Sk_MI_SSF_Reported is provisionable from the EMF.	7.4.1	m	
3	P12sm_TT_Sk_MI_RDI_Reported is provisionable from the EMF.	7.4.1	m	
4	P12sm_TT_Sk_MI_1second is provisioned by the EMF.	7.4.1	m	
5	P12sm_TT_Sk_MI_DEGM is provisionable from the EMF.	7.4.1	m	
6	P12sm_TT_Sk_MI_DEGTHR is provisionable from the EMF.	7.4.1	m	
7	P12sm_TT_Sk_MI_CRC4mode is provisionable from the EMF.	7.4.1	m	

Table E.36: Sk_MI_CRC4mode values

Item	Sk_MI_CRC4mode values	Reference	Status	Support
1	P12sm_TT_Sk_MI_CRC4mode can take the value OFF.	7.4.1	m	
2	P12sm_TT_Sk_MI_CRC4mode can take the value ON.	7.4.1	m	
3	P12sm_TT_Sk_MI_CRC4mode can take the value AUTO.	7.4.1	m	

Table E.37: Signal reports from P12sm_TT_Sk to EMF

Item	Signal reports from P12sm_TT_Sk to EMF	Reference	Status	Support
1	P12sm_TT_Sk_MI_cRDI is reported to the EMF.	7.4.1	m	
2	P12sm_TT_Sk_MI_cSSF is reported to the EMF.	7.4.1	m	
3	P12sm_TT_Sk_MI_cDEG is reported to the EMF.	7.4.1	m	
4	P12sm_TT_Sk_MI_RNCI is reported to the EMF.	7.4.1	c3701	
5	P12sm_TT_Sk_MI_MFP is reported to the EMF.	7.4.1	m	
6	P12sm_TT_Sk_MI_pN_DS is reported to the EMF.	7.4.1	m	
7	P12sm_TT_Sk_MI_pN_EBC is reported to the EMF.	7.4.1	m	
8	P12sm_TT_Sk_MI_pF_DS is reported to the EMF.	7.4.1	m	
9	P12sm_TT_Sk_MI_pF_EBC is reported to the EMF.	7.4.1	c3702	

c3701: IF E.36/3 THEN m ELSE n/a -- P12sm_TT_Sk_MI_CRC4mode can take the value AUTO

c3702: IF E.3/3 THEN m ELSE n/a -- multi-frame structure supported

NOTE: Reporting should be understood as reporting to the Management Point (i.e. to the Equipment Management Function), not as reporting to the user through a management interface.

E.4.4.1.2 Processes

Table E.38: Trail Termination Point mode process

Prerequisite: E.35/1 -- MI_TPmode provisionable from the EMF

Item	Trail Termination Point mode process	Reference	Status	Support
1	The Trail Termination Point Mode supports "not monitored" (NMON) status.	EN 300 417-1-1 subclause 8.5	m	
2	The Trail Termination Point Mode supports "monitored" (MON) status.	EN 300 417-1-1 subclause 8.5	m	

Table E.39: FAS and error detection

Item	FAS and error detection	Reference	Status	Support
1	The FAS bits of each received double frame are compared to their expected value "0011011".	7.4.1	m	
2	If CI_MFP is FALSE, a difference is taken as evidence of one or more errors (nN_B) in the block.	7.4.1	m	

Table E.40: RDI (A-bit) processing

Item	RDI (A-bit) processing	Reference	Status	Support
1	The information carried in the RDI bit is extracted to enable single ended maintenance of a bi-directional Trail (Path).	7.4.1	m	
2	An A-bit set to "1" indicates an RDI state.	7.4.1, EN 300 417-1-1 subclauses 7.4.11 and 8.2	m	
3	An A-bit set to "0" indicates the normal state.	7.4.1	m	

Table E.41: S_i bits processing (P12sm_TT_Sk)

Prerequisite: E.6/1 -- P12sm_TT_So_MI_CRC4mode provisionable

Item	S_i bits processing (P12sm_TT_Sk)	Reference	Status	Support
1	If CRC4mode is OFF, the function ignores the content of S_i bits (bit 1 of TimeSlot 0).	7.4.1	c4101	
2	If CRC4mode is ON or AUTO, the function processes the CRC-4 multiframe and performs the MFAS, E bit and C1C2C3C4 processes.	7.4.1	c4102	

c4101: IF E.36/1 THEN m ELSE n/a -- P12sm_TT_Sk_MI_CRC4mode can take the value OFF

c4102: IF (E.36/2 OR E.36/3)THEN m ELSE n/a -- P12sm_TT_Sk_MI_CRC4mode can take the value ON or AUTO

Table E.42: REI (E-bits) processing

Prerequisite: E.3/3 -- multi-frame structure supported

Item	REI (E-bits) processing	Reference	Status	Support
1	The information carried in the REI bits is extracted to enable single ended maintenance of a bi-directional Trail (Path).	7.4.1	m	
2	If CI_MFP is TRUE, each E-bit set to "0" is an indication for nF_B.	7.4.1, EN 300 417-1-1 subclause 7.4.1	m	
3	If CI_MFP is FALSE nF_B is set to 0.	7.4.1, EN 300 417-1-1 subclause 7.4.1	m	

Table E.43: CRC-4 code processing (P12sm_TT_Sk)

Prerequisite: E.3/3 -- multi-frame structure supported

Item	CRC-4 code processing (P12sm_TT_Sk)	Reference	Status	Support
1	If CI_MFP is TRUE, CRC-4 is computed for each bit of the preceding P12sm submultiframe and compared with bits C1C2C3C4 recovered from the current submultiframe.	7.4.1	m	
2	A difference between the computed and recovered C1C2C3C4 values is taken as evidence of one or more errors (nN_B) in the computation block.	7.4.1	m	

E.4.4.1.3 Defects (P12sm_TT_Sk)

Table E.44: Defects for P12sm_TT_Sk

Item	Defects for P12sm_TT_Sk	Reference	Status	Support
1	The function detects the dRDI defect according to the specification in EN 300 417-1-1, subclauses 7.4.1, 8.2.1.5, 8.2.2.2.	7.4.1, EN 300 417-1-1 subclauses 7.4.1, 8.2.1.5, 8.2.2.2	m	
2	The function detects the dDEG defect as specified in EN 300 417-1-1 with the following extensions (figure 48): the Error Detection Code Violation (EDCV) process assumes "zero" EDCVs in the incoming signal if CI_MFP is FALSE.	7.4.1, figure 48, EN 300 417-1-1 subclause 8.2.1.4	m	
3	The dDEG defect is cleared when CI_MFP is FALSE.	7.4.1, figure 48, EN 300 417-1-1 subclause 8.2.1.4	m	
4	The function detects a CRC-4 multiframe generator/detector status (MI_RNCI) if (pF_EBC > 990 and pF_DS = false) for five consecutive seconds. The MI_RNCI is cleared if (pF_EBC < 990 or pF_DS = true) for five consecutive seconds.	7.4.1	c4401	
5	The MI_RNCI status is cleared if (pF_EBC < 990 or pF_DS = true) for five consecutive seconds.	7.4.1	c4401	

c4401: IF E.36/3 THEN m ELSE n/a -- P12sm_TT_Sk_MI_CRC4mode can take the value AUTO

E.4.4.1.4 Consequent actions (P12sm_TT_Sk)

Table E.45: Consequent actions for P12sm_TT_Sk

Item	Consequent actions for P12sm_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: aTSF <-- CI_SSF.	7.4.1	m	
2	The function implements the following logical equation: aTSD <-- dDEG.	7.4.1	m	
3	The function implements the following logical equation: MI_MFP <-- CI_MFP.	7.4.1	m	

E.4.4.1.5 Defect Correlations (P12sm_TT_Sk)

Table E.46: Defect Correlations for P12sm_TT_Sk

Item	Defect Correlations for P12sm_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: cRDI <-- dRDI and MON and RDI_Reported.	7.4.1	c4601	
2	The function implements the following logical equation: cSSF <-- CI_SSF and MON and SSF_Reported.	7.4.1	c4602	
3	The function implements the following logical equation: cDEG <-- dDEG and MON.	7.4.1	c4603	

c4601: IF E.37/1 THEN m ELSE n/a -- cRDI is reported
c4602: IF E.37/2 THEN m ELSE n/a -- cSSF is reported
c4603: IF E.37/3 THEN m ELSE n/a -- cDEG is reported

E.4.4.1.6 Performance Monitoring (P12sm_TT_Sk)

Table E.47: Performance Monitoring (P12sm_TT_Sk)

Item	Performance Monitoring (P12sm_TT_Sk)	Reference	Status	Support
1	The function supports performance monitoring on CRC-4 violations (CRC4V) and on frame alignment signal errors (FASE). This is controlled via the CI_MFP signal. For the case CI_MFP is TRUE CRC4V will be applied. Otherwise (CI_MFP is FALSE) FASE will be applied (figure 48).	7.4.1, figure 48	m	
2	The function implements the following logical equation: pN_DS <-- aTSF or dEQ.	7.4.1	c4701	
3	The function implements the following logical equation: pF_DS <-- dRDI.	7.4.1	c4702	
4	The function implements the following logical equation: pN_EBC <-- Sum(nN_B) The "Sum" is calculated over a one-second period.	7.4.1	c4703	
5	The function implements the following logical equation: pF_EBC <-- Sum(nF_B) The "Sum" is calculated over a one-second period.	7.4.1	c4704	

c4701: IF E.37/6 THEN m ELSE n/a -- pN_DS is reported
c4702: IF E.37/7 THEN m ELSE n/a -- pF_DS is reported
c4703: IF E.37/8 THEN m ELSE n/a -- pN_EBC is reported
c4704: IF E.37/9 THEN m ELSE n/a -- pF_EBC is reported

Annex F (normative): ICS proforma for P31s Path Layer

F.1 Identification of the implementation

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.

In the present document, an IUT, and of course the identification of an IUT refers to a P31s Path Layer instance implemented inside the SUT.

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.

F.1.1 Date of the statement

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F.1.2 Implementation Under Test (IUT) identification

IUT name:

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IUT version

Hardware version:

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Software version:

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Firmware version:

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F.1.3 System Under Test (SUT) identification

SUT name:

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Hardware configuration:

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SUT Software version:

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SUT Firmware version:

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Operating system:

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F.1.4 Product supplier

Name:

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Address:

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Telephone number:

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Facsimile number:

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E-mail address:

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Additional information:

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F.1.5 Client

Name:

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Address:

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Telephone number:

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Facsimile number:

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E-mail address:

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Additional information:

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F.1.6 ICS contact person

Name:

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Telephone number:

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Facsimile number:

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E-mail address:

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Additional information:

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F.2 Identification of the ETS

This ICS proforma applies to the following standard:

EN 300 417-5-1 [1]: "Transmission and Multiplexing (TM); Generic requirement of transport functionality of equipment; Part 5-1: Plesiochronous Digital Hierarchy (PDH) path layer functions".

F.3 Global statement of conformance of P31s Path Layer

Due to the model used for this layer the "Global statement of conformance" sentence used in ETSI ICS is not applicable to this layer.

F.4 P31s Path Layer Functions

F.4.0 P31s Path Layer Description

Table F.1: P31s Path Layer functions

Item	P31s Path Layer functions	Reference	Status	Support
1	P31s Connection function (P31s_C).	8	o.101	
2	P31s Layer Trail Termination Source function (P31s_TT_So).	8, figure 52	o.101	
3	P31s Layer Trail Termination Sink function (P31s_TT_Sk).	8, figure 52	o.101	
4	P31s/SX Layer Compound Adaptation Source function (P31s/SX_A_So).	8, figure 52	c101	
5	P31s/SX Layer Compound Adaptation Sink function (P31s/SX_A_Sk).	8, figure 52	c102	
6	P31s/TUG Adaptation Source function (P31s/TUG_A_So).	8, figure 57	c103	
7	P31s/TUG Adaptation Sink function (P31s/TUG_A_Sk).	8, figure 67	c104	
8	TUG Termination Source function (TUG_T_So).	8, figure 57	c103	
9	TUG Termination Sink function (TUG_T_Sk).	8, figure 67	c104	
10	TUG/S12 Layer Adaptation Source function (TUG/S12_A_So/M).	8, figure 57	c105	
11	TUG/S12 Layer Adaptation Sink function (TUG/S12_A_Sk/M).	8, figure 67	c106	
12	TUG/S11 Layer Adaptation Source function (TUG/S11*_A_So/M).	8, figure 57	c105	
13	TUG/S11 Layer Adaptation Sink function (TUG/S11*_A_Sk/M).	8, figure 67	c106	
14	P31s/P0s Layer Trail Adaptation Source function (P31s/P0s_A_So).	8, figure 52	c101	
15	P31s/P0s Layer Trail Adaptation Sink function (P31s/P0s_A_Sk).	8, figure 52	c102	
16	P31s/V0x Layer Trail Adaptation Source function (P31s/V0x_A_So).	8, figure 52	c101	
17	P31s/V0x Layer Trail Adaptation Sink function (P31s/V0x_A_Sk).	8, figure 52	c102	
18	P31s/DCC Layer Trail Adaptation Source function (P31s/DCC_A_So).	8, figure 52	c101	
19	P31s/DCC Layer Trail Adaptation Sink function (P31s/DCC_A_Sk).	8, figure 52	c102	
20	P31s/Avp Layer Compound Adaptation Source function (P31s/Avp_A_So).	8, figure 52	c101	
21	P31s/Avp Layer Compound Adaptation Sink function (P31s/Avp_A_Sk).	8, figure 52	c102	
22	P31s/SD Layer Trail Adaptation Source function (P31s/SD_A_So).	8, figure 52	c101	
23	P31s/SD Layer Trail Adaptation Sink function (P31s/SD_A_Sk).	8, figure 52	c102	
24	P31s Layer Clock Adaptation Source function (P31s-LC_A_So).	8, figure 52	c107	

Item	P31s Path Layer functions	Reference	Status	Support
25	P31s Layer non-intrusive monitoring function (P31sm_TT_Sk).	8, figure 52	o	
26	P31s Tandem Connection Trail Termination Source function (P31sD_TT_So).	8, figure 52	c108	
27	P31s Tandem Connection Trail Termination Sink function (P31sD_TT_Sk).	8, figure 52	c108	
28	P31sD/P31s Layer Trail Adaptation Source function (P31sD/P31s_A_So).	8, figure 52	c109	
29	P31sD/P31s Layer Trail Adaptation Sink function (P31sD/P31s_A_Sk).	8, figure 52	c110	
30	P31s Tandem Connection non-intrusive Trail Termination Sink function (P31sDm_TT_Sk).	8, figure 52	c108	
31	P31s Layer to Xxx Layer Adaptation Source function (P31s/Xxx_A_So)	n/a	c101	
32	P31s Layer to Xxx Layer Adaptation Sink function (P31s/Xxx_A_Sk)	n/a	c102	

o.101: It is mandatory to support at least one of these items -- connection function and/or trail termination source and/or trail termination sink present

o.102: It is mandatory to support at least one of these items -- at least one Payload Adaptation or SD Source present

o.103: It is mandatory to support at least one of these items -- at least one Payload Adaptation or SD Sink present

o.104: It is mandatory to support at least one of these items -- at least one Low Order VC Adaptation Source present

o.105: It is mandatory to support at least one of these items -- at least one Low Order VC Adaptation Sink present

c101: IF F.1/2 THEN o.102 ELSE x -- a TT_So function should exist for A_So function

c102: IF F.1/3 THEN o.103 ELSE x -- a TT_Sk function should exist for A_Sk function

c103: IF F.1/4 THEN m ELSE x -- S4/SX_A_So function should exist

c104: IF F.1/5 THEN m ELSE x -- S4/SX_A_Sk function should exist

c105: IF F.1/4 THEN o.104 ELSE x -- S4/SX_A_So function should exist

c106: IF F.1/5 THEN o.105 ELSE x -- S4/SX_A_Sk function should exist

c107: IF (F.1/4 OR F.1/14 OR F.1/16 OR F.1/18 OR F.1/20 OR F.1/22) THEN m ELSE x -- At least one among P31s/SX_A_So, P31s/P0s_A_So, P31s/V0x_A_So, P31s/DCC_A_So, P31s/Avp_A_So and P31s/SD_A_So function exists

c108: IF F.1/1 THEN o ELSE n/a -- a connection function should exist

c109: IF F.1/26 THEN m ELSE x -- a Tandem Connection TT_So function should exist for Tandem Connection A_So function

c110: IF F.1/27 THEN m ELSE x -- a Tandem Connection TT_Sk function should exist for Tandem Connection A_Sk function

Comment: Items dealing with P31s/Xxx_A functions take into account the implementation of adaptation functions not specified or referenced in EN 300 417-x-1 standards.

Table F.2: Multiple Adaptation functions

Item	Multiple Adaptation functions	Reference	Status	Support
1	The layer supports two or more Adaptation source functions of the group: P31s/SX_A_So, P31s/P0s_A_So, P31s/V0x_A_So, P31s/DCC_A_So, P31s/Avp_A_So and P31s/SD_A_So.	8	o	
2	The layer supports two or more Adaptation Sink functions of the group: P31s/SX_A_Sk, P31s/P0s_A_Sk, P31s/V0x_A_Sk, P31s/DCC_A_Sk, P31s/Avp_A_Sk and P31s/SD_A_Sk.	8	o	

F.4.0.1 Characteristic Information

Table F.3: P31s Characteristic Information

Prerequisite: F.1/1 OR F.1/2 OR F.1/3 -- implies that at least one P31s Layer Trail Termination or Connection function is present

Item	P31s Characteristic Information	Reference	Status	Support
1	The Characteristic Information (CI) is octet structured with an 125 μs frame.	8, figure 53, ETS 300 168	m	
2	The CI contains the overhead bytes FA1, FA2, TR, EM, MA, NR, GC, as defined in ETS 300 337.	8, figure 53, ETS 300 337	m	
3	MA byte has the structure described in figure 53.	8, figure 53	m	
4	For the case the signal has passed the tandem connection sublayer, P31s_CI has defined P31s tandem connection trail termination overhead in location NR and has the multiframe structure described in figure 53.	8, figure 53	c301	
5	NR will be undefined when the signal P31s_CI has not been processed in a tandem connection adaptation and trail termination function.	8, figure 53	c302	

c301: IF (F.1/26 OR F.1/27) THEN m ELSE n/a -- one P31sD_TT exists
c302: IF NOT (F.1/26 OR F.1/27) THEN m ELSE n/a -- no Tandem Connection Sublayer supported

F.4.0.2 Adapted information

Table F.4: P31s Adapted Information

Prerequisite: F.1/2 OR F.1/3 -- implies that at least one P31s Layer Trail Termination function is present

Item	P31s Adapted Information	Reference	Status	Support
1	The Adaptation Information (AI) at this point is octet structured with an 125 µs frame, comprising 530 bytes of client layer information.	8, figure 53	m	
2	The AI contains the overhead bytes MA and GC, as defined in ETS 300 337.	8, figure 53, ETS 300 337	m	
3	The transported signal is a TU-12 structured signal.	8	c401	
4	The transported signal is an ATM 33 920 kbit/s cell stream signal.	8	c402	

o.401: It is mandatory to support at least one of these items -- at least one type of payload supported
c401: IF (F.1/4 OR F.1/5) THEN o.401 ELSE n/a -- a P31s/SX_A exists
c402: IF (F.1/20 OR F.1/21) THEN o.401 ELSE n/a -- a P31s/Avp_A exists

F.4.1 P31s Connection function

Table F.5: P31s Connection function

Prerequisite: F.1/1 -- a connection function exists

Item	P31s Connection function	Reference	Status	Support
1	No requirements	8.1	n/a	

F.4.2 P31s Trail Termination functions

Prerequisite: F.1/2 OR F.1/3 -- a trail termination function exists

F.4.2.1 P31s Trail Termination Source P31s_TT_So

Prerequisite: F.1/2 -- a trail termination source function exists

F.4.2.1.1 Management information (P31s_TT_So)

Table F.6: Configuration/provisioning of information from EMF to P31s_TT_So

Item	Configuration/provisioning of information from EMF to P4e_TT_So	Reference	Status	Support
1	P31s_TT_So_MI_TxTI is provisionable from the EMF.	8.2.1	m	

F.4.2.1.2 Processes (P31s_TT_So)

Table F.7: Frame Alignment Signal insertion (P31s_TT_So)

Item	Frame Alignment Signal insertion (P31s_TT_So)	Reference	Status	Support
1	The function inserts frame alignment signal FA1FA2 into the frame overhead as defined in ETS 300 337 and depicted in figure 53.	8.2.1, figure 53, ETS 300 337	m	

Table F.8: RDI insertion/removal (P31s_TT_So)

Prerequisite: F.1/2 AND F.1/3 -- bi-directional layer supported

Item	RDI insertion (P31s_TT_So)	Reference	Status	Support
1	The RDI bit, MA[1], is set to "1" within 250 µs on activation of P31s_RI_RDI.	8.2.1	m	
2	The RDI bit, MA[1] is set to "0" within 250 µs on clearing of P31s_RI_RDI.	8.2.1	m	

Table F.9: REI insertion (P31s_TT_So)

Prerequisite: F.1/2 AND F.1/3 -- bi-directional layer supported

Item	REI insertion (P31s_TT_So)	Reference	Status	Support
1	The REI bit, MA[2]is set to "1" on declaration of RI_REI.	8.2.1	m	
2	The REI bit, MA[2]is set to "0" on declaration of RI_REI.	8.2.1	m	

Table F.10: Trail Trace Identifier insertion (P31s_TT_So)

Item	Trail Trace Identifier insertion (P31s_TT_So)	Reference	Status	Support
1	The function inserts the Transmitted Trail Trace Identifier TxTI in the TR byte as described in EN 300 417-1-1 subclause 7.1.	8.2.1, EN 300 417-1-1 subclause 7.1	m	

Table F.11: Error Detection Code insertion (P31s_TT_So)

Item	Error Detection Code insertion (P31s_TT_So)	Reference	Status	Support
1	The function inserts the BIP-8 EDC in the EM byte. Each bit n of current EM byte is computed to provide even parity over the n^{th} bit of every byte in the previous frame of the P31s_CI.	8.2.1, EN 300 417-1-1 subclause 7.3, ETS 300 337	M	

F.4.2.2 P31s Trail Termination Sink P31s_TT_Sk

Prerequisite: F.1/3 -- a termination sink function exists

F.4.2.2.1 Management information (P31s_TT_Sk)

Table F.12: Configuration/provisioning of information from EMF to P31s_TT_Sk

Item	Configuration/provisioning of information from EMF to P31s_TT_Sk	Reference	Status	Support
1	P31s_TT_Sk_MI_TPmode is provisionable from the EMF.	8.2.2	m	
2	P31s_TT_Sk_MI_SSF_Reported is provisionable from the EMF.	8.2.2	m	
3	P31s_TT_Sk_MI_RDI_Reported is provisionable from the EMF.	8.2.2	c1201	
4	P31s_TT_Sk_MI_1second is provisioned by the EMF.	8.2.2	m	
5	P31s_TT_Sk_MI_DEGM is provisionable from the EMF.	8.2.2	m	
6	P31s_TT_Sk_MI_DEGTHR is provisionable from the EMF.	8.2.2	m	
7	P31s_TT_Sk_MI_ ExTI is provisionable from the EMF.	8.2.2	m	
8	P31s_TT_Sk_MI_TIMdis is provisionable from the EMF.	8.2.2	m	

c1201: IF F.1/2 AND F.1/3 THEN m ELSE n/a -- bi-directional layer supported

Table F.13: Signal reports from P31s_TT_Sk to EMF

Item	Signal reports from P31s_TT_Sk to EMF	Reference	Status	Support
1	P31s_TT_Sk_MI_cRDI is reported to the EMF.	8.2.2	c1301	
2	P31s_TT_Sk_MI_cSSF is reported to the EMF.	8.2.2	m	
3	P31s_TT_Sk_MI_cDEG is reported to the EMF.	8.2.2	m	
4	P31s_TT_Sk_MI_cUNEQ is reported to the EMF.	8.2.2	m	
5	P31s_TT_Sk_MI_cTIM is reported to the EMF.	8.2.2	m	
6	P31s_TT_Sk_MI_AcTI is reported to the EMF.	8.2.2	m	
7	P31s_TT_Sk_MI_pN_DS is reported to the EMF.	8.2.2	m	
8	P31s_TT_Sk_MI_pN_EBC is reported to the EMF.	8.2.2	m	
9	P31s_TT_Sk_MI_pF_DS is reported to the EMF.	8.2.2	c1301	
10	P31s_TT_Sk_MI_pF_EBC is reported to the EMF.	8.2.2	c1301	

c1301: IF F.1/2 AND F.1/3 THEN m ELSE n/a -- bi-directional layer supported

NOTE: Reporting should be understood as reporting to the Management Point (i.e. to the Equipment Management Function), not as reporting to the user through a management interface.

F.4.2.2.2 Processes (P31s_TT_Sk)

Table F.14: Trail Termination Point mode process

Prerequisite: F.12/1 -- MI_TPmode provisionable from the EMF

Item	Trail Termination Point mode process	Reference	Status	Support
1	The Trail Termination Point Mode supports "not monitored" (NMON) status.	EN 300 417-1-1 subclause 8.5	m	
2	The Trail Termination Point Mode supports "monitored" (MON) status.	EN 300 417-1-1 subclause 8.5	m	

Table F.15: RDI processing

Prerequisite: F.1/2 AND F.1/3 -- bi-directional layer supported

Item	RDI processing	Reference	Status	Support
1	The information carried in the RDI bit, MA[1], is extracted to enable single ended maintenance of a bi-directional Trail (Path).	8.2.2	m	
2	A "1" indicates an RDI state.	8.2.2, EN 300 417-1-1 subclauses 7.4.1 and 8.2	m	
3	A "0" indicates the normal state.	8.2.2, EN 300 417-1-1 subclauses 7.4.1 and 8.2	m	

Table F.16: REI processing

Prerequisite: F.1/2 AND F.1/3 -- bi-directional layer supported

Item	REI processing	Reference	Status	Support
1	The information carried in the REI bit, MA[2] is extracted to monitor the error performance of the reverse direction of transmission.	8.2.2	m	
2	The application process is performed as specified in EN 300 417-1-1 subclause 7.4.2.	8.2.2, EN 300 417-1-1 subclause 7.4.2	m	

Table F.17: Trail Trace Identifier processing

Item	Trail Trace Identifier processing	Reference	Status	Support
1	The 16 byte Trail Trace Identifier (TTI) is recovered from the TR byte and made available for network management purposes as AcTI.	8.2.2	m	
2	The trace identifier process supports only "mode 1" (EN 300 417-1-1 subclause 7.1).	8.2.2, EN 300 417-1-1 subclause 7.1	m	

Table F.18: Error Detection Code processing

Item	Error Detection Code processing	Reference	Status	Support
1	Even bit parity (BIP-8) is computed for each bit n of every byte of the preceding frame and compared with bit n of EM byte recovered from the current frame (n=1 to 8 inclusive).	8.2.2	m	
2	A difference between the computed and recovered EM values is taken as evidence of one or more errors (nN_B) in the computation block.	8.2.2	m	

Table F.19: Signal Label processing

Item	Signal Label processing	Reference	Status	Support
1	The information in the signal label bits, MA[3-5], is extracted to allow unequipped P31s defect detection.	8.2.2	m	

F.4.2.2.3 Defects (P31s_TT_Sk)

Table F.20: Defects for P31s_TT_Sk

Item	Defects for P31s_TT_Sk	Reference	Status	Support
1	The function detects the dRDI defect according to the specification in EN 300 417-1-1, subclauses 7.4.1, 8.2.1.5, 8.2.2.2.	8.2.2, EN 300 417-1-1 subclauses 7.4.1, 8.2.1.5, 8.2.2.2	c2001	
2	The function detects dDEG defect according to the specification in subclause 8.2.1 in EN 300 417-1-1.	8.2.2, EN 300 417-1-1 subclause 8.2.1	m	
3	The function detects dTIM defect according to the specification in subclause 8.2.1 in EN 300 417-1-1.	8.2.2, EN 300 417-1-1 subclause 8.2.1	m	
4	The function detects dUNEQ defect according to the specification in subclause 8.2.1 in EN 300 417-1-1.	8.2.2, EN 300 417-1-1 subclause 8.2.1	m	

c2001: IF F.1/2 AND F.1/3 THEN m ELSE n/a -- bi-directional layer supported

F.4.2.2.4 Consequent actions (P31s_TT_Sk)

Table F.21: Consequent actions for P31s_TT_Sk

Item	Consequent actions for P31s_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: aTSF <-- CI_SSF or dUNEQ or dTIM.	8.2.2	m	
2	The function implements the following logical equation: aRDI <-- CI_SSF or dUNEQ or dTIM.	8.2.2	c2101	
3	The function implements the following logical equation: aTSD <-- dDEG.	8.2.2	m	
4	The function implements the following logical equation: aAIS <-- dUNEQ or dTIM.	8.2.2	m	
5	On declaration of an aAIS the function outputs an all ONEs signal within 250 µs.	8.2.2	m	
6	On clearing of aAIS the function outputs normal data within 250 µs.	8.2.2	m	

c2101: IF F.1/2 AND F.1/3 THEN m ELSE n/a -- bi-directional layer supported

F.4.2.2.5 Defect Correlations (P31s_TT_Sk)

Table F.22: Defect Correlations for P31s_TT_Sk

Item	Defect Correlations for P31s_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: cRDI <-- dRDI and MON and (not dTIM) and (not dUNEQ) and RDI_Reported.	8.2.2	c2201	
2	The function implements the following logical equation: cSSF <-- CI_SSF and MON and SSF_Reported.	8.2.2	c2202	
3	The function implements the following logical equation: cDEG <-- dDEG and MON and (not dTIM) and (not dUNEQ).	8.2.2	c2203	
4	The function implements the following logical equation: cUNEQ <-- MON and dUNEQ.	8.2.2	c2204	
5	The function implements the following logical equation: cTIM <-- MON and dTIM and (not dUNEQ).	8.2.2	c2205	

c2201: IF F.13/1 THEN m ELSE n/a -- cRDI is reported
c2202: IF F.13/2 THEN m ELSE n/a -- cSSF is reported
c2203: IF F.13/3 THEN m ELSE n/a -- cDEG is reported
c2204: IF F.13/4 THEN m ELSE n/a -- cUNEQ is reported
c2205: IF F.13/5 THEN m ELSE n/a -- cTIM is reported

F.4.2.2.6 Performance monitoring (P31s_TT_Sk)

Table F.23: Performance Monitoring (P31s_TT_Sk)

Item	Performance Monitoring (P31s_TT_Sk)	Reference	Status	Support
1	The function implements the following logical equation: pN_DS <-- aTSF or dEQ.	8.2.2	c2301	
2	The function implements the following logical equation: pN_EBC <-- Sum(nN_B) The "Sum" is calculated over a one-second period.	8.2.2	c2302	
3	The function implements the following logical equation: pF_DS <-- dRDI.	8.2.2	c2303	
4	The function implements the following logical equation: pF_EBC <-- Sum(nF_B) The "Sum" is calculated over a one-second period.	8.2.2	c2304	

c2301: IF F.13/7 THEN m ELSE n/a -- pN_DS is reported
c2302: IF F.13/8 THEN m ELSE n/a -- pN_EBC is reported
c2303: IF F.13/9 THEN m ELSE n/a -- pF_DS is reported
c2304: IF F.13/10 THEN m ELSE n/a -- pF_EBC is reported

F.4.3 P31s Adaptation functions

F.4.3.1 P31s to VC-12, VC-11 Compound Adaptation Source P31s/SX_A_So

Prerequisite: F.1/4 -- P31s to VC-12, VC-11 adaptation source function exists

Table F.24: Number of inputs P31s/SX_A_So

Item	Configuration/provisioning information from EMF to P31s/SX_A_So	Reference	Status	Support
1	The maximum number of S12_CI inputs is 14.	8.3.1	c2401	
2	The maximum number of S11_CI inputs is 14.	8.3.1	c2402	

c2401: IF F.1/10 THEN m ELSE n/a -- TUG/S12_A_So functions exist
c2402: IF F.1/12 THEN m ELSE n/a -- TUG/S11*_A_So functions exist

Table F.25: Adaptation process for P31s/SX_A_So

Item	Adaptation process for P31s/SX_A_So	Reference	Status	Support
1	The P31s/SX_A_So compound function provides adaptation from the VC-12/11 layers to the P31s layer. This process is performed by a combination of several atomic functions as shown in figure 57.	8.3.1, figure 57	m	
2	All possible TUG/Sm_A_So (m=12, 11*) functions within a P31s/SX_A_So compound function are listed in table 35.	8.3.1, table 35	m	
3	Only one of TUG/Sm_A_So (m=12, 11*) functions is allowed to access to the same TU timeslot at a time.	8.3.1	m	
4	P31s payload is always completely filled.	8.3.1	m	

F.4.3.1.1 P31s to TUG Adaptation Source P31s/TUG_A_So

F.4.3.1.1.1 Management information (P31s/TUG_A_So)

Table F.26: Configuration/provisioning information from EMF to P31s/TUG_A_So

Item	Configuration/provisioning information from EMF to P31s/TUG_A_So	Reference	Status	Support
1	P31s/TUG_A_So_MI_Active is provisionable from the EMF.	8.3.1.1	c2601	
2	The function can be activated (P31s/TUG_A_So_MI_Active is TRUE) and deactivated (P31s/TUG_A_So_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	8.3.1.1	c2602	

c2601: IF F.2/1 THEN m ELSE n/a -- multiple Adaptation Source functions exist
c2602: IF F.26/1 THEN m ELSE n/a -- P31s/TUG_A_So_MI_Active provisionable

F.4.3.1.1.2 Processes (P31s/TUG_A_So)

Table F.27: Adaptation process for P31s/TUG_A_So

Item	Adaptation process for P31s/TUG_A_So	Reference	Status	Support
1	The function adds two payload specific signals (bits MA[3-5] and MA[6-7]) to the P31s POH as shown in figure 59.	8.3.1.1, figure 59	m	
2	The function adds fixed stuff (R) bytes to the P31s payload as shown in figure 60.	8.3.1.1, figure 60	m	

Table F.28: Signal Label insertion for P31s/TUG_A_So

Item	Signal Label insertion for P31s/TUG_A_So	Reference	Status	Support
1	The function inserts in bits MA[3-5] the code "011" (TU-12 structure) as defined in ETS 300 337.	8.3.1.1, ETS 300 337	m	
2	The value of the multiframe indicator bits (MA[6-7]) is set as specified by ETS 300 337 for a 500 μs TU multiframe sequence, and aligned with TUG_CI_MFS.	8.3.1.1, figure 59, ETS 300 337	m	

Table F.29: Activation of P31s/TUG_A_So function

Item	Activation of P31s/TUG_A_So function	Reference	Status	Support
1	The function accesses the access point only when it is activated (MI_Active is true).	8.3.1.1	c2901	

c2901: IF F.26/1 THEN m ELSE n/a -- P31s/TUG_A_So_MI_Active provisionable

F.4.3.1.2 TUG Termination Source TUG_T_So

Table F.30: TUG Termination Source function

Item	TUG Termination Source function	Reference	Status	Support
1	No requirements	8.3.1.2	n/a	

F.4.3.1.3 TUG to S12 Adaptation Source TUG/S12_A_So

Prerequisite: F.1/10 -- TUG to VC-12 adaptation source function exists

F.4.3.1.3.1 Management information (TUG/S12_A_So)

Table F.31: Configuration/provisioning information from EMF to TUG/S12_A_So

Item	Configuration/provisioning information from EMF to TUG/S12_A_So	Reference	Status	Support
1	TUG/S12_A_So_MI_Active is provisionable from the EMF.	8.3.1.3	c3101	
2	The function can be activated (TUG/S12_A_So_MI_Active is TRUE) and deactivated (TUG/S12_A_So_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	8.3.1.3	c3102	

c3101: IF (F.1/10 AND F.1/12) THEN m ELSE n/a -- multiple Low Order VC Adaptation Source functions exist

c3102: IF F.31/1 THEN m ELSE n/a -- TUG/S12_A_So_MI_Active provisionable

F.4.3.1.3.2 Processes (TUG/S12_A_So)

Table F.32: Adaptation process for TUG/S12_A_So

Item	Adaptation process for TUG/S12_A_So	Reference	Status	Support
1	This function provides frequency justification and bitrate adaptation for a VC-12 signal, represented by a nominally (140 × 64/4) = 2 240 kbit/s information stream with a frequency accuracy within ± 4,6 ppm and the related frame phase, to be multiplexed into a P31s signal via a TU-12.	8.3.1.3	m	
2	The (500 µs) frame phase of the VC-12 is coded in the related TU-12 pointer.	8.3.1.3	m	

Table F.33: Frequency justification and bitrate adaptation for TUG/S12_A_So

Item	Frequency justification and bitrate adaptation for TUG/S12_A_So	Reference	Status	Support
1	The function provides for an elastic store (buffer) process.	8.3.1.3	m	
2	The data and frame start signals is written into the buffer under control of the associated input clock.	8.3.1.3	m	
3	The data and frame start signals are read out of the buffer under control of the P31s clock, frame position, and justification decision.	8.3.1.3	m	
4	Upon a positive justification action, the reading of 8 data bits are cancelled once and no data are written at the justification opportunity position V3+1.	8.3.1.3, figure 63	m	
5	Upon a negative justification action, an extra 8 data bits are read out once into the justification opportunity position V3.	8.3.1.3, figure 63	m	

Table F.34: Pointer generation for TUG/S12_A_So

Item	Pointer generation for TUG/S12_A_So	Reference	Status	Support
1	The TU-12 pointer is carried in bytes V1 and V2 of payload specific OH per 500 µs multiframe.	8.3.1.3, figure 63	m	
2	The TU-12 pointer is aligned in the P31s payload in fixed positions relative to the P31s frame and multiframe.	8.3.1.3	m	
3	The format of the TU-12 pointer and its location in the frame/multiframe are defined in ETS 300 337.	8.3.1.3, ETS 300 337	m	
4	The function generates the TU-12 pointer as is described in EN 300 417-1-1 annex A.	8.3.1.3, EN 300 417-1-1 annex A	m	
5	The SS field of the pointer is set to 10 to indicate TU-12.	8.3.1.3	m	

Table F.35: Activation of TUG/S12_A_So functions and timeslot access

Item	Activation of TUG/S12_A_So functions and timeslot access	Reference	Status	Support
1	The adaptation source function has access to a specific TU-12 of the TUG access point. The TU-12 is defined by the parameter M (M=0 to 13).	8.3.1.3	m	
2	The function accesses the access point only when it is activated (MI_Active is true).	8.3.1.3	c3501	

c3501: IF F.31/1 THEN m ELSE n/a -- TUG/S12_A_So_MI_Active provisionable

F.4.3.1.3.3 Consequent actions (TUG/S12_A_So)

Table F.36: Consequent actions for TUG/S12_A_So

Item	Consequent actions for TUG/S12_A_So	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- CI_SSF.	8.3.1.3	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 1 ms.	8.3.1.3	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	8.3.1.3	m	

F.4.3.1.4 TUG to S11 Adaptation Source TUG/S11*_A_So

Prerequisite: F.1/12 -- TUG to VC-11 adaptation source function exists

F.4.3.1.4.1 Management information (TUG/S11*_A_So)

Table F.37: Configuration/provisioning information from EMF to TUG/S11*_A_So

Item	Configuration/provisioning information from EMF to TUG/S11*_A_So	Reference	Status	Support
1	TUG/S11*_A_So_MI_Active is provisionable from the EMF.	8.3.1.4	c3701	
2	The function can be activated (TUG/S11*_A_So_MI_Active is TRUE) and deactivated (TUG/S11*_A_So_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	8.3.1.4	c3702	

c3701: IF (F.1/10 AND F.1/12) THEN m ELSE n/a -- multiple Low Order VC Adaptation Source functions exist
c3702: IF F.37/1 THEN m ELSE n/a -- TUG/S11*_A_So_MI_Active provisionable

F.4.3.1.4.2 Processes (TUG/S11*_A_So)

Table F.38: Adaptation process for TUG/S11*_A_So

Item	Adaptation process for TUG/S11*_A_So	Reference	Status	Support
1	This function provides frequency justification and bitrate adaptation for a VC-11 signal, represented by a nominally (104 × 64/4) = 1 664 kbit/s information stream with a frequency accuracy within ± 4,6 ppm and the related frame phase, to be multiplexed into a P31s signal via a TU-12.	8.3.1.4	m	
2	This function adds 9 bytes of fixed stuff per 125 µs to the VC-11 as specified by ETS 300 147 to map the VC-11 into the TU-12 payload.	8.3.1.4, figure 65, ETS 300 147	m	
3	The (500 µs) frame phase of the VC-11 is coded in the related TU-12 pointer.	8.3.1.4	m	

Table F.39: Frequency justification and bitrate adaptation for TUG/S11*_A_So

Item	Frequency justification and bitrate adaptation for TUG/S11*_A_So	Reference	Status	Support
1	The function provides for an elastic store (buffer) process.	8.3.1.4	m	
2	The data and frame start signals is written into the buffer under control of the associated input clock.	8.3.1.4	m	
3	The data and frame start signals are read out of the buffer under control of the P31s clock, frame position, and justification decision.	8.3.1.4	m	
4	Upon a positive justification action, the reading of 8 data bits are cancelled once and no data are written at the justification opportunity position V3+1.	8.3.1.4, figure 65	m	
5	Upon a negative justification action, an extra 8 data bits are read out once into the justification opportunity position V3.	8.3.1.4, figure 65	m	

Table F.40: Pointer generation for TUG/S11*_A_So

Item	Pointer generation for TUG/S11*_A_So	Reference	Status	Support
1	The TU-12 pointer is carried in bytes V1 and V2 of payload specific OH per 500 µs multiframe.	8.3.1.4, figure 63	m	
2	The TU-12 pointer is aligned in the P31s payload in fixed positions relative to the P31s frame and multiframe.	8.3.1.4	m	
3	The format of the TU-12 pointer and its location in the frame/multiframe are defined in ETS 300 337.	8.3.1.4, ETS 300 337	m	
4	The function generates the TU-12 pointer as is described in EN 300 417-1-1 annex A.	8.3.1.4, EN 300 417-1-1 annex A	m	
5	The SS field of the pointer is set to 10 to indicate TU-12.	8.3.1.4	m	

Table F.41: Activation of TUG/S11*_A_So functions and timeslot access

Item	Activation of TUG/S11*_A_So functions and timeslot access	Reference	Status	Support
1	The adaptation source function has access to a specific TU-12 of the TUG access point. The TU-12 is defined by the parameter M (M=0 to 13).	8.3.1.4	m	
2	The function accesses the access point only when it is activated (MI_Active is true).	8.3.1.4	c4101	

c4101: IF F.37/1 THEN m ELSE n/a -- TUG/S11*_A_So_MI_Active provisionable

F.4.3.1.4.3 Consequent actions (TUG/S11*_A_So)

Table F.42: Consequent actions for TUG/S11*_A_So

Item	Consequent actions for TUG/S11*_A_So	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- CI_SSF.	8.3.1.4	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 1 ms.	8.3.1.4	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	8.3.1.4	m	

F.4.3.2 P31s to VC-12, VC-11 Compound Adaptation Sink P31s/SX_A_Sk

Prerequisite: F.1/5 -- P31s to VC-12, VC-11 adaptation Sink function exists

Table F.43: Number of outputs for P31s/SX_A_Sk

Item	Number of outputs for P31s/SX_A_Sk	Reference	Status	Support
1	The maximum number of S12_CI outputs is 14.	8.3.2	c4301	
2	The maximum number of S11_CI outputs is 14.	8.3.2	c4302	

c4301: IF F.1/11 THEN m ELSE n/a -- TUG/S12_A_Sk functions exist
c4302: IF F.1/13 THEN m ELSE n/a -- TUG/S11*_A_Sk functions exist

Table F.44: Adaptation process for P31s/SX_A_Sk

Item	Adaptation process for P31s/SX_A_Sk	Reference	Status	Support
1	The P31s/SX_A_Sk compound function provides adaptation from the VC-12/11 layers to the P31s layer. This process is performed by a combination of several atomic functions as shown in figure 67.	8.3.2, figure 67	m	
2	All possible TUG/Sm_A_Sk (m=12, 11*) functions within a P31s/SX_A_Sk compound function are listed in table 41.	8.3.2, table 41	m	
3	Several TUG/Sm_A_Sk (m=12, 11*) functions may have access to the same TU timeslot at the same time.	8.3.2	m	

F.4.3.2.1 P31s to TUG Adaptation Sink P31s/TUG_A_Sk

F.4.3.2.1.1 Management information (P31s/TUG_A_Sk)

Table F.45: Configuration/provisioning information from EMF to P31s/TUG_A_Sk

Item	Configuration/provisioning information from EMF to P31s/TUG_A_Sk	Reference	Status	Support
1	P31s/TUG_A_Sk_MI_Active is provisionable from the EMF.	8.3.2.1	c4501	
2	The function can be activated (P31s/TUG_A_Sk_MI_Active is TRUE) and deactivated (P31s/TUG_A_Sk_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	8.3.2.1	c4502	

c4501: IF F.2/2 THEN m ELSE n/a -- multiple Adaptation Sink functions exist
c4502: IF F.45/1 THEN m ELSE n/a -- P31s/TUG_A_Sk_MI_Active provisionable

Table F.46: Signal reports from P31s/TUG_A_Sk to EMF

Item	Signal reports from P31s/TUG_A_Sk to EMF	Reference	Status	Support
1	P31s/TUG_A_Sk_MI_cPLM is reported to the EMF.	8.3.2.1	m	
2	P31s/TUG_A_Sk_MI_cLOM is reported to the EMF.	8.3.2.1	m	

F.4.3.2.1.2 Processes (P31s/TUG_A_Sk)

Table F.47: Adaptation process for P31s/TUG_A_Sk

Item	Adaptation process for P31s/TUG_A_Sk	Reference	Status	Support
1	The function monitors two payload specific signals (bits MA[3-5] and MA[6-7]) of the P31s POH.	8.3.2.1	m	

Table F.48: Signal Label processing for P31s/TUG_A_Sk

Item	Signal Label insertion for P31s/TUG_A_Sk	Reference	Status	Support
1	The function compares the content of the accepted MA[3-5] bits with the expected value code "011" (TU-12 structure).	8.3.2.1	m	
2	The comparison is made as described in EN 300 417-1-1, subclauses 7.2 and 8.1.2.	8.3.2.1, EN 300 417-1-1 subclause 7.2, subclause 8.1.2	m	

Table F.49: Multiframe Start recovery for P31s/TUG_A_Sk

Item	Multiframe Start recovery for P31s/TUG_A_Sk	Reference	Status	Support
1	The function recovers the 500 µs (multi)frame start phase performing multi-frame alignment on bits 6 and 7 of byte MA.	8.3.2.1	m	
2	Out-of-multiframe (OOM) is assumed once when an error is detected in the MA bit 6 and 7 sequence.	8.3.2.1	m	
3	Multiframe alignment is assumed to be recovered, and the in-multiframe (IM) state is entered, when in four consecutive P31s frames an error free MA sequence is found.	8.3.2.1	m	

Table F.50: Activation of P31s/TUG_A_Sk function

Item	Activation of P31s/TUG_A_Sk function	Reference	Status	Support
1	The function performs the operation specified above when it is activated (MI_Active is true).	8.3.2.1	c5001	
2	When the function is not active it activates the SSF signal at its output and does not report its status via the management point.	8.3.2.1	m	

c5001: IF F.45/1 THEN m ELSE n/a -- P31s/TUG_A_Sk_MI_Active provisionable

F.4.3.2.1.3 Defects (P31s/TUG_A_Sk)

Table F.51: Defects for P31s/TUG_A_Sk

Item	Defects for P31s/TUG_A_Sk	Reference	Status	Support
1	The function detects the dPLM defect according to the specification in EN 300 417-1-1, 8.2.1.	8.3.2.1, EN 300 417-1-1 subclause 8.2.1	m	
2	If the multiframe alignment process is in the OOM state and the MA[6-7] multiframe is not recovered within X ms, a dLOM defect is declared.	8.3.2.1	m	
3	Once in a dLOM state, this state is exited when the multiframe is recovered (multiframe alignment process enter the IM state).	8.3.2.1	m	
4	The value of X is not configurable.	8.3.2.1	m	

Table F.52: Value of X parameter for P31s/TUG_A_Sk

Item	Value of X parameter for P31s/TUG_A_Sk	Reference	Status	Support	Values	
					Allowed	**Supported**
1	Value of X parameter	8.3.2.1	m		1 ms ≤ X ≤ 5 ms	

F.4.3.2.1.4 Consequent actions (P31s/TUG_A_Sk)

Table F.53: Consequent actions for P31s/TUG_A_Sk

Item	Consequent actions for P31s/TUG_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aSSF <-- dPLM or dLOM.	8.3.2.1	m	

F.4.3.2.1.5 Defect Correlations (P31s/TUG_A_Sk)

Table F.54: Defect Correlations for P31s/TUG_A_Sk

Item	Defect Correlations for P31s/TUG_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: cPLM <-- dPLM and (not AI_TSF).	8.3.2.1	c5401	
2	The function implements the following logical equation: cLOM <-- dLOM and (not AI_TSF) and (not dPLM).	8.3.2.1	c5402	

c5401: IF F.46/1 THEN m ELSE n/a -- cPLM is reported
c5402: IF F.46/2 THEN m ELSE n/a -- cLOM is reported

F.4.3.2.2 TUG Termination Sink TUG_T_Sk

Table F.55: TUG Termination Sink function

Item	TUG Termination Sink function	Reference	Status	Support
1	No requirements	8.3.2.2	n/a	

F.4.3.2.2.1 Consequent actions (TUG_T_Sk)

Table F.56: Consequent actions for TUG_T_Sk

Item	Consequent actions for TUG_T_Sk	Reference	Status	Support
1	The function implements the following logical equation: aTSF <-- CI_SSF.	8.3.2.2	m	

F.4.3.2.3 TUG to S12 Adaptation Sink TUG/S12_A_Sk

Prerequisite: F.1/11 -- TUG to VC-12 adaptation Sink function exists

F.4.3.2.3.1 Management information (TUG/S12_A_Sk)

Table F.56A: Configuration/provisioning information from EMF to TUG/S12_A_Sk

Item	Configuration/provisioning information from EMF to TUG/S12_A_Sk	Reference	Status	Support
1	TUG/S12_A_Sk_MI_Active is provisionable from the EMF.	8.3.2.3	c5601	
2	The function can be activated (TUG/S12_A_Sk_MI_Active is TRUE) and deactivated (TUG/S12_A_Sk_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	8.3.2.3	c5602	
3	TUG/S12_A_Sk_MI_AIS_Reported is provisionable from the EMF.	8.3.2.3	m	

c5601: IF (F.1/11 AND F.1/13) THEN m ELSE n/a -- multiple Low Order VC Adaptation Sink functions exist

c5602: IF F.56A/1 THEN m ELSE n/a -- TUG/S12_A_Sk_MI_Active provisionable

Table F.57: Signal reports from TUG/S12_A_Sk to EMF

Item	Signal reports from TUG/S12_A_Sk to EMF	Reference	Status	Support
1	TUG/S12_A_Sk_MI_cAIS is reported to the EMF.	8.3.2.3	m	
2	TUG/S12_A_Sk_MI_cLOP is reported to the EMF.	8.3.2.3	m	

F.4.3.2.3.2 Processes (TUG/S12_A_Sk)

Table F.58: Adaptation process for TUG/S12_A_Sk

Item	Adaptation process for TUG/S12_A_Sk	Reference	Status	Support
1	This function recovers VC-12 data with frame phase information from a TU-12.	8.3.2.3	m	

Table F.59: Pointer interpretation for TUG/S12_A_Sk

Item	Pointer interpretation for TUG/S12_A_Sk	Reference	Status	Support
1	The function performs TU-12 pointer interpretation as specified in annex B in EN 300 417-1-1 to recover the VC-12 frame phase within a TU-12 of a P31s.	8.3.2.3, EN 300 417-1-1 annex B	m	

Table F.60: Activation of TUG/S12_A_Sk functions and timeslot access

Item	Activation of TUG/S12_A_Sk functions and timeslot access	Reference	Status	Support
1	The adaptation sink function has access to a specific TU-12 of the TUG access point. The TU-12 is defined by the parameter M (M=0 to 13).	8.3.2.3	m	
2	The function performs the operation specified above when it is activated (MI_Active is true).	8.3.2.3	c6001	
3	When the function is not active it transmits the all-ONEs signal at its output (CI_D) and does not report its status via its management point.	8.3.2.3	m	

c6001: IF F.56A/1 THEN m ELSE n/a -- TUG/S12_A_Sk_MI_Active provisionable

F.4.3.2.3.3 Defects (TUG/S12_A_Sk)

Table F.61: Defects for TUG/S12_A_Sk

Item	Defects for TUG/S12_A_Sk	Reference	Status	Support
1	The function detects the dAIS defect according to the algorithm described under the pointer interpreter process in EN 300 417-1-1 annex B.	8.3.2.3, EN 300 417-1-1 annex B	m	
2	The function detects the dLOP defect according to the algorithm described under the pointer interpreter process in EN 300 417-1-1 annex B.	8.3.2.3, EN 300 417-1-1 annex B	m	

F.4.3.2.3.4 Consequent actions (TUG/S12_A_Sk)

Table F.62: Consequent actions for TUG/S12_A_Sk

Item	Consequent actions for TUG/S12_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- dAIS or dLOP or AI_TSF.	8.3.2.3	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 1 ms.	8.3.2.3	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	8.3.2.3	m	
4	The function implements the following logical equation: aSSF <-- dAIS or dLOP or AI_TSF.	8.3.2.3	m	

F.4.3.2.3.5 Defect Correlations (TUG/S12_A_Sk)

Table F.63: Defect Correlations for TUG/S12_A_Sk

Item	Defect Correlations for TUG/S12_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: cAIS <-- dAIS and (not AI_TSF) and AIS_Reported.	8.3.2.3	c6301	
2	The function implements the following logical equation: cLOP <-- dLOP and (not AI_TSF).	8.3.2.3	c6302	

c6301: IF F.57/1 THEN m ELSE n/a -- cAIS is reported
c6302: IF F.57/2 THEN m ELSE n/a -- cLOP is reported

F.4.3.2.4 TUG to S11 Adaptation Sink TUG/S11*_A_Sk

Prerequisite: F.1/13 -- TUG to VC-11 adaptation Sink function exists

F.4.3.2.4.1 Management information (TUG/S11*_A_Sk)

Table F.64: Configuration/provisioning information from EMF to TUG/S11*_A_Sk

Item	Configuration/provisioning information from EMF to TUG/S11*_A_Sk	Reference	Status	Support
1	TUG/S11*_A_Sk_MI_Active is provisionable from the EMF.	8.3.2.4	c6401	
2	The function can be activated (TUG/S11*_A_Sk_MI_Active is TRUE) and deactivated (TUG/S11*_A_Sk_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	8.3.2.4	c6402	
3	TUG/S11*_A_Sk_MI_AIS_Reported is provisionable from the EMF.	8.3.2.4	m	

c6401: IF (F.1/11 AND F.1/13) THEN m ELSE n/a -- multiple Low Order VC Adaptation Sink functions exist

c6402: IF F.64/1 THEN m ELSE n a -- TUG/S11*_A_Sk_MI_Active provisionable

Table F.65: Signal reports from TUG/S11*_A_Sk to EMF

Item	Signal reports from TUG/S11*_A_Sk to EMF	Reference	Status	Support
1	TUG/S11*_A_Sk_MI_cAIS is reported to the EMF.	8.3.2.4	m	
2	TUG/S11*_A_Sk_MI_cLOP is reported to the EMF.	8.3.2.4	m	

F.4.3.2.4.2 Processes (TUG/S11*_A_Sk)

Table F.66: Adaptation process for TUG/S11*_A_Sk

Item	Adaptation process for TUG/S11*_A_Sk	Reference	Status	Support
1	This function recovers VC-11 data with frame phase information from a TU-12.	8.3.2.4	m	

Table F.67: Pointer interpretation for TUG/S11*_A_Sk

Item	Pointer interpretation for TUG/S11*_A_Sk	Reference	Status	Support
1	The function performs TU-12 pointer interpretation as specified in annex B in EN 300 417-1-1 to recover the VC-11 frame phase within a TU-12 of a P31s.	8.3.2.4, EN 300 417-1-1 annex B	m	

Table F.68: Activation of TUG/S11*_A_Sk functions and timeslot access

Item	Activation of TUG/S11*_A_Sk functions and timeslot access	Reference	Status	Support
1	The adaptation sink function has access to a specific TU-12 of the TUG access point. The TU-12 is defined by the parameter M (M=0 to 13).	8.3.2.4	m	
2	The function performs the operation specified above when it is activated (MI_Active is true).	8.3.2.4	c6801	
3	When the function is not active it transmits the all-ONEs signal at its output (CI_D) and does not report its status via its management point.	8.3.2.4	M	

c6801: IF F.56A/1 THEN m ELSE n/a -- TUG/S11*_A_Sk_MI_Active provisionable

F.4.3.2.4.3 Defects (TUG/S11*_A_Sk)

Table F.69: Defects for TUG/S11*_A_Sk

Item	Defects for TUG/S11*_A_Sk	Reference	Status	Support
1	The function detects the dAIS defect according to the algorithm described under the pointer interpreter process in EN 300 417-1-1 annex B.	8.3.2.4, EN 300 417-1-1 annex B	m	
2	The function detects the dLOP defect according to the algorithm described under the pointer interpreter process in EN 300 417-1-1 annex B.	8.3.2.4, EN 300 417-1-1 annex B	m	

F.4.3.2.4.4 Consequent actions (TUG/S11*_A_Sk)

Table F.70: Consequent actions for TUG/S11*_A_Sk

Item	Consequent actions for TUG/S11*_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- dAIS or dLOP or AI_TSF.	8.3.2.4	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 1 ms.	8.3.2.4	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	8.3.2.4	m	
4	The function implements the following logical equation: aSSF <-- dAIS or dLOP or AI_TSF.	8.3.2.4	m	

F.4.3.2.4.5 Defect Correlations (TUG/S11*_A_Sk)

Table F.71: Defect Correlations for TUG/S11*_A_Sk

Item	Defect Correlations for TUG/S11*_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: cAIS <-- dAIS and (not AI_TSF) and AIS_Reported.	8.3.2.1	c7101	
2	The function implements the following logical equation: cLOP <-- dLOP and (not AI_TSF).	8.3.2.1	c7102	

c7101: IF F.65/1 THEN m ELSE n/a -- cAIS is reported
c7102: IF F.65/2 THEN m ELSE n/a -- cLOP is reported

F.4.3.3 P31s to P0s Adaptation Source P31s/P0s_A_So

Prerequisite: F.1/14 -- P31s to P0s adaptation source function exists

F.4.3.3.1 Management information (P31s/P0s_A_So)

Table F.72: Configuration/provisioning information from EMF to P31s/P0s_A_So

Item	Configuration/provisioning information from EMF to P31s/P0s_A_So	Reference	Status	Support
1	P31s/P0s_A_So_MI_Active is provisionable from the EMF.	8.3.3	c7201	
2	The function can be activated (P31s/P0s_A_So_MI_Active is TRUE) and deactivated (P31s/P0s_A_So_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	8.3.3	c7202	

c7201: IF F.2/1 THEN m ELSE n/a -- multiple Adaptation Source functions exist
c7202: IF F.72/1 THEN m ELSE n/a -- P31s/P0s_A_So_MI_Active provisionable

F.4.3.3.2 Processes (P31s/P0s_A_So)

Table F.73: Adaptation process for P31s/P0s_A_So

Item	Adaptation process for P31s/P0s_A_So	Reference	Status	Support
1	This function provides the multiplexing of the P0s_CI 64 kbit/s information stream, defined in ETS 300 166, into the P31s_AI using slip buffering.	8.3.3, ETS 300 166	m	
2	This function inserts it into the P31s POH byte GC as defined in ETS 300 337 and depicted in figure 53.	8.3.3, figure 53 ETS 300 337	m	

Table F.74: Activation of P31s/P0s_A_So function

Item	Activation of P31s/P0s_A_So function	Reference	Status	Support
1	The function accesses the access point only when it is activated (MI_Active is true).	8.3.3	c7401	

c7401: IF F.72/1 THEN m ELSE n/a -- P31s/P0s_A_So_MI_Active provisionable

Table F.75: Frequency justification and bitrate adaptation for P31s/P0s_A_So

Item	Frequency justification and bitrate adaptation for P31s/P0s_A_So	Reference	Status	Support
1	The function provides for an elastic store (buffer) process.	8.3.3	m	
2	The data and frame start signals is written into the buffer under control of the associated input clock.	8.3.3	m	
3	The data and frame start signals are read out of the buffer under control of the P31s clock, frame position (P31s_TI), and justification decision.	8.3.3	m	
4	Upon a positive justification (slip) action, the reading of one 64 kbit/s octet (8 bits) is cancelled once.	8.3.3	m	
5	Upon a negative justification (slip) action, the same 64 kbit/s octet (8 bits) is read out a second time.	8.3.3	m	
6	The elastic store (slip buffer) accommodates at least 18 µs of wander without introducing errors.	8.3.3	m	

F.4.3.4 P31s to P0s Adaptation Sink P31s/P0s_A_Sk

Prerequisite: F.1/15 -- P31s to P0s adaptation sink function exists

F.4.3.4.1 Management information (P31s/P0s_A_Sk)

Table F.76: Configuration/provisioning information from EMF to P31s/P0s_A_Sk

Item	Configuration/provisioning information from EMF to P31s/P0s_A_Sk	Reference	Status	Support
1	P31s/P0s_A_Sk_MI_Active is provisionable from the EMF.	8.3.4	c7601	
2	The function can be activated (P31s/P0s_A_Sk_MI_Active is TRUE) and deactivated (P31s/P0s_A_Sk_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	8.3.4	c7602	

c7601: IF F.2/2 THEN m ELSE n/a -- multiple Adaptation Sink functions exist
c7602: IF F.76/1 THEN m ELSE n/a -- P31s/P0s_A_Sk_MI_Active provisionable

F.4.3.4.2 Processes (P31s/P0s_A_Sk)

Table F.77: Adaptation process for P31s/P0s_A_Sk

Item	Adaptation process for P31s/P0s_A_Sk	Reference	Status	Support
1	The function extracts the general communications channel byte GC from the P31s layer Characteristic Information.	8.3.4	m	

Table F.78: Data latching and smoothing process for P31s/P0s_A_Sk

Item	Data latching and smoothing process for P31s/P0s_A_Sk	Reference	Status	Support
1	The function provides a data latching and smoothing function.	8.3.4	m	
2	Each 8-bit octet received are written and latched into a data store under the control of the P31s signal clock.	8.3.4	m	
3	The eight data bits are read out of the data store using a nominal 64 kHz clock.	8.3.4	m	

Table F.79: Activation of P31s/P0s_A_Sk function

Item	Activation of P31s/P0s_A_Sk functions	Reference	Status	Support
1	The function performs the operation specified above when it is activated (MI_Active is true).	8.3.4	c7901	
2	If the function is not active (MI_Active is False) it transmits the all-ONEs signal at its output (CI_D).	8.3.4	c7901	

c7901: IF F.76/1 THEN m ELSE n/a -- P31s/P0s_A_Sk_MI_Active provisionable

F.4.3.4.3 Consequent actions (P31s/P0s_A_Sk)

Table F.80: Consequent actions for P31s/P0s_A_Sk

Item	Consequent actions for P31s/P0s_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- AI_TSF.	8.3.4	m	
2	On declaration of aAIS the function outputs an all-ONEs (AIS) - complying to the frequency limits for this signal (a bit rate in range 64 kbit/s ± 100 ppm) - signal within 1 ms.	8.3.4	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	8.3.4	m	

F.4.3.5 P31s to V0x Adaptation Source P31s/V0x_A_So

Prerequisite: F.1/16 -- P31s to V0x adaptation source function exists

F.4.3.5.1 Management information (P31s/V0x_A_So)

Table F.81: Configuration/provisioning information from EMF to P31s/V0x_A_So

Item	Configuration/provisioning information from EMF to P31s/V0x_A_So	Reference	Status	Support
1	P31s/V0x_A_So_MI_Active is provisionable from the EMF.	8.3.5	c8101	
2	The function can be activated (P31s/V0x_A_So_MI_Active is TRUE) and deactivated (P31s/V0x_A_So_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	8.3.5	c8102	

c8101: IF F.2/1 THEN m ELSE n/a -- multiple Adaptation Source functions exist
c8102: IF F.81/1 THEN m ELSE n/a -- P31s/V0x_A_So_MI_Active provisionable

F.4.3.5.2 Processes (P31s/V0x_A_So)

Table F.82: Adaptation process for P31s/V0x_A_So

Item	Adaptation process for P31s/V0x_A_So	Reference	Status	Support
1	This function multiplexes the V0x_CI data (64 kbit/s) into the byte location GC as defined in ETS 300 337 and depicted in figure 53.	8.3.5, figure 53 ETS 300 337	m	

Table F.83: Activation of P31s/V0x_A_So functions

Item	Activation of P31s/V0x_A_So functions	Reference	Status	Support
1	The function accesses the access point only when it is activated (MI_Active is true).	8.3.5	c8301	

c8301: IF F.81/1 THEN m ELSE n/a -- P31s/V0x_A_So_MI_Active provisionable

F.4.3.6 P31s to V0x Adaptation Sink P31s/V0x_A_Sk

Prerequisite: F.1/17 -- P31s to V0x adaptation sink function exists

F.4.3.6.1 Management information (P31s/V0x_A_Sk)

Table F.84: Configuration/provisioning information from EMF to P31s/V0x_A_Sk

Item	Configuration/provisioning information from EMF to P31s/V0x_A_Sk	Reference	Status	Support
1	P31s/V0x_A_Sk_MI_Active is provisionable from the EMF.	8.3.6	c8401	
2	The function can be activated (P31s/V0x_A_Sk_MI_Active is TRUE) and deactivated (P31s/V0x_A_Sk_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	8.3.6	c8402	

c8401: IF F.2/2 THEN m ELSE n/a -- multiple Adaptation Sink functions exist
c8402: IF F.84/1 THEN m ELSE n/a -- P31s/V0x_A_Sk_MI_Active provisionable

F.4.3.6.2 Processes (P31s/V0x_A_Sk)

Table F.85: Adaptation process for P31s/V0x_A_Sk

Item	Adaptation process for P31s/V0x_A_Sk	Reference	Status	Support
1	This function separates user channel data from P31s Overhead (byte GC) as defined in ETS 300 337 and depicted in figure 53.	8.3.6, figure 53 ETS 300 337	m	

Table F.86: Activation of P31s/V0x_A_Sk function

Item	Activation of P31s/V0x_A_Sk functions	Reference	Status	Support
1	The function performs the operation specified above when it is activated (MI_Active is true).	8.3.6	c8601	
2	If the function is not active (MI_Active is False) it transmits the all-ONEs signal at its output (CI_D).	8.3.6	c8601	

c8601: IF F.84/1 THEN m ELSE n/a -- P31s/V0x_A_Sk_MI_Active provisionable

F.4.3.6.3 Consequent actions (P31s/V0x_A_Sk)

Table F.87: Consequent actions for P31s/V0x_A_Sk

Item	Consequent actions for P31s/V0x_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- AI_TSF.	8.3.6	m	
2	On declaration of aAIS the function outputs an all-ONEs (AIS) - complying to the frequency limits for this signal (a bit rate in range 64 kbit/s ± X ppm) - signal within 1 ms.	8.3.6	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	8.3.6	m	
4	The function implements the following logical equation: aSSF <-- AI_TSF.	8.3.6	m	

F.4.3.7 P31s to DCC Adaptation Source P31s/DCC_A_So

Prerequisite: F.1/18 -- P31s to DCC adaptation source function exists

F.4.3.7.1 Management information (P31s/DCC_A_So)

Table F.88: Configuration/provisioning information from EMF to P31s/DCC_A_So

Item	Configuration/provisioning information from EMF to P31s/DCC_A_So	Reference	Status	Support
1	P31s/DCC_A_So_MI_Active is provisionable from the EMF.	8.3.7	c8801	
2	The function can be activated (P31s/DCC_A_So_MI_Active is TRUE) and deactivated (P31s/DCC_A_So_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	8.3.7	c8802	

c8801: IF F.2/1 THEN m ELSE n/a -- multiple Adaptation Source functions exist
c8802: IF F.88/1 THEN m ELSE n/a -- P31s/DCC_A_So_MI_Active provisionable

F.4.3.7.2 Processes (P31s/DCC_A_So)

Table F.89: Adaptation process for P31s/DCC_A_So

Item	Adaptation process for P31s/DCC_A_So	Reference	Status	Support
1	This function multiplexes the DCC_CI data (64 kbit/s) into the byte location GC as defined in ETS 300 337 and depicted in figure 53.	8.3.7, figure 53 ETS 300 337	m	
2	DCC transmission can be "disabled" when the matrix connection in the connected DCC_C function is removed.	8.3.7	o	

Table F.90: Activation of P31s/DCC_A_So functions

Item	Activation of P31s/DCC_A_So functions	Reference	Status	Support
1	The function accesses the access point only when it is activated (MI_Active is true).	8.3.7	c9001	

c9001: IF F.88/1 THEN m ELSE n/a -- P31s/DCC_A_So_MI_Active provisionable

F.4.3.8 P31s to DCC Adaptation Sink P31s/DCC_A_Sk

Prerequisite: F.1/19 -- P31s to DCC adaptation sink function exists

F.4.3.8.1 Management information (P31s/DCC_A_Sk)

Table F.91: Configuration/provisioning information from EMF to P31s/DCC_A_Sk

Item	Configuration/provisioning information from EMF to P31s/DCC_A_Sk	Reference	Status	Support
1	P31s/DCC_A_Sk_MI_Active is provisionable from the EMF.	8.3.8	c9101	
2	The function can be activated (P31s/DCC_A_Sk_MI_Active is TRUE) and deactivated (P31s/DCC_A_Sk_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	8.3.8	c9102	

c9101: IF F.2/2 THEN m ELSE n/a -- multiple Adaptation Sink functions exist
c9102: IF F.91/1 THEN m ELSE n/a -- P31s/DCC_A_Sk_MI_Active provisionable

F.4.3.8.2 Processes (P31s/DCC_A_Sk)

Table F.92: Adaptation process for P31s/DCC_A_Sk

Item	Adaptation process for P31s/DCC_A_Sk	Reference	Status	Support
1	This function separates user channel data from P31s Overhead (byte GC) as defined in ETS 300 337 and depicted in figure 53.	8.3.8, figure 53 ETS 300 337	m	

Table F.93: Activation of P31s/DCC_A_Sk function

Item	Activation of P31s/DCC_A_Sk functions	Reference	Status	Support
1	The function performs the operation specified above when it is activated (MI_Active is true).	8.3.8	c9301	
2	If the function is not active (MI_Active is False) it transmits the all-ONEs signal at its output (CI_D).	8.3.8	c9301	

c9301: IF F.91/1 THEN m ELSE n/a -- P31s/DCC_A_Sk_MI_Active provisionable

F.4.3.8.3 Consequent actions (P31s/DCC_A_Sk)

Table F.94: Consequent actions for P31s/DCC_A_Sk

Item	Consequent actions for P31s/DCC_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aSSF <-- AI_TSF.	8.3.4	m	

F.4.3.9 P31s to SD adaptation source P31s/SD_A_So

Under study (EN 300 417-6-2 [18]).

F.4.3.10 P31s to SD adaptation sink P31s/SD_A_Sk

Under study (EN 300 417-6-2 [18]).

F.4.3.11 P31s to ATM VP compound adaptation source P31s/Avp_A_So

For further study.

F.4.3.12 P31s to ATM VP compound adaptation sink P31s/Avp_A_Sk

For further study.

F.4.3.13 P31s Layer Clock adaptation source P31s-LC_A_So

Under study (EN 300 417-6-2 [18]).

F.4.4 P31s Layer Monitoring Functions

F.4.4.1 P31s Layer Non-intrusive Monitoring Function P31sm_TT_Sk

Prerequisite: F.1/25 -- a non-intrusive trail termination sink function exists.

F.4.4.1.1 Management information (P31sm_TT_Sk)

Table F.95: Configuration/provisioning of information from EMF to P31sm_TT_Sk

Item	Configuration/provisioning of information from EMF to P31sm_TT_Sk	Reference	Status	Support
1	P31sm_TT_Sk_MI_Tpmode is provisionable from the EMF.	8.4.1	m	
2	P31sm_TT_Sk_MI_SSF_Reported is provisionable from the EMF.	8.4.1	m	
3	P31sm_TT_Sk_MI_RDI_Reported is provisionable from the EMF.	8.4.1	m	
4	P31sm_TT_Sk_MI_1second is provisioned by the EMF.	8.4.1	m	
5	P31sm_TT_Sk_MI_DEGM is provisionable from the EMF.	8.4.1	m	
6	P31sm_TT_Sk_MI_DEGTHR is provisionable from the EMF.	8.4.1	m	
7	P31sm_TT_Sk_MI_ExTI is provisionable from the EMF.	8.4.1	m	
8	P31sm_TT_Sk_MI_TIMdis is provisionable from the EMF.	8.4.1	m	

Table F.96: Signal reports from P31sm_TT_Sk to EMF

Item	Signal reports from P31sm_TT_Sk to EMF	Reference	Status	Support
1	P31sm_TT_Sk_MI_cRDI is reported to the EMF.	8.4.1	m	
2	P31sm_TT_Sk_MI_cSSF is reported to the EMF.	8.4.1	m	
3	P31sm_TT_Sk_MI_cDEG is reported to the EMF.	8.4.1	m	
4	P31sm_TT_Sk_MI_cUNEQ is reported to the EMF.	8.4.1	m	
5	P31sm_TT_Sk_MI_cTIM is reported to the EMF.	8.4.1	m	
6	P31sm_TT_Sk_MI_AcTI is reported to the EMF.	8.4.1	m	
7	P31sm_TT_Sk_MI_pN_DS is reported to the EMF.	8.4.1	m	
8	P31sm_TT_Sk_MI_pN_EBC is reported to the EMF.	8.4.1	m	
9	P31sm_TT_Sk_MI_pF_DS is reported to the EMF.	8.4.1	m	
10	P31sm_TT_Sk_MI_pF_EBC is reported to the EMF.	8.4.1	m	

NOTE: Reporting should be understood as reporting to the Management Point (i.e. to the Equipment Management Function), not as reporting to the user through a management interface.

F.4.4.1.2 Processes (P31sm_TT_Sk)

Table F.97: Trail Termination Point mode process

Prerequisite: F.95/1 -- MI_TPmode provisionable from the EMF

Item	Trail Termination Point mode process	Reference	Status	Support
1	The Trail Termination Point Mode supports "not monitored" (NMON) status.	EN 300 417-1-1 subclause 8.5	m	
2	The Trail Termination Point Mode supports "monitored" (MON) status.	EN 300 417-1-1 subclause 8.5	m	

Table F.98: RDI processing

Item	RDI processing	Reference	Status	Support
1	The information carried in the RDI bit, MA[1], is extracted to enable single ended maintenance of a bi-directional Trail (Path).	8.4.1	m	
2	A "1" indicates an RDI state.	8.4.1, EN 300 417-1-1 subclause 7.4.11 and 8.2	m	
3	A "0" indicates the normal state.	8.4.1	m	

Table F.99: REI processing

Item	REI processing	Reference	Status	Support
1	The information carried in the REI bit, MA[2] is extracted to monitor the error performance of the reverse direction of transmission.	8.4.1	m	
2	The application process is performed as specified in EN 300 417-1-1 subclause 7.4.2.	8.4.1, EN 300 417-1-1 subclause 7.4.2	m	

Table F.100: Trail Trace Identifier processing

Item	Trail Trace Identifier processing	Reference	Status	Support
1	The 16 byte Trail Trace Identifier (TTI) is recovered from the TR byte and made available for network management purposes as AcTI.	8.4.1	m	
2	The trace identifier process supports only "mode 1" (EN 300 417-1-1 subclause 7.1).	8.4.1, EN 300 417-1-1 subclause 7.1	m	

Table F.101: Error Detection Code processing

Item	Error Detection Code processing	Reference	Status	Support
1	Even bit parity (BIP-8) is computed for each bit n of every byte of the preceding frame and compared with bit n of EM byte recovered from the current frame (n=1 to 8 inclusive).	8.4.1	m	
2	A difference between the computed and recovered EM values is taken as evidence of one or more errors (nN_B) in the computation block.	8.4.1	m	

Table F.102: Signal Label processing

Item	Signal Label processing	Reference	Status	Support
1	The information in the signal label bits, MA[3-5], is extracted to allow unequipped P31s and P31s-AIS defect detection.	8.4.1	m	

F.4.4.1.3 Defects (P31sm_TT_Sk)

Table F.103: Defects for P31sm_TT_Sk

Item	Defects for P31sm_TT_Sk	Reference	Status	Support
1	The function detects the dRDI defect according to the specification in EN 300 417-1-1, subclauses 7.4.1, 8.2.1.5, 8.4.1.2, with the condition "aSSF" read as "aSSF or P31s dAIS".	8.4.1, EN 300 417-1-1 subclauses 7.4.1, 8.2.1.5, 8.4.1.2	m	
2	The function detects dDEG defect according to the specification in subclause 8.2.1 in EN 300 417-1-1 with the condition "aSSF" read as "aSSF or P31s dAIS".	8.4.1, EN 300 417-1-1 subclause 8.2.1	m	
3	The function detects dTIM defect according to the specification in subclause 8.2.1 in EN 300 417-1-1 with the condition "aSSF" read as "aSSF or P31s dAIS".	8.4.1, EN 300 417-1-1 subclause 8.2.1	m	
4	The function detects dUNEQ defect according to the specification in subclause 8.2.1 in EN 300 417-1-1 with the condition "aSSF" read as "aSSF or P31s dAIS".	8.4.1, EN 300 417-1-1 subclause 8.2.1	m	
5	If 5 consecutive frames contain the "111" pattern in bits 3 to 5 of the MA byte a dAIS defect is detected.	8.4.1, EN 300 417-1-1 subclause 8.2.1	m	
6	The dAIS is cleared if in 5 consecutive frames any pattern other than the "111" is detected in bits 3 to 5 of the MA byte.	8.4.1	m	

F.4.4.1.4 Consequent actions (P31sm_TT_Sk)

Table F.104: Consequent actions for P31sm_TT_Sk

Item	Consequent actions for P31sm_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: aTSF <-- CI_SSF or dAIS or dUNEQ or dTIM.	8.4.1	m	
2	The function implements the following logical equation: aTSD <-- dDEG.	8.4.1	m	

F.4.4.1.5 Defect Correlations (P31sm_TT_Sk)

Table F.105: Defect Correlations for P31sm_TT_Sk

Item	Defect Correlations for P31sm_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: cRDI <-- dRDI and MON and (not dTIM) and (not dUNEQ) and RDI_Reported.	8.4.1	c10501	
2	The function implements the following logical equation: cSSF <-- (CI_SSF or dAIS) and MON and SSF_Reported.	8.4.1	c10502	
3	The function implements the following logical equation: cDEG <-- dDEG and MON and (not dTIM) and (not dUNEQ).	8.4.1	c10503	
4	The function implements the following logical equation: cUNEQ <-- MON and dUNEQ.	8.4.1	c10504	
5	The function implements the following logical equation: cTIM <-- MON and dTIM and (not dUNEQ).	8.4.1	c10505	

c10501: IF F.96/1 THEN m ELSE n/a -- cRDI is reported
c10502: IF F.96/2 THEN m ELSE n/a -- cSSF is reported
c10503: IF F.96/3 THEN m ELSE n/a -- cDEG is reported
c10504: IF F.96/4 THEN m ELSE n/a -- cUNEQ is reported
c10505: IF F.96/5 THEN m ELSE n/a -- cTIM is reported

F.4.4.1.6 Performance Monitoring (P31sm_TT_Sk)

Table F.106: Performance Monitoring (P31sm_TT_Sk)

Item	Performance Monitoring (P31sm_TT_Sk)	Reference	Status	Support
1	The function implements the following logical equation: pN_DS <-- aTSF or dEQ.	8.4.1	c10601	
2	The function implements the following logical equation: pF_DS <-- dRDI.	8.4.1	c10602	
3	The function implements the following logical equation: pN_EBC <-- Sum(nN_B) The "Sum" is calculated over a one-second period.	8.4.1	c10603	
4	The function implements the following logical equation: pF_EBC <-- Sum(nF_B) The "Sum" is calculated over a one-second period.	8.4.1	c10604	

c10601: IF F.96/6 THEN m ELSE n/a -- pN_DS is reported
c10602: IF F.96/7 THEN m ELSE n/a -- pF_DS is reported
c10603: IF F.96/8 THEN m ELSE n/a -- pN_EBC is reported
c10604: IF F.96/9 THEN m ELSE n/a -- pF_EBC is reported

F.4.5 P31s layer trail protection functions

For further study.

F.4.6 P31s Tandem Connection Sub-layer functions

Prerequisite: F.1/26 OR F.1/27 OR F.1/30 -- a Tandem Connection Sub-layer function exists

F.4.6.1 P31s Tandem Connection Trail Termination Source P31s_TT_So

Prerequisite: F.1/26 -- a Tandem Connection trail termination source function exists

F.4.6.1.1 Management information (P31sD_TT_So)

Table F.107: Configuration/provisioning of information from EMF to P31sD_TT_So

Item	Configuration/provisioning of information from EMF to P4e_TT_So	Reference	Status	Support
1	P31sD_TT_So_MI_TxTI is provisionable from the EMF.	8.6.1	m	

F.4.6.1.2 Processes (P31sD_TT_So)

Table F.108: Frame Alignment Signal insertion (P31sD_TT_So)

Item	Frame Alignment Signal insertion (P31sD_TT_So)	Reference	Status	Support
1	The function inserts the Frame Alignment Signal (FAS) "1111 1111 1110" in FAS bits in frames 1 to 8 of the multiframed NR[7-8] channel.	8.6.1	m	

Table F.109: RDI insertion/removal (P31sD_TT_So)

Prerequisite: F.1/26 AND F.1/27 -- bi-directional Tandem Connection sub-layer supported

Item	RDI insertion (P31sD_TT_So)	Reference	Status	Support
1	The function inserts the TC RDI code in the NR[8][73] bit, within 1 multiframe (9,5 ms) after the RDI request generation (RI_RDI) in the tandem connection trail termination sink function.	8.6.1	m	
2	The function ceases TC RDI code insertion within 1 multiframe (9,5 ms) after the TC RDI request has cleared.	8.6.1	m	

Comment: NR[x][y] refers to bit x (x = 7,8) of byte NR in frame y (y=1 to 76) of the 76 frame multiframe.

Table F.110: REI insertion (P31sD_TT_So)

Prerequisite: F.1/26 AND F.1/27 -- bi-directional Tandem Connection sub-layer supported

Item	REI insertion (P31sD_TT_So)	Reference	Status	Support
1	The function inserts the RI_REI value in the REI bit (NR[5]) in the following frame.	8.6.1	m	

Table F.111: TC Trace Identifier insertion (P31sD_TT_So)

Item	TC Trace Identifier insertion (P31sD_TT_So)	Reference	Status	Support
1	The function inserts the TC trace identifier, received via MI_TxTI, in the TC-TI bits in frames 9 to 72 of the multiframed NR[7-8] channel.	8.6.1	m	

Table F.112: Error Detection Code insertion (P31sD_TT_So)

Item	Error Detection Code insertion (P31sD_TT_So)	Reference	Status	Support
1	Even BIP-8 are computed for each bit n of every byte of the preceding incoming P31s frame (P31s_AI) including EM byte and compared with byte EM recovered from the current frame.	8.6.1	m	
2	A difference between the computed and recovered BIP-8 values is taken as evidence of one or more errors in the computation block, and is inserted in bits 1 to 4 of byte NR.	8.6.1, figure 80, table 54	m	
3	If AI_SF is true, code "1110" is inserted in bits 1 to 4 of byte NR instead of the number of incoming BIP-8 violations.	8.6.1	m	
4	The function compensates P31s BIP-8 (in byte EM) according to the logical equation given in subclause 8.6.1 of EN 300 417-5-1 [1].	8.6.1	m	

Table F.113: ODI insertion/removal (P31sD_TT_So)

Prerequisite: F.1/26 AND F.1/27 -- bi-directional Tandem Connection sub-layer supported

Item	ODI insertion (P31sD_TT_So)	Reference	Status	Support
1	The function inserts the TC ODI code in the NR[7][74] bit, within 1 multiframe (9,5 ms) after the ODI request generation (aODI) in the tandem connection trail termination sink function.	8.6.1	m	
2	The function ceases TC ODI code insertion at the first opportunity after the ODI request has cleared.	8.6.1	m	

Comment: NR[x][y] refers to bit x (x = 7,8) of byte NR in frame y (y=1 to 76) of the 76 frame multiframe.

Table F.114: OEI insertion (P31sD_TT_So)

Prerequisite: F.1/26 AND F.1/27 -- bi-directional Tandem Connection sub-layer supported

Item	OEI insertion (P31sD_TT_So)	Reference	Status	Support
1	The function inserts the RI_OEI value in the OEI bit (NR[6]) in the following frame.	8.6.1	m	

Table F.115: Multiframed channel stuffing (P31sD_TT_So)

Item	Multiframed channel stuffing (P31sD_TT_So)	Reference	Status	Support
1	The function inserts the value "0" in the six reserved bits in frames 73 to 76 of the multiframed NR[7-8] channel.	8.6.1	m	

F.4.6.2 P31s Trail Termination Sink P31sD_TT_Sk

Prerequisite: F.1/27 -- a termination sink function exists

F.4.6.2.1 Management information (P31sD_TT_Sk)

Table F.116: Configuration/provisioning of information from EMF to P31sD_TT_Sk

Item	Configuration/provisioning of information from EMF to P31sD_TT_Sk	Reference	Status	Support
1	P31sD_TT_Sk_MI_TPmode is provisionable from the EMF.	8.6.2	m	
2	P31sD_TT_Sk_MI_SSF_Reported is provisionable from the EMF.	8.6.2	m	
3	P31sD_TT_Sk_MI_RDI_Reported is provisionable from the EMF.	8.6.2	c11601	
4	P31sD_TT_Sk_MI_1second is provisioned by the EMF.	8.6.2	m	
5	P31sD_TT_Sk_MI_DEGM is provisionable from the EMF.	8.6.2	m	
6	P31sD_TT_Sk_MI_DEGTHR is provisionable from the EMF.	8.6.2	m	
7	P31sD_TT_Sk_MI_ExTI is provisionable from the EMF.	8.6.2	m	
8	P31sD_TT_Sk_MI_TIMdis is provisionable from the EMF.	8.6.2	m	
9	P31sD_TT_Sk_MI_AIS_Reported is provisionable from the EMF.	8.6.2	m	
10	P31sD_TT_Sk_MI_ODI_Reported is provisionable from the EMF.	8.6.2	c11601	

c11601: IF F.1/26 AND F.1/27 THEN m ELSE n/a -- bi-directional Tandem Connection sub-layer supported

Table F.117: Signal reports from P31sD_TT_Sk to EMF

Item	Signal reports from P31sD_TT_Sk to EMF	Reference	Status	Support
1	P31sD_TT_Sk_MI_cRDI is reported to the EMF.	8.6.2	c11701	
2	P31sD_TT_Sk_MI_cSSF is reported to the EMF.	8.6.2	m	
3	P31sD_TT_Sk_MI_cDEG is reported to the EMF.	8.6.2	m	
4	P31sD_TT_Sk_MI_cUNEQ is reported to the EMF.	8.6.2	m	
5	P31sD_TT_Sk_MI_cTIM is reported to the EMF.	8.6.2	m	
6	P31sD_TT_Sk_MI_AcTI is reported to the EMF.	8.6.2	m	
7	P31sD_TT_Sk_MI_pN_DS is reported to the EMF.	8.6.2	m	
8	P31sD_TT_Sk_MI_pN_EBC is reported to the EMF.	8.6.2	m	
9	P31sD_TT_Sk_MI_pF_DS is reported to the EMF.	8.6.2	c11701	
10	P31sD_TT_Sk_MI_pF_EBC is reported to the EMF.	8.6.2	c11701	
11	P31sD_TT_Sk_MI_cLTC is reported to the EMF.	8.6.2	m	
12	P31sD_TT_Sk_MI_cODI is reported to the EMF.	8.6.2	c11701	
13	P31sD_TT_Sk_MI_cIncAIS is reported to the EMF.	8.6.2	m	
14	P31sD_TT_Sk_MI_pOF_DS is reported to the EMF.	8.6.2	c11701	
15	P31sD_TT_Sk_MI_pOF_EBC is reported to the EMF.	8.6.2	c11701	
16	P31sD_TT_Sk_MI_pON_DS is reported to the EMF.	8.6.2	m	
17	P31sD_TT_Sk_MI_pON_EBC is reported to the EMF.	8.6.2	m	

c11701: IF F.1/26 AND F.1/27 THEN m ELSE n/a -- bi-directional Tandem Connection sub-layer supported

NOTE: Reporting shall be understood as reporting to the Management Point (i.e. to the Equipment Management Function), not as reporting to the user through a management interface.

F.4.6.2.2 Processes (P31sD_TT_Sk)

Table F.118: Trail Termination Point mode process

Prerequisite: F.116/1 -- MI_TPmode provisionable from the EMF

Item	Trail Termination Point mode process	Reference	Status	Support
1	The Trail Termination Point Mode supports "not monitored" (NMON) status.	EN 300 417-1-1 subclause 8.5	m	
2	The Trail Termination Point Mode supports "monitored" (MON) status.	EN 300 417-1-1 subclause 8.5	m	

Table F.119: Multiframe Alignment recovery (P31sD_TT_So)

Item	Trail Termination Point mode process	Reference	Status	Support
1	The function performs a multiframe alignment on bits 7 and 8 of byte NR.	8.6.2	m	
2	The multiframe alignment is found by searching for the pattern "1111 1111 1111 1110" within the bits 7 and 8 of byte NR. The signal is continuously checked with the presumed multiframe start position for the alignment.	8.6.2	m	
3	Frame alignment is deemed to have been lost (entering Out Of Multiframe (OOM) state) when two consecutive FAS are detected in error (i.e. ≥ 1 error in each FAS).	8.6.2	m	
4	Frame alignment is deemed to have been recovered (entering In Multiframe (IM) state) when one non-errored FAS is found.	8.6.2	m	

Table F.120: RDI processing

Prerequisite: F.1/26 AND F.1/27 -- bi-directional Tandem Connection sub-layer supported

Item	RDI processing	Reference	Status	Support
1	The information carried in the RDI bit, NR[8][73], is extracted to enable single ended maintenance of a bi-directional Trail (Path).	8.6.2	m	
2	A "1" indicates a Remote Defect Indication state.	8.6.2, EN 300 417-1-1 subclause 7.4.1 and 8.2	m	
3	A "0" indicates the normal state.	8.6.2, EN 300 417-1-1 subclause 7.4.1 and 8.2	m	

Table F.121: REI processing

Prerequisite: F.1/26 AND F.1/27 -- bi-directional Tandem Connection sub-layer supported

Item	REI processing	Reference	Status	Support
1	The information carried in the REI bit, NR[5] is extracted to monitor the error performance of the other direction of transmission.	8.6.2	m	
2	The application process is performed as specified in EN 300 417-1-1 subclause 7.4.2.	8.6.2, EN 300 417-1-1 subclause 7.4.2	m	

Table F.122: Trail Trace Identifier processing

Item	Trail Trace Identifier processing	Reference	Status	Support
1	The Received Trail Trace Identifier RxTI is recovered from the tandem connection trail trace identifier overhead (NR[7-8][9-72]) and is made available as AcTI for network management purposes.	8.6.2	m	
2	The application and acceptance process is performed as specified in EN 300 417-1-1, subclauses 7.1, and 8.2.1.3.	8.6.2, EN 300 417-1-1 subclause 7.1 and 8.2.1.3	m	
3	The trace identifier process supports only "mode 1" (EN 300 417-1-1 subclause 7.1).	8.6.2, EN 300 417-1-1 subclause 7.1	m	

Table F.123: Error Detection Code processing

Item	Error Detection Code processing	Reference	Status	Support
1	The function extracts the Incoming Error Code (IEC) from NR[1-4] bits.	8.6.2	m	
2	Even bit parity is computed for each bit n of every byte of the preceding P31s and compared with bit n of EM recovered from the current frame (n=1 to 8 inclusive).	8.6.2	m	
3	A difference between the computed and recovered EM values is taken as evidence of one or more errors in the computation block (nON_B).	8.6.2	m	
4	If the magnitude (absolute value) of the difference between this calculated number of errors and the number of errors written into the IEC (see table 56) is one or more, an errored TC block is detected (nN_B).	8.6.2, figure 56, figure 83	m	
5	If one or more errors were detected in the computation block, an errored P31s block (nON_B) is declared.	8.6.2	m	
6	The function compensates the P31s BIP8 (in byte EM) according the algorithm defined in P31sD_TT_So.	8.6.2	m	

Table F.124: ODI processing

Prerequisite: F.1/26 AND F.1/27 -- bi-directional Tandem Connection sub-layer supported

Item	ODI processing	Reference	Status	Support
1	The information carried in the ODI bit, NR[7][74], is extracted to enable single ended (intermediate) maintenance of the P31s egressing the tandem connection Trail.	8.6.2	m	
2	A "1" indicates a Outgoing Defect Indication state.	8.6.2, EN 300 417-1-1 subclause 7.4.1 and 8.2	m	
3	A "0" indicates the normal state.	8.6.2, EN 300 417-1-1 subclause 7.4.1 and 8.2	m	

Table F.125: OEI processing

Prerequisite: F.1/26 AND F.1/27 -- bi-directional Tandem Connection sub-layer supported

Item	OEI processing	Reference	Status	Support
1	The information carried in the OEI bit, NR[6] is extracted to monitor the error performance of the other direction of transmission.	8.6.2	m	
2	The application process is performed as specified in EN 300 417-1-1 subclause 7.4.2.	8.6.2, EN 300 417-1-1 subclause 7.4.2	m	

Table F.126: Incoming AIS code processing

Item	Incoming AIS code processing	Reference	Status	Support
1	The function extracts the Incoming AIS code from bits NR[1-4].	8.6.2	m	

Table F.127: NR channel final processing

Item	NR channel final processing	Reference	Status	Support
1	The function terminates NR channel by inserting an all-ZEROs pattern.	8.6.2	m	

F.4.6.2.3 Defects (P31sD_TT_Sk)

Table F.128: Defects for P31sD_TT_Sk

Item	Defects for P31sD_TT_Sk	Reference	Status	Support
1	The function detects for an unequipped Tandem Connection (dUNEQ) condition by monitoring byte NR for code "00000000".	8.6.2	m	
2	The unequipped defect (dUNEQ) is detected if five consecutive P31s frames contain the "0000 0000" pattern in byte NR.	8.6.2	m	
3	The dUNEQ defect is cleared if in five consecutive NR frames any pattern other than the "0000 0000" is detected in byte NR.	8.6.2	m	
4	The loss of tandem connection defect (dLTC) is detected if the multiframe alignment process is in the OOM state.	8.6.2	m	
5	The dLTC is cleared if the multiframe alignment process is in the IM state.	8.6.2	m	
6	The function shall detect for a TC mis-connection condition by monitoring the TC trace identifier.	8.6.2	m	
7	The Trace Identifier Mismatch defect (dTIM) is detected within a maximum period of 1 s in the absence of bit errors.	8.6.2	m	
8	The Trace Identifier Mismatch defect (dTIM) is cleared within a maximum period of 1 s in the absence of bit errors.	8.6.2	m	
9	The defect is suppressed during the receipt of SSF.	8.6.2	m	

Item	Defects for P31sD_TT_Sk	Reference	Status	Support
10	It is possible to disable the trace identifier mismatch defect detection (TIMdis).	8.6.2	m	
11	The function detects for a TC signal degrade defect (dDEG) condition by monitoring for TC BIP-8 violations, according subclause 8.2.1.4 in EN 300 417-1-1.	8.6.2, EN 300 417-1-1 subclause 8.2.1.4	m	
12	The function detects for a TC remote defect indication defect (dRDI) condition by monitoring the TC RDI signal, according subclause 8.2.1.5 in EN 300 417-1-1.	8.6.2, EN 300 417-1-1 subclause 8.2.1.5	m	
13	The function detects for a TC remote outgoing P31s defect indication defect (dODI) condition by monitoring the TC ODI signal, according subclause 8.2.1.5 in EN 300 417-1-1.	8.6.2, EN 300 417-1-1 subclause 8.2.1.5	m	
14	The function detects for a tandem connection incoming AIS (dIncAIS) condition by monitoring the IEC bits in byte NR for code "1110".	8.6.2	m	
15	If 5 consecutive frames contain the "1110" pattern in the IEC bits a dIncAIS defect is detected.	8.6.2	m	
16	dIncAIS is cleared if in 5 consecutive frames any pattern other than the "1110" is detected in the IEC bits.	8.6.2	m	

F.4.6.2.4 Consequent actions (P31sD_TT_Sk)

Table F.129: Consequent actions for P31sD_TT_Sk

Item	Consequent actions for P31sD_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: aTSF <-- CI_SSF or dUNEQ or dTIM or dLTC.	8.6.2	m	
2	The function implements the following logical equation: aRDI <-- CI_SSF or dUNEQ or dTIM or dLTC.	8.6.2	c12901	
3	The function implements the following logical equation: aTSD <-- dDEG.	8.6.2	m	
4	The function implements the following logical equation: aREI <-- nN_B.	8.6.2	c12901	
5	The function implements the following logical equation: aODI <-- CI_SSF or dUNEQ or dTIM or dIncAIS or dLTC.	8.6.2	c12901	
6	The function implements the following logical equation: aOEI <-- nON_B.	8.6.2	c12901	

Item	Consequent actions for P31sD_TT_Sk	Reference	Status	Support
7	The function implements the following logical equation: aOSF <-- CI_SSF or dUNEQ or dTIM or dLTC or dIncAIS.	8.6.2	m	
8	The function implements the following logical equation: aAIS <-- dUNEQ or dTIM or dLTC.	8.6.2	m	
9	On declaration of an aAIS the function outputs an all ONEs signal within 250 µs.	8.6.2	m	
10	On clearing of aAIS the function outputs normal data within 250 µs.	8.6.2	m	

c12901: IF F.1/26 AND F.1/27 THEN m ELSE n/a -- bi-directional Tandem Connection sub-layer supported

F.4.6.2.5 Defect Correlations (P31sD_TT_Sk)

Table F.130: Defect Correlations for P31sD_TT_Sk

Item	Defect Correlations for P31sD_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: cRDI <-- MON and (not dUNEQ) and (not dTIM) and (not dLTC) and dRDI and RDI_Reported.	8.6.2	c13001	
2	The function implements the following logical equation: cSSF <-- MON and CI_SSF and SSF_reported.	8.6.2	c13002	
3	The function implements the following logical equation: cDEG <-- MON and (not dTIM) and (not dLTC) and dDEG.	8.6.2	c13003	
4	The function implements the following logical equation: cUNEQ <-- MON and dUNEQ.	8.6.2	c13004	
5	The function implements the following logical equation: cTIM <-- MON and (not dUNEQ) and (not dLTC) and dTIM.	8.6.2	c13005	
6	The function implements the following logical equation: cLTC <-- MON and (not dUNEQ) and dLTC.	8.6.2	c13006	
7	The function implements the following logical equation: cODI <-- MON and (not dUNEQ) and (not dTIM) and (not dLTC) and dODI and ODI_Reported.	8.6.2	c13007	
8	The function implements the following logical equation: cIncAIS <-- MON and dIncAIS and (not CI_SSF) and (not dLTC) and (not dTIM) and AIS_reported.	8.6.2	c13008	

c13001: IF F.117/1 THEN m ELSE n/a -- cRDI is reported
c13002: IF F.117/2 THEN m ELSE n/a -- cSSF is reported
c13003: IF F.117/3 THEN m ELSE n/a -- cDEG is reported
c13004: IF F.117/4 THEN m ELSE n/a -- cUNEQ is reported
c13005: IF F.117/5 THEN m ELSE n/a -- cTIM is reported
c13006: IF F.117/11 THEN m ELSE n/a -- cLTC is reported

c13007: IF F.117/12 THEN m ELSE n/a -- cODI is reported
c13008: IF F.117/13 THEN m ELSE n/a -- cIncAIS is reported

F.4.6.2.6 Performance monitoring (P31sD_TT_Sk)

Table F.131: Performance Monitoring (P31sD_TT_Sk)

Item	Performance Monitoring (P31sD_TT_Sk)	Reference	Status	Support
1	The function implements the following logical equation: pN_DS <-- aTSF or dEQ.	8.6.2	c13101	
2	The function implements the following logical equation: pN_EBC <-- Sum(nN_B) The "Sum" is calculated over a one-second period.	8.6.2	c13102	
3	The function implements the following logical equation: pF_DS <-- dRDI.	8.6.2	c13103	
4	The function implements the following logical equation: pF_EBC <-- Sum(nF_B) The "Sum" is calculated over a one-second period.	8.6.2	c13104	
5	The function implements the following logical equation: pOF_DS <-- dODI.	8.6.2	c13105	
6	The function implements the following logical equation: pOF_EBC <-- Sum(nOF_B) The "Sum" is calculated over a one-second period.	8.6.2	c13106	
7	The function implements the following logical equation: pON_DS <-- aODI or dEQ.	8.6.2	c13107	
8	The function implements the following logical equation: pON_EBC <-- Sum(nON_B) The "Sum" is calculated over a one-second period.	8.6.2	c13108	

c13101: IF F.117/7 THEN m ELSE n/a -- pN_DS is reported
c13102: IF F.117/8 THEN m ELSE n/a -- pN_EBC is reported
c13103: IF F.117/9 THEN m ELSE n/a -- pF_DS is reported
c13104: IF F.117/10 THEN m ELSE n/a -- pF_EBC is reported
c13105: IF F.117/14 THEN m ELSE n/a -- pOF_DS is reported
c13106: IF F.117/15 THEN m ELSE n/a -- pOF_EBC is reported
c13107: IF F.117/16 THEN m ELSE n/a -- pON_DS is reported
c13108: IF F.117/17 THEN m ELSE n/a -- pON_EBC is reported

F.4.6.3 P31sD to P31s Adaptation Source P31sD/P31s_A_So

Prerequisite: F.1/28 -- P31sD to P31s adaptation Source function exists

F.4.6.3.1 Processes (P31sD/P31s_A_So)

Table F.132: Adaptation process for P31sD/P31s_A_So

Item	Adaptation process for P31sD/P31s_A_So	Reference	Status	Support
1	The function replaces the incoming P31s signal (P31s_CI) by a local generated P31s frame with valid FA1 and FA2 bytes and all ONEs for all other bytes if an all-ONEs (AIS) P31s is received.	8.6.3	m	
2	The local frame start is generated with the P31s_TI timing.	8.6.3	m	

F.4.6.3.2 Consequent actions (P31sD/P31s_A_So)

Table F.133: Consequent actions for P31sD/P31s_A_So

Item	Consequent actions for P31sD/P31s_A_So	Reference	Status	Support
1	The function implements the following logical equation: AI_SF <-- CI_SSF.	8.6.4	m	

F.4.6.4 P31sD to P31s Adaptation Sink P31sD/P31s_A_Sk

Prerequisite: F.1/29 -- P31sD to P31s adaptation Sink function exists

F.4.6.4.1 Processes (P31sD/P31s_A_Sk)

Table F.134: Adaptation process for P31sD/P31s_A_Sk

Item	Adaptation process for P31sD/P31s_A_Sk	Reference	Status	Support
1	The function restores the invalid frame start condition (i.e. output aSSF = true) if that existed at the ingress of the tandem connection.	8.6.4	m	
2	The invalid frame start condition is activated on a tandem connection connectivity defect condition that causes all-ONEs (AIS) insertion in the P31sD_TT_Sk.	8.6.4	m	

F.4.6.4.2 Consequent actions (P31sD/P31s_A_Sk)

Table F.135: Consequent actions for P31sD/P31s_A_Sk

Item	Consequent actions for P31sD/P31s_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- AI_OSF.	8.6.4	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 250 µs.	8.6.4	m	
3	On clearing of aAIS the function outputs normal data within 250 µs.	8.6.4	m	
4	The function implements the following logical equation: aSSF <-- AI_OSF.	8.6.4	m	

F.4.6.5 P31s Trail Termination Sink P31sDm_TT_Sk

Prerequisite: F.1/30 -- a termination sink function exists

F.4.6.5.1 Management information (P31sDm_TT_Sk)

Table F.136: Configuration/provisioning of information from EMF to P31sDm_TT_Sk

Item	Configuration/provisioning of information from EMF to P31sDm_TT_Sk	Reference	Status	Support
1	P31sDm_TT_Sk_MI_TPmode is provisionable from the EMF.	8.6.5	m	
2	P31sDm_TT_Sk_MI_SSF_Reported is provisionable from the EMF.	8.6.5	m	
3	P31sDm_TT_Sk_MI_RDI_Reported is provisionable from the EMF.	8.6.5	m	
4	P31sDm_TT_Sk_MI_1second is provisioned by the EMF.	8.6.5	m	
5	P31sDm_TT_Sk_MI_DEGM is provisionable from the EMF.	8.6.5	m	
6	P31sDm_TT_Sk_MI_DEGTHR is provisionable from the EMF.	8.6.5	m	
7	P31sDm_TT_Sk_MI_ExTI is provisionable from the EMF.	8.6.5	m	
8	P31sDm_TT_Sk_MI_TIMdis is provisionable from the EMF.	8.6.5	m	
9	P31sDm_TT_Sk_MI_ODI_Reported is provisionable from the EMF.	8.6.5	m	

Table F.137: Signal reports from P31sDm_TT_Sk to EMF

Item	Signal reports from P31sDm_TT_Sk to EMF	Reference	Status	Support
1	P31sDm_TT_Sk_MI_cRDI is reported to the EMF.	8.6.5	m	
2	P31sDm_TT_Sk_MI_cSSF is reported to the EMF.	8.6.5	m	
3	P31sDm_TT_Sk_MI_cDEG is reported to the EMF.	8.6.5	m	
4	P31sDm_TT_Sk_MI_cUNEQ is reported to the EMF.	8.6.5	m	
5	P31sDm_TT_Sk_MI_cTIM is reported to the EMF.	8.6.5	m	

Item	Signal reports from P31sDm_TT_Sk to EMF	Reference	Status	Support
6	P31sDm_TT_Sk_MI_AcTI is reported to the EMF.	8.6.5	m	
7	P31sDm_TT_Sk_MI_pN_DS is reported to the EMF.	8.6.5	m	
8	P31sDm_TT_Sk_MI_pN_EBC is reported to the EMF.	8.6.5	m	
9	P31sDm_TT_Sk_MI_pF_DS is reported to the EMF.	8.6.5	m	
10	P31sDm_TT_Sk_MI_pF_EBC is reported to the EMF.	8.6.5	m	
11	P31sDm_TT_Sk_MI_cLTC is reported to the EMF.	8.6.5	m	
12	P31sDm_TT_Sk_MI_cODI is reported to the EMF.	8.6.5	m	
13	P31sDm_TT_Sk_MI_pOF_DS is reported to the EMF.	8.6.5	m	
14	P31sDm_TT_Sk_MI_pOF_EBC is reported to the EMF.	8.6.5	m	

NOTE: Reporting should be understood as reporting to the Management Point (i.e. to the Equipment Management Function), not as reporting to the user through a management interface.

F.4.6.5.2 Processes (P31sDm_TT_Sk)

Table F.138: Trail Termination Point mode process

Prerequisite: F.136/1 -- MI_TPmode provisionable from the EMF

Item	Trail Termination Point mode process	Reference	Status	Support
1	The Trail Termination Point Mode supports "not monitored" (NMON) status.	EN 300 417-1-1 subclause 8.5	m	
2	The Trail Termination Point Mode supports "monitored" (MON) status.	EN 300 417-1-1 subclause 8.5	m	

Table F.139: Multiframe Alignment recovery (P31sDm_TT_So)

Item	Trail Termination Point mode process	Reference	Status	Support
1	The function performs a multiframe alignment on bits 7 and 8 of byte NR.	8.6.5	m	
2	The multiframe alignment is found by searching for the pattern "1111 1111 1111 1110" within the bits 7 and 8 of byte NR. The signal is continuously checked with the presumed multiframe start position for the alignment.	8.6.5	m	
3	Frame alignment is deemed to have been lost (entering Out Of Multiframe (OOM) state) when two consecutive FAS are detected in error (i.e. ≥ 1 error in each FAS).	8.6.5	m	
4	Frame alignment is deemed to have been recovered (entering In Multiframe (IM) state) when one non-errored FAS is found.	8.6.5	m	

Table F.140: RDI processing

Item	RDI processing	Reference	Status	Support
1	The information carried in the RDI bit, NR[8][73], is extracted to enable single ended maintenance of a bi-directional Trail (Path).	8.6.5	m	
2	A "1" indicates a Remote Defect Indication state.	8.6.5, EN 300 417-1-1 subclauses 7.4.1 and 8.2	m	
3	A "0" indicates the normal state.	8.6.5, EN 300 417-1-1 subclauses 7.4.1 and 8.2	m	

Table F.141: REI processing

Item	REI processing	Reference	Status	Support
1	The information carried in the REI bit, NR[5] is extracted to monitor the error performance of the other direction of transmission.	8.6.5	m	
2	The application process is performed as specified in EN 300 417-1-1 subclause 7.4.2.	8.6.5, EN 300 417-1-1 subclause 7.4.2	m	

Table F.142: Trail Trace Identifier processing

Item	Trail Trace Identifier processing	Reference	Status	Support
1	The Received Trail Trace Identifier RxTI is recovered from the tandem connection trail trace identifier overhead (NR[7-8][9-72]) and is made available as AcTI for network management purposes.	8.6.5	m	
2	The application and acceptance process is performed as specified in EN 300 417-1-1, subclauses 7.1, and 8.2.1.3.	8.6.5, EN 300 417-1-1 subclauses 7.1 and 8.2.1.3.	m	
3	The trace identifier process supports only "mode 1" (EN 300 417-1-1 subclause 7.1).	8.6.5, EN 300 417-1-1 subclause 7.1	m	

Table F.143: Error Detection Code processing

Item	Error Detection Code processing	Reference	Status	Support
1	The function extracts the Incoming Error Code (IEC) from NR[1-4] bits.	8.6.5	m	
2	Even bit parity is computed for each bit n of every byte of the preceding P31s and compared with bit n of EM recovered from the current frame (n=1 to 8 inclusive).	8.6.5	m	
3	A difference between the computed and recovered EM values is taken as evidence of one or more errors in the computation block (nON_B).	8.6.5	m	
4	If the magnitude (absolute value) of the difference between this calculated number of errors and the number of errors written into the IEC (see table 56) is one or more, an errored TC block is detected (nN_B).	8.6.5, table 56, figure 83	m	
5	If one or more errors were detected in the computation block, an errored P31s block (nON_B) is declared.	8.6.5	m	

Table F.144: ODI processing

Item	ODI processing	Reference	Status	Support
1	The information carried in the ODI bit, NR[7][74], is extracted to enable single ended (intermediate) maintenance of a the P31s egressing the tandem connection Trail.	8.6.5	m	
2	A "1" indicates a Outgoing Defect Indication state.	8.6.5, EN 300 417-1-1 subclauses 7.4.1 and 8.2	m	
3	A "0" indicates the normal state.	8.6.5, EN 300 417-1-1 subclauses 7.4.1 and 8.2	m	

Table F.145: OEI processing

Item	OEI processing	Reference	Status	Support
1	The information carried in the OEI bit, NR[6] is extracted to monitor the error performance of the other direction of transmission.	8.6.5	m	
2	The application process is performed as specified in EN 300 417-1-1 subclause 7.4.2.	8.6.5, EN 300 417-1-1 subclause 7.4.2	m	

Table F.146: Incoming AIS code processing

Item	Incoming AIS code processing	Reference	Status	Support
1	The function extracts the Incoming AIS code from bits NR[1-4].	8.6.5	m	

F.4.6.5.3 Defects (P31sDm_TT_Sk)

Table F.147: Defects for P31sDm_TT_Sk

Item	Defects for P31sDm_TT_Sk	Reference	Status	Support
1	The function detects for an unequipped Tandem Connection (dUNEQ) condition by monitoring byte NR for code "00000000".	8.6.5	m	
2	The unequipped defect (dUNEQ) is detected if five consecutive P31s frames contain the "0000 0000" pattern in byte NR.	8.6.5	m	
3	The dUNEQ defect is cleared if in five consecutive NR frames any pattern other than the "0000 0000" is detected in byte NR.	8.6.5	m	
4	The loss of tandem connection defect (dLTC) is detected if the multiframe alignment process is in the OOM state.	8.6.5	m	
5	The dLTC is cleared if the multiframe alignment process is in the IM state.	8.6.5	m	
6	The function shall detect for a TC mis-connection condition by monitoring the TC trace identifier.	8.6.5	m	
7	The Trace Identifier Mismatch defect (dTIM) is detected within a maximum period of 1 s in the absence of bit errors.	8.6.5	m	
8	The Trace Identifier Mismatch defect (dTIM) is cleared within a maximum period of 1 s in the absence of bit errors.	8.6.5	m	
9	The defect is suppressed during the receipt of SSF.	8.6.5	m	
10	It is possible to disable the trace identifier mismatch defect detection (TIMdis).	8.6.5	m	
11	The function detects for a TC signal degrade defect (dDEG) condition by monitoring for TC BIP-8 violations, according subclause 8.2.1.4 in EN 300 417-1-1.	8.6.5, EN 300 417-1-1 subclause 8.2.1.4	m	
12	The function detects for a TC remote defect indication defect (dRDI) condition by monitoring the TC RDI signal, according subclause 8.2.1.5 in EN 300 417-1-1.	8.6.5, EN 300 417-1-1 subclause 8.2.1.5	m	
13	The function detects for a TC remote outgoing P31s defect indication defect (dODI) condition by monitoring the TC ODI signal, according subclause 8.2.1.5 in EN 300 417-1-1.	8.6.5, EN 300 417-1-1 subclause 8.2.1.5	m	

F.4.6.5.4 Consequent actions (P31sDm_TT_Sk)

Table F.148: Consequent actions for P31sDm_TT_Sk

Item	Consequent actions for P31sDm_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: aTSF <-- CI_SSF or dUNEQ or dTIM or dLTC.	8.6.5	m	
2	The function implements the following logical equation: aTSD <-- dDEG.	8.6.5	m	

F.4.6.5.5 Defect Correlations (P31sDm_TT_Sk)

Table F.149: Defect Correlations for P31sDm_TT_Sk

Item	Defect Correlations for P31sDm_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: cRDI <-- MON and (not dUNEQ) and (not dTIM) and (not dLTC) and dRDI and RDI_Reported.	8.6.5	c14901	
2	The function implements the following logical equation: cSSF <-- MON and CI_SSF and SSF_reported.	8.6.5	c14902	
3	The function implements the following logical equation: cDEG <-- MON and (not dTIM) and (not dLTC) and dDEG.	8.6.5	c14903	
4	The function implements the following logical equation: cUNEQ <-- MON and dUNEQ.	8.6.5	c14904	
5	The function implements the following logical equation: cTIM <-- MON and (not dUNEQ) and (not dLTC) and dTIM.	8.6.5	c14905	
6	The function implements the following logical equation: cLTC <-- MON and (not dUNEQ) and dLTC.	8.6.5	c14906	
7	The function implements the following logical equation: cODI <-- MON and (not dUNEQ) and (not dTIM) and (not dLTC) and dODI and ODI_Reported.	8.6.5	c14907	

c14901: IF F.117/1 THEN m ELSE n/a -- cRDI is reported
c14902: IF F.117/2 THEN m ELSE n/a -- cSSF is reported
c14903: IF F.117/3 THEN m ELSE n/a -- cDEG is reported
c14904: IF F.117/4 THEN m ELSE n/a -- cUNEQ is reported
c14905: IF F.117/5 THEN m ELSE n/a -- cTIM is reported
c14906: IF F.117/11 THEN m ELSE n/a -- cLTC is reported
c14907: IF F.117/12 THEN m ELSE n/a -- cODI is reported

F.4.6.5.6 Performance monitoring (P31sDm_TT_Sk)

Table F.150: Performance Monitoring (P31sDm_TT_Sk)

Item	Performance Monitoring (P31sDm_TT_Sk)	Reference	Status	Support
1	The function implements the following logical equation: pN_DS <-- aTSF or dEQ.	8.6.5	c15001	
2	The function implements the following logical equation: pN_EBC <-- Sum(nN_B) The "Sum" is calculated over a one-second period.	8.6.5	c15002	
3	The function implements the following logical equation: pF_DS <-- dRDI.	8.6.5	c15003	
4	The function implements the following logical equation: pF_EBC <-- Sum(nF_B) The "Sum" is calculated over a one-second period.	8.6.5	c15004	
5	The function implements the following logical equation: pOF_DS <-- dODI.	8.6.5	c15005	
6	The function implements the following logical equation: pOF_EBC <-- Sum(nOF_B) The "Sum" is calculated over a one-second period.	8.6.5	c15006	

c15001: IF F.117/7 THEN m ELSE n/a -- pN_DS is reported
c15002: IF F.117/8 THEN m ELSE n/a -- pN_EBC is reported
c15003: IF F.117/9 THEN m ELSE n/a -- pF_DS is reported
c15004: IF F.117/10 THEN m ELSE n/a -- pF_EBC is reported
c15005: IF F.117/16 THEN m ELSE n/a -- pOF_DS is reported
c15006: IF F.117/17 THEN m ELSE n/a -- pOF_EBC is reported

Annex G (normative): ICS proforma for P4s Path Layer

G.1 Identification of the implementation

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.

In the present document, an IUT, and of course the identification of an IUT refers to a P4s Path Layer instance implemented inside the SUT.

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.

G.1.1 Date of the statement

.....

G.1.2 Implementation Under Test (IUT) identification

IUT name:

.....

.....

IUT version

Hardware version:

.....

.....

Software version:

.....

.....

Firmware version:

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.....

G.1.3 System Under Test (SUT) identification

SUT name:

.....

.....

Hardware configuration:

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SUT Software version:

.....

.....

SUT Firmware version:

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Operating system:

.....

.....

G.1.4 Product supplier

Name:

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Address:

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.....

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Telephone number:

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Facsimile number:

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E-mail address:

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Additional information:

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G.1.5 Client

Name:

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Address:

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Telephone number:

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Facsimile number:

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E-mail address:

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Additional information:

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G.1.6 ICS contact person

Name:

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Telephone number:

.....

Facsimile number:

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E-mail address:

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Additional information:

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.....

G.2 Identification of the ETS

This ICS proforma applies to the following standard:

EN 300 417-5-1 [1]: "Transmission and Multiplexing (TM); Generic requirement of transport functionality of equipment; Part 5-1: Plesiochronous Digital Hierarchy (PDH) path layer functions".

G.3 Global statement of conformance of P4s Path Layer

Due to the model used for this layer the "Global statement of conformance" sentence used in ETSI ICS is not applicable to this layer.

G.4 P4s Path Layer Functions

G.4.0 P4s Path Layer Description

Table G.1: P4s Path Layer functions

Item	P4s Path Layer functions	Reference	Status	Support
1	P4s Connection function (P4s_C).	9	o.101	
2	P4s Layer Trail Termination Source function (P4s_TT_So).	9, figure 87	o.101	
3	P4s Layer Trail Termination Sink function (P4s_TT_Sk).	9, figure 87	o.101	
4	P4s/SX-TUG3 Layer Compound Adaptation Source function (P4s/SX-TUG3_A_So).	9, figure 87	c101	
5	P4s/SX-TUG3 Layer Compound Adaptation Sink function (P4s/SX-TUG3_A_Sk).	9, figure 87	c102	
6	P4s/TUG3 Adaptation Source function (P4s/TUG3_A_So).	9, figure 92	c103	
7	P4s/TUG3 Adaptation Sink function (P4s/TUG3_A_Sk).	9, figure 106	c104	
8	TUG3 Termination Source function (TUG3_T_So).	9, figure 92	c103	
9	TUG3 Termination Sink function (TUG3_T_Sk).	9, figure 106	c104	
10	TUG3/S3 Layer Adaptation Source function (TUG3/S3_A_So/K.0.0).	9, figure 92	c103	
11	TUG3/S3 Layer Adaptation Sink function (TUG3/S3_A_Sk/K.0.0).	9, figure 106	c104	
12	TUG3/S2 Layer Adaptation Source function (TUG3/S2_A_So/K.L.0).	9, figure 92	c103	
13	TUG3/S2 Layer Adaptation function (TUG3/S2_A_Sk/K.L.0).	9, figure 106	c104	
14	TUG3/S12 Layer Adaptation Source function (TUG3/S12_A_So/K.L.M).	9, figure 92	c105	
15	TUG3/S12 Layer Adaptation function (TUG3/S12_A_Sk/K.L.M).	9, figure 106	c106	
16	TUG3/S11* Layer Adaptation Source function (TUG3/S11*_A_So/K.L.M).	9, figure 92	c105	
17	TUG3/S11* Layer Adaptation Sink function (TUG3/S11*_A_Sk/K.L.M).	9, figure 106	c106	
18	P4s/SX-TUG2 Layer Compound Adaptation Source function (P4s/SX-TUG2_A_So).	9, figure 87	c101	
19	P4s/SX-TUG2 Layer Compound Adaptation Sink function (P4s/SX-TUG2_A_Sk).	9, figure 87	c102	
20	P4s/TUG2 Adaptation Source function (P4s/TUG2_A_So).	9, figure 114	c107	
21	P4s/TUG2 Adaptation Sink function (P4s/TUG2_A_Sk).	9, figure 125	c108	
22	TUG2 Termination Source function (TUG2_T_So).	9, figure 114	c107	
23	TUG2 Termination Sink function (TUG2_T_Sk).	9, figure 125	c108	

Item	P4s Path Layer functions	Reference	Status	Support
24	TUG2/S2 Layer Adaptation Source function (TUG2/S2_A_So/L.0).	9, figure 114	c107	
25	TUG2/S2 Layer Adaptation Source function (TUG2/S2_A_Sk/L.0).	9, figure 125	c108	
26	TUG2/S12 Layer Adaptation Source function (TUG2/S12_A_So/L.M).	9, figure 114	c109	
27	TUG2/S12 Layer Adaptation Sink function (TUG2/S12_A_Sk/L.M).	9, figure 125	c110	
28	TUG2/S11* Layer Adaptation Source function (TUG2/S11*_A_So/L.M).	9, figure 114	c109	
29	TUG2/S11* Layer Adaptation Sink function (TUG2/S11*_A_Sk/L.M).	9, figure 125	c110	
30	P4s/P0s Layer Trail Adaptation Source function (P4s/P0s_A_So).	9, figure 87	c101	
31	P4s/P0s Layer Trail Adaptation Sink function (P4s/P0s_A_Sk).	9, figure 87	c102	
32	P4s/V0x Layer Trail Adaptation Source function (P4s/V0x_A_So).	9, figure 87	c101	
33	P4s/V0x Layer Trail Adaptation Sink function (P4s/V0x_A_Sk).	9, figure 87	c102	
34	P4s/DCC Layer Trail Adaptation Source function (P4s/DCC_A_So).	9, figure 87	c101	
35	P4s/DCC Layer Trail Adaptation Sink function (P4s/DCC_A_Sk).	9, figure 87	c102	
36	P4s/Avp Layer Compound Adaptation Source function (P4s/Avp_A_So).	9, figure 87	c101	
37	P4s/Avp Layer Compound Adaptation Sink function (P4s/Avp_A_Sk).	9, figure 87	c102	
38	P4s/SD Layer Trail Adaptation Source function (P4s/SD_A_So).	9, figure 87	c101	
39	P4s/SD Layer Trail Adaptation Sink function (P4s/SD_A_Sk).	9, figure 87	c102	
40	P4s Layer Clock Adaptation Source function (P4s-LC_A_So).	9, figure 87	c111	
41	P4s Layer non-intrusive monitoring function (P4sm_TT_Sk).	9, figure 87	o	
42	P4s Tandem Connection Trail Termination Source function (P4sD_TT_So).	9, figure 87	c112	
43	P4s Tandem Connection Trail Termination Sink function (P4sD_TT_Sk).	9, figure 87	c112	
44	P4sD/P4s Layer Trail Adaptation Source function (P4sD/P4s_A_So).	9, figure 87	c113	
45	P4sD/P4s Layer Trail Adaptation Sink function (P4sD/P4s_A_Sk).	9, figure 87	c114	
46	P4s Tandem Connection non-intrusive Trail Termination Sink function (P4sDm_TT_Sk).	9, figure 87	c112	
47	P4s Layer to Xxx Layer Adaptation Source function (P4s/Xxx_A_So)	n/a	c101	
48	P4s Layer to Xxx Layer Adaptation Sink function (P4s/Xxx_A_Sk)	n/a	c102	

o.101: It is mandatory to support at least one of these items -- connection function and/or trail termination source and/or trail termination sink present

o.102: It is mandatory to support at least one of these items -- at least one Payload Adaptation or SD Source present

o.103: It is mandatory to support at least one of these items -- at least one Payload Adaptation or SD Sink present

c101: IF G.1/2 THEN o.102 ELSE x -- a TT_So function should exist for A_So function

c102: IF G.1/3 THEN o.103 ELSE x -- a TT_Sk function should exist for A_Sk function

c103: IF G.1/4 THEN m ELSE x -- S4/SX-TUG3_A_So function should exist

c104: IF G.1/5 THEN m ELSE x -- S4/SX-TUG3_A_Sk function should exist

c105: IF G.1/4 THEN o ELSE x -- S4/SX-TUG3_A_So function should exist

c106: IF G.1/5 THEN o ELSE x -- S4/SX-TUG3_A_Sk function should exist

c107: IF G.1/18 THEN m ELSE x -- S4/SX-TUG2_A_So function should exist

c108: IF G.1/19 THEN m ELSE x -- S4/SX-TUG2_A_Sk function should exist

c109: IF G.1/18 THEN o ELSE x -- S4/SX-TUG2_A_So function should exist

c110: IF G.1/19 THEN o ELSE x -- S4/SX-TUG2_A_Sk function should exist

c111: IF (G.1/4 OR G.1/18 OR G.1/30 OR G.1/32 OR G.1/34 OR G.1/36) THEN m ELSE x -- At least one among P4s/SX-TUG3_A_So, P4s/SX-TUG2_A_So, P4s/P0s_A_So, P4s/V0x_A_So, P4s/DCC_A_So, P4s/Avp_A_So and P4s/SD_A_So function exists

c112: IF G.1/1 THEN o ELSE n/a -- a connection function should exist

c113: IF G.1/42 THEN m ELSE x -- a Tandem Connection TT_So function should exist for Tandem Connection A_So function

c114: IF G.1/43 THEN m ELSE x -- a Tandem Connection TT_Sk function should exist for Tandem Connection A_Sk function

Comment: Items dealing with P4s/Xxx_A functions take into account the implementation of adaptation functions not specified or referenced in EN 300 417-x-1 standards.

Table G.2: Multiple Adaptation functions

Item	Multiple Adaptation functions	Reference	Status	Support
1	The layer supports two or more Adaptation source functions of the group: P4s/SX-TUG3_A_So, P4s/SX-TUG2_A_So, P4s/P0s_A_So, P4s/V0x_A_So, P4s/DCC_A_So, P4s/Avp_A_So and P4s/SD_A_So.	9	o	
2	The layer supports two or more Adaptation Sink functions of the group: P4s/SX-TUG3_A_Sk, P4s/SX-TUG2_A_Sk, P4s/P0s_A_Sk, P4s/V0x_A_Sk, P4s/DCC_A_Sk, P4s/Avp_A_Sk and P4s/SD_A_Sk.	9	o	

G.4.0.1 Characteristic Information

Table G.3: P4s Characteristic Information

Prerequisite: G.1/1 OR G.1/2 OR G.1/3 -- implies that at least one P4s Layer Trail Termination or Connection function is present

Item	P4s Characteristic Information	Reference	Status	Support
1	The Characteristic Information (CI) is octet structured with an 125 μs frame.	9, figure 88	m	
2	The CI contains the overhead bytes FA1, FA2, P1, P2, TR, EM, MA, NR, GC, as defined in ETS 300 337.	9, figure 88, ETS 300 337	m	
3	MA byte has the structure described in figure 88.	9, figure 88	m	
4	For the case the signal has passed the tandem connection sublayer, P4s_CI has defined P4s tandem connection trail termination overhead in location NR and has the multiframe structure described in figure 88.	9, figure 88	c301	
5	NR will be undefined when the signal P4s_CI has not been processed in a tandem connection adaptation and trail termination function.	9, figure 88	c302	

c301: IF (G.1/42 OR G.1/43) THEN m ELSE n/a -- one P4sD_TT exists
c302: IF NOT (G.1/42 OR G.1/43) THEN m ELSE n/a -- no Tandem Connection Sublayer supported

G.4.0.2 Adapted information

Table G.4: P4s Adapted Information

Prerequisite: G.1/2 OR G.1/3 -- implies that at least one P4s Layer Trail Termination function is present

Item	P4s Adapted Information	Reference	Status	Support
1	The Adaptation Information (AI) at this point is octet structured with an 125 μ s frame, comprising 2160 bytes of client layer information.	9, figure 88	m	
2	The AI contains the overhead bytes P1, P2, MA and GC, as defined in ETS 300 337.	9, figure 88, ETS 300 337	m	
3	The transported signal is a TUG3 structured signal.	9	c401	
4	The transported signal is a TUG2 structured signal.	9	c402	
5	The transported signal is an ATM 138 240 kbit/s cell stream signal.	9	c403	

o.401: It is mandatory to support at least one of these items -- at least one type of payload supported
c401: IF (G.1/4 OR G.1/5) THEN o.401 ELSE n/a -- a P4s/SX-TUG3_A exists
c402: IF (G.1/18 OR G.1/19) THEN o.401 ELSE n/a -- a P4s/SX-TUG2_A exists
c403: IF (G.1/36 OR G.1/37) THEN o.401 ELSE n/a -- a P4s/Avp_A exists

G.4.1 P4s Connection function

Table G.5: P4s Connection function

Prerequisite: G.1/1 -- a connection function exists

Item	P4s Connection function	Reference	Status	Support
1	No requirements	9.1	n/a	

G.4.2 P4s Trail Termination functions

Prerequisite: G.1/2 OR G.1/3 -- a trail termination function exists

G.4.2.1 P4s Trail Termination Source P4s_TT_So

Prerequisite: G.1/2 -- a trail termination source function exists

G.4.2.1.1 Management information (P4s_TT_So)

Table G.6: Configuration/provisioning of information from EMF to P4s_TT_Sk

Item	Configuration/provisioning of information from EMF to P4e_TT_So	Reference	Status	Support
1	P4s_TT_So_MI_TxTI is provisionable from the EMF.	9.2.1	m	

G.4.2.1.2 Processes (P4s_TT_So)

Table G.7: Frame Alignment Signal insertion (P4s_TT_So)

Item	Frame Alignment Signal insertion (P4s_TT_So)	Reference	Status	Support
1	The function inserts frame alignment signal FA1FA2 into the frame overhead as defined in ETS 300 337 and depicted in figure 88.	9.2.1, figure 88, ETS 300 337	m	

Table G.8: RDI insertion/removal (P4s_TT_So)

Prerequisite: G.1/2 AND G.1/3 -- bi-directional layer supported

Item	RDI insertion (P4s_TT_So)	Reference	Status	Support
1	The RDI bit, MA[1], is set to "1" within 250 µs on activation of P4s_RI_RDI.	9.2.1	m	
2	The RDI bit, MA[1] is set to "0" within 250 µs on clearing of P4s_RI_RDI.	9.2.1	m	

Table G.9: REI insertion (P4s_TT_So)

Prerequisite: G.1/2 AND G.1/3 -- bi-directional layer supported

Item	REI insertion (P4s_TT_So)	Reference	Status	Support
1	The REI bit, MA[2] is set to "1" on declaration of RI_REI.	9.2.1	m	
2	The REI bit, MA[2] is set to "0" on declaration of RI_REI.	9.2.1	m	

Table G.10: Trail Trace Identifier insertion (P4s_TT_So)

Item	Trail Trace Identifier insertion (P4s_TT_So)	Reference	Status	Support
1	The function inserts the Transmitted Trail Trace Identifier TxTI in the TR byte as described in EN 300 417-1-1 subclause 7.1.	9.2.1, EN 300 417-1-1 subclause 7.1	m	

Table G.11: Error Detection Code insertion (P4s_TT_So)

Item	Error Detection Code insertion (P4s_TT_So)	Reference	Status	Support
1	The function inserts the BIP-8 EDC in the EM byte. Each bit n of current EM byte is computed to provide even parity over the n^{th} bit of every byte in the previous frame of the P4s_CI.	9.2.1, EN 300 417-1-1 subclause 7.3, ETS 300 337	m	

G.4.2.2 P4s Trail Termination Sink P4s_TT_Sk

Prerequisite: G.1/3 -- a termination sink function exists

G.4.2.2.1 Management information (P4s_TT_Sk)

Table G.12: Configuration/provisioning of information from EMF to P4s_TT_Sk

Item	Configuration/provisioning of information from EMF to P4s_TT_Sk	Reference	Status	Support
1	P4s_TT_Sk_MI_TPmode is provisionable from the EMF.	9.2.2	m	
2	P4s_TT_Sk_MI_SSF_Reported is provisionable from the EMF.	9.2.2	m	
3	P4s_TT_Sk_MI_RDI_Reported is provisionable from the EMF.	9.2.2	c1201	
4	P4s_TT_Sk_MI_1second is provisioned by the EMF.	9.2.2	m	
5	P4s_TT_Sk_MI_DEGM is provisionable from the EMF.	9.2.2	m	
6	P4s_TT_Sk_MI_DEGTHR is provisionable from the EMF.	9.2.2	m	
7	P4s_TT_Sk_MI_ ExTI is provisionable from the EMF.	9.2.2	m	
8	P4s_TT_Sk_MI_TIMdis is provisionable from the EMF.	9.2.2	m	

c1201: IF G.1/2 AND G.1/3 THEN m ELSE n/a -- bi-directional layer supported

Table G.13: Signal reports from P4s_TT_Sk to EMF

Item	Signal reports from P4s_TT_Sk to EMF	Reference	Status	Support
1	P4s_TT_Sk_MI_cRDI is reported to the EMF.	9.2.2	c1301	
2	P4s_TT_Sk_MI_cSSF is reported to the EMF.	9.2.2	m	
3	P4s_TT_Sk_MI_cDEG is reported to the EMF.	9.2.2	m	
4	P4s_TT_Sk_MI_cUNEQ is reported to the EMF.	9.2.2	m	
5	P4s_TT_Sk_MI_cTIM is reported to the EMF.	9.2.2	m	
6	P4s_TT_Sk_MI_AcTI is reported to the EMF.	9.2.2	m	
7	P4s_TT_Sk_MI_pN_DS is reported to the EMF.	9.2.2	m	
8	P4s_TT_Sk_MI_pN_EBC is reported to the EMF.	9.2.2	m	
9	P4s_TT_Sk_MI_pF_DS is reported to the EMF.	9.2.2	c1301	
10	P4s_TT_Sk_MI_pF_EBC is reported to the EMF.	9.2.2	c1301	

c1301: IF G.1/2 AND G.1/3 THEN m ELSE n/a -- bi-directional layer supported

NOTE: Reporting shall be understood as reporting to the Management Point (i.e. to the Equipment Management Function), not as reporting to the user through a management interface.

G.4.2.2.2 Processes (P4s_TT_Sk)

Table G.14: Trail Termination Point mode process

Prerequisite: G.12/1 -- MI_TPmode provisionable from the EMF

Item	Trail Termination Point mode process	Reference	Status	Support
1	The Trail Termination Point Mode supports "not monitored" (NMON) status.	EN 300 417-1-1 subclause 8.5	m	
2	The Trail Termination Point Mode supports "monitored" (MON) status.	EN 300 417-1-1 subclause 8.5	m	

Table G.15: RDI processing

Prerequisite: G.1/2 AND G.1/3 -- bi-directional layer supported

Item	RDI processing	Reference	Status	Support
1	The information carried in the RDI bit, MA[1], is extracted to enable single ended maintenance of a bi-directional Trail (Path).	9.2.2	m	
2	A "1" indicates an RDI state.	9.2.2, EN 300 417-1-1 subclause 7.4.1 and 8.2	m	
3	A "0" indicates the normal state.	9.2.2, EN 300 417-1-1 subclause 7.4.1 and 8.2	m	

Table G.16: REI processing

Prerequisite: G.1/2 AND G.1/3 -- bi-directional layer supported

Item	REI processing	Reference	Status	Support
1	The information carried in the REI bit, MA[2] is extracted to monitor the error performance of the reverse direction of transmission.	9.2.2	m	
2	The application process is performed as specified in EN 300 417-1-1 subclause 7.4.2.	9.2.2, EN 300 417-1-1 subclause 7.4.2	m	

Table G.17: Trail Trace Identifier processing

Item	Trail Trace Identifier processing	Reference	Status	Support
1	The 16 byte Trail Trace Identifier (TTI) is recovered from the TR byte and made available for network management purposes as AcTI.	9.2.2	m	
2	The trace identifier process supports only "mode 1" (EN 300 417-1-1 subclause 7.1).	9.2.2, EN 300 417-1-1 subclause 7.1	m	

Table G.18: Error Detection Code processing

Item	Error Detection Code processing	Reference	Status	Support
1	Even bit parity (BIP-8) is computed for each bit n of every byte of the preceding frame and compared with bit n of EM byte recovered from the current frame (n=1 to 8 inclusive).	9.2.2	m	
2	A difference between the computed and recovered EM values is taken as evidence of one or more errors (nN_B) in the computation block.	9.2.2	m	

Table G.19: Signal Label processing

Item	Signal Label processing	Reference	Status	Support
1	The information in the signal label bits, MA[3-5], is extracted to allow unequipped P4s defect detection.	9.2.2	m	

G.4.2.2.3 Defects (P4s_TT_Sk)

Table G.20: Defects for P4s_TT_Sk

Item	Defects for P4s_TT_Sk	Reference	Status	Support
1	The function detects the dRDI defect according to the specification in EN 300 417-1-1, subclauses 7.4.1, 8.2.1.5, 8.2.2.2.	9.2.2, EN 300 417-1-1 subclause 7.4.1, 8.2.1.5, 8.2.2.2	c2001	
2	The function detects dDEG defect according to the specification in subclause 8.2.1 in EN 300 417-1-1.	9.2.2, EN 300 417-1-1 subclause 8.2.1	m	
3	The function detects dTIM defect according to the specification in subclause 8.2.1 in EN 300 417-1-1.	9.2.2, EN 300 417-1-1 subclause 8.2.1	m	
4	The function detects dUNEQ defect according to the specification in subclause 8.2.1 in EN 300 417-1-1.	9.2.2, EN 300 417-1-1 subclause 8.2.1	m	

c2001: IF G.1/2 AND G.1/3 THEN m ELSE n/a -- bi-directional layer supported

G.4.2.2.4 Consequent actions (P4s_TT_Sk)

Table G.21: Consequent actions for P4s_TT_Sk

Item	Consequent actions for P4s_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: aTSF <-- CI_SSF or dUNEQ or dTIM.	9.2.2	m	
2	The function implements the following logical equation: aRDI <-- CI_SSF or dUNEQ or dTIM.	9.2.2	c2101	
3	The function implements the following logical equation: aTSD <-- dDEG.	9.2.2	m	
4	The function implements the following logical equation: aAIS <-- dUNEQ or dTIM.	9.2.2	m	
5	On declaration of an aAIS the function outputs an all ONEs signal within 250 µs.	9.2.2	m	
6	On clearing of aAIS the function outputs normal data within 250 µs.	9.2.2	m	

c2101: IF G.1/2 AND G.1/3 THEN m ELSE n/a -- bi-directional layer supported

G.4.2.2.5 Defect Correlations (P4s_TT_Sk)

Table G.22: Defect Correlations for P4s_TT_Sk

Item	Defect Correlations for P4s_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: cRDI <-- dRDI and MON and (not dTIM) and (not dUNEQ) and RDI_Reported.	9.2.2	c2201	
2	The function implements the following logical equation: cSSF <-- CI_SSF and MON and SSF_Reported.	9.2.2	c2202	
3	The function implements the following logical equation: cDEG <-- dDEG and MON and (not dTIM) and (not dUNEQ).	9.2.2	c2203	
4	The function implements the following logical equation: cUNEQ <-- MON and dUNEQ.	9.2.2	c2204	
5	The function implements the following logical equation: cTIM <-- MON and dTIM and (not dUNEQ).	9.2.2	c2205	

c2201: IF G.13/1 THEN m ELSE n/a -- cRDI is reported
c2202: IF G.13/2 THEN m ELSE n/a -- cSSF is reported
c2203: IF G.13/3 THEN m ELSE n/a -- cDEG is reported
c2204: IF G.13/4 THEN m ELSE n/a -- cUNEQ is reported
c2205: IF G.13/5 THEN m ELSE n/a -- cTIM is reported

G.4.2.2.6 Performance monitoring (P4s_TT_Sk)

Table G.23: Performance Monitoring (P4s_TT_Sk)

Item	Performance Monitoring (P4s_TT_Sk)	Reference	Status	Support
1	The function implements the following logical equation: pN_DS <-- aTSF or dEQ.	9.2.2	c2301	
2	The function implements the following logical equation: pN_EBC <-- Sum(nN_B) The "Sum" is calculated over a one-second period.	9.2.2	c2302	
3	The function implements the following logical equation: pF_DS <-- dRDI.	9.2.2	c2303	
4	The function implements the following logical equation: pF_EBC <-- Sum(nF_B) The "Sum" is calculated over a one-second period.	9.2.2	c2304	

c2301: IF G.13/7 THEN m ELSE n/a -- pN_DS is reported
c2302: IF G.13/8 THEN m ELSE n/a -- pN_EBC is reported
c2303: IF G.13/9 THEN m ELSE n/a -- pF_DS is reported
c2304: IF G.13/10 THEN m ELSE n/a -- pF_EBC is reported

G.4.3 P4s Adaptation functions

G.4.3.1 P4s to VC-3, VC-2, VC-12, VC-11 Compound Adaptation Source P4s/SX-TUG3_A_So

Prerequisite: G.1/4 -- P4s to VC-3, VC-2, VC-12, VC-11 adaptation source function exists

Table G.24: Number of inputs for P4s/SX-TUG3_A_So

Item	Number of inputs for P4s/SX-TUG3_A_So	Reference	Status	Support
1	The maximum number of S3_CI inputs is 2.	9.3.1	c2401	
2	The maximum number of S2_CI inputs is 19.	9.3.1	c2402	
3	The maximum number of S12_CI inputs is 57.	9.3.1	c2403	
4	The maximum number of S11_CI inputs is 57.	9.3.1	c2404	

c2401: IF G.1/10 THEN m ELSE n/a -- TUG3/S3_A_So functions exist
c2402: IF G.1/12 THEN m ELSE n/a -- TUG3/S2_A_So functions exist
c2403: IF G.1/14 THEN m ELSE n/a -- TUG3/S12_A_So functions exist
c2404: IF G.1/16 THEN m ELSE n/a -- TUG3/S11*_A_So functions exist

Table G.25: Adaptation process for P4s/SX-TUG3_A_So

Item	Adaptation process for P4s/SX-TUG3_A_So	Reference	Status	Support
1	The P4s/SX-TUG3_A_So compound function provides adaptation from the VC-3/2/12/11 layers to the P4s layer. This process is performed by a combination of several atomic functions as shown in figure 92.	9.3.1, figure 92	m	
2	All possible TUG3/Sm_A_So (m=3, 2, 12, 11*) functions within a P4s/SX-TUG3_A_So compound function are listed in table 63.	9.3.1, table 63	m	
3	Only one of TUG3/Sm_A_So (m=3, 2, 12, 11*) functions is allowed to access to the same TU timeslot at a time.	9.3.1	m	
4	P4s payload is always completely filled.	9.3.1	m	

G.4.3.1.1 P4s to TUG3 Adaptation Source P4s/TUG3_A_So

Prerequisite: G.1/6 - P4s to TUG3 adaptation source function exists

G.4.3.1.1.1 Management information (P4s/TUG3_A_So)

Table G.26: Configuration/provisioning information from EMF to P4s/TUG3_A_So

Item	Configuration/provisioning information from EMF to P4s/TUG3_A_So	Reference	Status	Support
1	P4s/TUG3_A_So_MI_Active is provisionable from the EMF.	9.3.1.1	c2601	
2	The function can be activated (P4s/TUG3_A_So_MI_Active is TRUE) and deactivated (P4s/TUG3_A_So_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	9.3.1.1	c2602	
3	P4s/TUG3_A_So_MI_TU3_1 is provisionable from the EMF.	9.3.1.1	m	
4	TUG3/S3_A_So/A.0.0_MI_Active is provisionable from the EMF.	9.3.1.1	m	
5	P4s/TUG3_A_So_MI_TU3_1 is true if TUG3/S3_A_So/A.0.0_MI_Active is true.	9.3.1.1	m	
6	P4s/TUG3_A_So_MI_TU3_2 is provisionable from the EMF.	9.3.1.1	m	
7	TUG3/S3_A_So/B.0.0_MI_Active is provisionable from the EMF.	9.3.1.1	m	
8	P4s/TUG3_A_So_MI_TU3_2 is true if TUG3/S3_A_So/B.0.0_MI_Active is true.	9.3.1.1	m	

c2601: IF G.2/1 THEN m ELSE n/a -- multiple Adaptation Source functions exist
c2602: IF G.26/1 THEN m ELSE n/a -- P4s/TUG3_A_So_MI_Active provisionable

G.4.3.1.1.2 Processes (P4s/TUG3_A_So)

Table G.27: Adaptation process for P4s/TUG3_A_So

Item	Adaptation process for P4s/TUG3_A_So	Reference	Status	Support
1	The function adds two payload specific signals (bits MA[3-5] and MA[6-7]) to the P4s POH as shown in figure 94.	9.3.1.1, figure 94	m	
2	The function adds fixed stuff (R0) bytes to the P4s payload as shown in figure 95.	9.3.1.1, figure 95	m	
3	The function adds fixed stuff (R1) bytes to the P4s payload as shown in figure 95, if the TUG-3-A contains TUG-2s (MI_TU3_1 is false). The R2 bytes are added if the TUG-3-B contains TUG-2s (MI_TU3_2 is false).	9.3.1.1, figure 95	m	

Table G.28: Signal Label insertion for P4s/TUG3_A_So

Item	Signal Label insertion for P4s/TUG3_A_So	Reference	Status	Support
1	The function inserts in bits MA[3-5] the code "100" (SDH elements mapping II: 2 x TUG-3 and 5 x TUG-2 structure) as defined in ETS 300 337.	9.3.1.1, ETS 300 337	m	
2	The value of the multiframe indicator bits (MA[6-7]) is set as specified by ETS 300 337 for a 500 μs TU multiframe sequence and aligned with TUG3_CI_MFS.	9.3.1.1, ETS 300 337	m	

Table G.29: Activation of P4s/TUG3_A_So function

Item	Activation of P4s/TUG3_A_So function	Reference	Status	Support
1	The function accesses the access point only when it is activated (MI_Active is true).	9.3.1.1	c2901	

c2901: IF G.26/1 THEN m ELSE n/a -- P4s/TUG3_A_So_MI_Active provisionable

G.4.3.1.2 TUG3 Termination Source TUG3_T_So

Table G.30: TUG3 Termination Source function

Item	TUG3 Termination Source function	Reference	Status	Support
1	No requirements	9.3.1.2	n/a	

G.4.3.1.3 TUG3 to S3 Adaptation Source TUG3/S3_A_So

Prerequisite: G.1/10 -- TUG3 to VC-3 adaptation source function exists

G.4.3.1.3.1 Management information (TUG3/S3_A_So)

Table G.31: Configuration/provisioning information from EMF to TUG3/S3_A_So

Item	Configuration/provisioning information from EMF to TUG3/S3_A_So	Reference	Status	Support
1	TUG3/S3_A_So_MI_Active is provisionable from the EMF.	9.3.1.3	m	
2	The function can be activated (TUG3/S3_A_So_MI_Active is TRUE) and deactivated (TUG3/S3_A_So_MI_Active is FALSE).	9.3.1.3	c3101	

c3101: IF G.31/1 THEN m ELSE n/a -- TUG3/S3_A_So_MI_Active provisionable

G.4.3.1.3.2 Processes (TUG3/S3_A_So)

Table G.32: Adaptation process for TUG3/S3_A_So

Item	Adaptation process for TUG3/S3_A_So	Reference	Status	Support
1	This function provides frequency justification and bitrate adaptation for a VC-3 signal, represented by a nominally (765 × 64) = 48 960 kbit/s information stream with a frequency accuracy within ± 4,6 ppm and the related frame phase, to be multiplexed into a P4s signal via a TU-3.	9.3.1.3	m	
2	The frame phase of the VC-3 is coded in the related TU-3 pointer.	9.3.1.3	m	

Table G.33: Frequency justification and bitrate adaptation for TUG3/S3_A_So

Item	Frequency justification and bitrate adaptation for TUG3/S3_A_So	Reference	Status	Support
1	The function provides for an elastic store (buffer) process.	9.3.1.3	m	
2	The data and frame start signals is written into the buffer under control of the associated input clock.	9.3.1.3	m	
3	The data and frame start signals are read out of the buffer under control of the P4s clock, frame position, and justification decision.	9.3.1.3	m	
4	Upon a positive justification action, the reading of 8 data bits are cancelled once and no data are written at the justification opportunity position H3+1.	9.3.1.3, figure 98	m	
5	Upon a negative justification action, an extra 8 data bits are read out once into the justification opportunity position H3.	9.3.1.3, figure 98	m	

Table G.34: Pointer generation for TUG3/S3_A_So

Item	Pointer generation for TUG3/S3_A_So	Reference	Status	Support
1	The TU-3 pointer is carried in bytes H1 and H2 of payload specific OH in each container frame.	9.3.1.3, figure 98	m	
2	The TU-3 pointer is aligned in the P4s payload in fixed positions relative to the P4s frame.	9.3.1.3	m	
3	The format of the TU-3 pointer and its location in the frame/multiframe are defined in ETS 300 337.	9.3.1.3, ETS 300 337	m	
4	The function generates the TU-3 pointer as described in EN 300 417-1-1 annex A.	9.3.1.3, EN 300 417-1-1 annex A	m	
5	The SS field of the pointer is set to 10 to indicate TU-3.	9.3.1.3	m	

Table G.35: Activation of TUG3/S3_A_So functions and timeslot access

Item	Activation of TUG3/S3_A_So functions and timeslot access	Reference	Status	Support
1	The adaptation source function has access to a specific TU-3 of the TUG3 access point. The TU-3 is defined by the parameter K (K=A,B).	9.3.1.3	m	
2	The function accesses the access point only when it is activated (MI_Active is true).	9.3.1.3	c3501	

c3501: IF G.31/1 THEN m ELSE n/a -- TUG3/S3_A_So_MI_Active provisionable

G.4.3.1.3.3 Consequent actions (TUG3/S3_A_So)

Table G.36: Consequent actions for TUG3/S3_A_So

Item	Consequent actions for TUG3/S3_A_So	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- CI_SSF.	9.3.1.3	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 250 µs.	9.3.1.3	m	
3	On clearing of aAIS the function outputs normal data within 250 µs.	9.3.1.3	m	

G.4.3.1.4 TUG3 to S2 Adaptation Source TUG3/S2_A_So

Prerequisite: G.1/12 -- TUG3 to VC-2 adaptation source function exists

G.4.3.1.4.1 Management information (TUG3/S2_A_So)

Table G.37: Configuration/provisioning information from EMF to TUG3/S2_A_So

Item	Configuration/provisioning information from EMF to TUG3/S2_A_So	Reference	Status	Support
1	TUG3/S2_A_So_MI_Active is provisionable from the EMF.	9.3.1.4	m	
2	The function can be activated (TUG3/S2_A_So_MI_Active is TRUE) and deactivated (TUG3/S2_A_So_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	9.3.1.4	c3701	

c3701: IF G.37/1 THEN m ELSE n/a -- TUG3/S2_A_So_MI_Active provisionable

G.4.3.1.4.2 Processes (TUG3/S2_A_So)

Table G.38: Adaptation process for TUG3/S2_A_So

Item	Adaptation process for TUG3/S2_A_So	Reference	Status	Support
1	This function provides frequency justification and bitrate adaptation for a VC-2 signal, represented by a nominally (428 × 64/4) = 6 848 kbit/s information stream with a frequency accuracy within ± 4,6 ppm and the related frame phase, to be multiplexed into a P4s signal via a TU-2.	9.3.1.4	m	
2	The (500 μs) frame phase of the VC-2 is coded in the related TU-2 pointer.	9.3.1.4	m	

Table G.39: Frequency justification and bitrate adaptation for TUG3/S2_A_So

Item	Frequency justification and bitrate adaptation for TUG3/S2_A_So	Reference	Status	Support
1	The function provides for an elastic store (buffer) process.	9.3.1.4	m	
2	The data and frame start signals is written into the buffer under control of the associated input clock.	9.3.1.4	m	
3	The data and frame start signals are read out of the buffer under control of the P4s clock, frame position, and justification decision.	9.3.1.4	m	
4	Upon a positive justification action, the reading of 8 data bits are cancelled once and no data are written at the justification opportunity position V3+1.	9.3.1.4, figure 100	m	
5	Upon a negative justification action, an extra 8 data bits are read out once into the justification opportunity position V3.	9.3.1.4, figure 100	m	

Table G.40: Pointer generation for TUG3/S2_A_So

Item	Pointer generation for TUG3/S2_A_So	Reference	Status	Support
1	The TU-2 pointer is carried in bytes V1 and V2 of payload specific OH per 500 μs multiframe.	9.3.1.4, figure 100	m	
2	The TU-2 pointer is aligned in the P4s payload in fixed positions relative to the P4s frame and multiframe.	9.3.1.4	m	
3	The format of the TU-2 pointer and its location in the frame/multiframe are defined in ETS 300 337.	9.3.1.4, ETS 300 337	m	
4	The function generates the TU-2 pointer as described in EN 300 417-1-1 annex A.	9.3.1.4, EN 300 417-1-1 annex A	m	
5	The SS field of the pointer is set to 00 to indicate TU-2.	9.3.1.4	m	

Table G.41: Activation of TUG3/S2_A_So functions and timeslot access

Item	Activation of TUG3/S2_A_So functions and timeslot access	Reference	Status	Support
1	The adaptation source function has access to a specific TU-2 of the TUG3 access point. The TU-2 is defined by the parameters K and L (K=A,B, L=1 to 7 and K=C, L=1 to 5).	9.3.1.4	m	
2	The function accesses the access point only when it is activated (MI_Active is true).	9.3.1.4	c4101	

c4101: IF G.37/1 THEN m ELSE n/a -- TUG3/S2_A_So_MI_Active provisionable

G.4.3.1.4.3 Consequent actions (TUG3/S2_A_So)

Table G.42: Consequent actions for TUG3/S2_A_So

Item	Consequent actions for TUG3/S2_A_So	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- CI_SSF.	9.3.1.4	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 1 ms.	9.3.1.4	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	9.3.1.4	m	

G.4.3.1.5 TUG3 to S12 Adaptation Source TUG3/S12_A_So

Prerequisite: G.1/14 -- TUG3 to VC-12 adaptation source function exists

G.4.3.1.5.1 Management information (TUG3/S12_A_So)

Table G.43: Configuration/provisioning information from EMF to TUG3/S12_A_So

Item	Configuration/provisioning information from EMF to TUG3/S12_A_So	Reference	Status	Support
1	TUG3/S12_A_So_MI_Active is provisionable from the EMF.	9.3.1.5	c4301	
2	The function can be activated (TUG3/S12_A_So_MI_Active is TRUE) and deactivated (TUG3/S12_A_So_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	9.3.1.5	c4302	

c4301: IF (G.1/14 AND G.1/16) THEN m ELSE n/a -- multiple TUG3 to VC-12 or VC-11 Adaptation Source functions exist

c4302: IF G.43/1 THEN m ELSE n/a -- TUG3/S12_A_So_MI_Active provisionable

G.4.3.1.5.2 Processes (TUG3/S12_A_So)

Table G.44: Adaptation process for TUG3/S12_A_So

Item	Adaptation process for TUG3/S12_A_So	Reference	Status	Support
1	This function provides frequency justification and bitrate adaptation for a VC-12 signal, represented by a nominally (140 × 64 / 4) = 2 240 kbit/s information stream with a frequency accuracy within ± 4,6 ppm and the related frame phase, to be multiplexed into a P4s signal via a TU-12.	9.3.1.5	m	
2	The (500 µs) frame phase of the VC-12 is coded in the related TU-12 pointer.	9.3.1.5	m	

Table G.45: Frequency justification and bitrate adaptation for TUG3/S12_A_So

Item	Frequency justification and bitrate adaptation for TUG3/S12_A_So	Reference	Status	Support
1	The function provides for an elastic store (buffer) process.	9.3.1.5	m	
2	The data and frame start signals is written into the buffer under control of the associated input clock.	9.3.1.5	m	
3	The data and frame start signals are read out of the buffer under control of the P4s clock, frame position, and justification decision.	9.3.1.5	m	
4	Upon a positive justification action, the reading of 8 data bits are cancelled once and no data are written at the justification opportunity position V3+1.	9.3.1.5, figure 102	m	
5	Upon a negative justification action, an extra 8 data bits are read out once into the justification opportunity position V3.	9.3.1.5, figure 102	m	

Table G.46: Pointer generation for TUG3/S12_A_So

Item	Pointer generation for TUG3/S12_A_So	Reference	Status	Support
1	The TU-12 pointer is carried in bytes V1 and V2 of payload specific OH per 500 µs multiframe.	9.3.1.5, figure 102	m	
2	The TU-12 pointer is aligned in the P4s payload in fixed positions relative to the P4s frame and multiframe.	9.3.1.5	m	
3	The format of the TU-12 pointer and its location in the frame/multiframe are defined in ETS 300 337.	9.3.1.5, ETS 300 337	m	
4	The function generates the TU-12 pointer as described in EN 300 417-1-1 annex A.	9.3.1.5, EN 300 417-1-1 annex A	m	
5	The SS field of the pointer is set to 10 to indicate TU-12.	9.3.1.5	m	

Table G.47: Activation of TUG3/S12_A_So functions and timeslot access

Item	Activation of TUG3/S12_A_So functions and timeslot access	Reference	Status	Support
1	The adaptation source function has access to a specific TU-12 of the TUG3 access point. The TU-12 is defined by the parameters K, L and M (K=A to C, L=1 to 7, M=1 to 3).	9.3.1.5	m	
2	The function accesses the access point only when it is activated (MI_Active is true).	9.3.1.5	c4701	

c4701: IF G.43/1 THEN m ELSE n/a -- TUG3/S12_A_So_MI_Active provisionable

G.4.3.1.5.3 Consequent actions (TUG3/S12_A_So)

Table G.48: Consequent actions for TUG3/S12_A_So

Item	Consequent actions for TUG3/S12_A_So	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- CI_SSF.	9.3.1.5	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 1 ms.	9.3.1.5	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	9.3.1.5	m	

G.4.3.1.6 TUG3 to S11 Adaptation Source TUG3/S11*_A_So

Prerequisite: G.1/16 -- TUG3 to VC-11 adaptation source function exists

G.4.3.1.6.1 Management information (TUG3/S11*_A_So)

Table G.49: Configuration/provisioning information from EMF to TUG3/S11*_A_So

Item	Configuration/provisioning information from EMF to TUG3/S11*_A_So	Reference	Status	Support
1	TUG3/S11*_A_So_MI_Active is provisionable from the EMF.	9.3.1.6	c4901	
2	The function can be activated (TUG3/S11*_A_So_MI_Active is TRUE) and deactivated (TUG3/S11*_A_So_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	9.3.1.6	c4902	

c4901: IF (G.1/14 AND G.1/16) THEN m ELSE n/a -- multiple TUG3 to VC-12 or VC-11 Adaptation Source functions exist

c4902: IF G.49/1 THEN m ELSE n/a -- TUG3/S11*_A_So_MI_Active provisionable

G.4.3.1.6.2 Processes (TUG3/S11*_A_So)

Table G.50: Adaptation process for TUG3/S11*_A_So

Item	Adaptation process for TUG3/S11*_A_So	Reference	Status	Support
1	This function provides frequency justification and bitrate adaptation for a VC-11 signal, represented by a nominally (104 × 64 / 4) = 1 664 kbit/s information stream with a frequency accuracy within ± 4,6 ppm and the related frame phase, to be multiplexed into a P4s signal via a TU-12.	9.3.1.6	m	
2	This function adds 9 bytes of fixed stuff per 125 μs to the VC-11 as specified by ETS 300 147 to map the VC-11 into the TU-12 payload.	9.3.1.6, figure 104, ETS 300 147	m	
3	The (500 μs) frame phase of the VC-11 is coded in the related TU-12 pointer.	9.3.1.6	m	

Table G.51: Frequency justification and bitrate adaptation for TUG3/S11*_A_So

Item	Frequency justification and bitrate adaptation for TUG3/S11*_A_So	Reference	Status	Support
1	The function provides for an elastic store (buffer) process.	9.3.1.6	m	
2	The data and frame start signals is written into the buffer under control of the associated input clock.	9.3.1.6	m	
3	The data and frame start signals are read out of the buffer under control of the P4s clock, frame position, and justification decision.	9.3.1.6	m	
4	Upon a positive justification action, the reading of 8 data bits are cancelled once and no data are written at the justification opportunity position V3+1.	9.3.1.6, figure 104	m	
5	Upon a negative justification action, an extra 8 data bits are read out once into the justification opportunity position V3.	9.3.1.6, figure 104	m	

Table G.52: Pointer generation for TUG3/S11*_A_So

Item	Pointer generation for TUG3/S11*_A_So	Reference	Status	Support
1	The TU-12 pointer is carried in bytes V1 and V2 of payload specific OH per 500 μs multiframe.	9.3.1.6, figure 104	m	
2	The TU-12 pointer is aligned in the P4s payload in fixed positions relative to the P4s frame and multiframe.	9.3.1.6	m	
3	The format of the TU-12 pointer and its location in the frame/multiframe are defined in ETS 300 337.	9.3.1.6, ETS 300 337	m	
4	The function generates the TU-12 pointer as is described in EN 300 417-1-1 annex A.	9.3.1.6, EN 300 417-1-1 annex A	m	
5	The SS field of the pointer is set to 10 to indicate TU-12.	9.3.1.6	m	

Table G.53: Activation of TUG3/S11*_A_So functions and timeslot access

Item	Activation of TUG3/S11*_A_So functions and timeslot access	Reference	Status	Support
1	The adaptation source function has access to a specific TU-12 of the TUG access point. The TU-12 is defined by the parameters K, L and M (K=A to C, L=1 to 7, M=1 to 3).	9.3.1.6	m	
2	The function accesses the access point only when it is activated (MI_Active is true).	9.3.1.6	c5301	

c5301: IF G.49/1 THEN m ELSE n/a -- TUG3/S11*_A_So_MI_Active provisionable

G.4.3.1.6.3 Consequent actions (TUG3/S11*_A_So)

Table G.54: Consequent actions for TUG3/S11*_A_So

Item	Consequent actions for TUG3/S11*_A_So	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- CI_SSF.	9.3.1.6	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 1 ms.	9.3.1.6	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	9.3.1.6	m	

G.4.3.2 P4s to VC-3, VC-2, VC-12, VC-11 Compound Adaptation Sink P4s/SX-TUG3_A_Sk

Prerequisite: G.1/5 -- P4s to VC-3, VC-2, VC-12, VC-11 adaptation Sink function exists

Table G.55: Number of out puts for P4s/SX-TUG3_A_Sk

Item	Number of out puts for P4s/SX-TUG3_A_Sk	Reference	Status	Support
1	The maximum number of S3_CI outputs is 2.	9.3.2	c5501	
2	The maximum number of S2_CI outputs is 19.	9.3.2	c5502	
3	The maximum number of S12_CI outputs is 57.	9.3.2	c5503	
4	The maximum number of S11_CI outputs is 57.	9.3.2	c5504	

c5501: IF G.1/11 THEN m ELSE n/a -- TUG3/S3_A_Sk functions exist
c5502: IF G.1/13 THEN m ELSE n/a -- TUG3/S2_A_Sk functions exist
c5503: IF G.1/15 THEN m ELSE n/a -- TUG3/S12_A_Sk functions exist
c5504: IF G.1/17 THEN m ELSE n/a -- TUG3/S11*_A_Sk functions exist

Table G.56: Adaptation process for P4s/SX-TUG3_A_Sk

Item	Adaptation process for P4s/SX-TUG3_A_Sk	Reference	Status	Support
1	The P4s/SX-TUG3_A_Sk compound function provides adaptation from the VC-3/2/12/11 layers to the P4s layer. This process is performed by a combination of several atomic functions as shown in figure 106.	9.3.2, figure 106	m	
2	All possible TUG3/Sm_A_Sk (m=3, 2, 12, 11*) functions within a P4s/SX-TUG3_A_Sk compound function are listed in table 71.	9.3.2, table 71	m	
3	Only one of TUG3/Sm_A_Sk (m=3, 2, 12, 11*) functions is allowed to access to the same TU timeslot at a time.	9.3.2	m	

G.4.3.2.1 P4s to TUG3 Adaptation Sink P4s/TUG3_A_Sk

Prerequisite: G.1/7 - P4s to TUG3 adaptation sink function exists

G.4.3.2.1.1 Management information (P4s/TUG3_A_Sk)

Table G.57: Configuration/provisioning information from EMF to P4s/TUG3_A_Sk

Item	Configuration/provisioning information from EMF to P4s/TUG3_A_Sk	Reference	Status	Support
1	P4s/TUG3_A_Sk_MI_Active is provisionable from the EMF.	9.3.2.1	c5701	
2	The function can be activated (P4s/TUG3_A_Sk_MI_Active is TRUE) and deactivated (P4s/TUG3_A_Sk_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	9.3.2.1	c5702	

c5701: IF G.2/2 THEN m ELSE n/a -- multiple Adaptation Sink functions exist
c5702: IF G.57/1 THEN m ELSE n/a -- P4s/TUG3_A_Sk_MI_Active provisionable

Table G.58: Signal reports from P4s/TUG3_A_Sk to EMF

Item	Signal reports from P4s/TUG3_A_Sk to EMF	Reference	Status	Support
1	P4s/TUG3_A_Sk_MI_cPLM is reported to the EMF.	9.3.2.1	m	
2	P4s/TUG3_A_Sk_MI_cLOM is reported to the EMF.	9.3.2.1	m	

G.4.3.2.1.2 Processes (P4s/TUG3_A_Sk)

Table G.59: Adaptation process for P4s/TUG3_A_Sk

Item	Adaptation process for P4s/TUG3_A_Sk	Reference	Status	Support
1	The function monitors two payload specific signals (bits MA[3-5] and MA[6-7]) of the P4s POH.	9.3.2.1	m	

Table G.60: Signal Label processing for P4s/TUG3_A_Sk

Item	Signal Label processing for P4s/TUG3_A_Sk	Reference	Status	Support
1	The function compares the content of the accepted MA[3-5] bits with the expected value code "100" (SDH elements mapping II: 2 x TUG-3 and 5 x TUG-2 structure).	9.3.2.1	m	
2	The comparison is made as described in EN 300 417-1-1, subclauses 7.2 and 8.1.2.	9.3.2.1, EN 300 417-1-1 subclause 7.2, subclause 8.1.2	m	

Table G.61: Multiframe Start recovery for P4s/TUG3_A_Sk

Item	Multiframe Start recovery for P4s/TUG3_A_Sk	Reference	Status	Support
1	The function recovers the 500 µs (multi)frame start phase performing multi-frame alignment on bits 6 and 7 of byte MA.	9.3.2.1	m	
2	Out-of-multiframe (OOM) is assumed once when an error is detected in the MA bit 6 and 7 sequence.	9.3.2.1	m	
3	Multiframe alignment is assumed to be recovered, and the in-multiframe (IM) state is entered, when in four consecutive P4s frames an error free MA sequence is found.	9.3.2.1	m	

Table G.62: Activation of P4s/TUG3_A_Sk function

Item	Activation of P4s/TUG3_A_Sk function	Reference	Status	Support
1	The function performs the operation specified above when it is activated (MI_Active is true).	9.3.2.1	c6201	
2	When the function is not active it activates the SSF signal at its output (CI_SSF_TU3 and CI_SSF_TUG2) and does not report its status via the management point.	9.3.2.1	m	

c6201: IF G.57/1 THEN m ELSE n/a -- P4s/TUG3_A_Sk_MI_Active provisionable

G.4.3.2.1.3 Defects (P4s/TUG3_A_Sk)

Table G.63: Defects for P4s/TUG3_A_Sk function

Item	Defects for P4s/TUG3_A_Sk function	Reference	Status	Support
1	The function detects the dPLM defect according to the specification in EN 300 417-1-1, 8.2.1.	9.3.2.1, EN 300 417-1-1 subclause 8.2.1	m	
2	If the multiframe alignment process is in the OOM state and the MA[6-7] multiframe is not recovered within X ms, a dLOM defect is declared.	9.3.2.1	m	
3	Once in a dLOM state, this state is exited when the multiframe is recovered (multiframe alignment process enter the IM state).	9.3.2.1	m	
4	The value of X is not configurable.	9.3.2.1	m	

Table G.64: Value of X parameter for P4s/TUG3_A_Sk

Item	Value of X parameter for P4s/TUG3_A_Sk	Reference	Status	Support	Values	
					Allowed	Supported
1	Value of X parameter	9.3.2.1	m		1 ms ≤ X ≤ 5 ms	

G.4.3.2.2 TUG3 Termination Sink TUG3_T_Sk

Table G.65: TUG3 Termination Sink function

Item	TUG3 Termination Sink function	Reference	Status	Support
1	No requirements	9.3.2.2	n/a	

G.4.3.2.2.1 Consequent actions (TUG3_T_Sk)

Table G.66: Consequent actions for TUG3_T_Sk

Item	Consequent actions for TUG3_T_Sk	Reference	Status	Support
1	The function implements the following logical equation: aTSF_TUG2 <-- CI_SSF_TUG2.	9.3.2.2	m	
2	The function implements the following logical equation: aTSF_TU3 <-- CI_SSF_TU3.	9.3.2.2	m	

G.4.3.2.3 TUG3 to S3 Adaptation Sink TUG3/S3_A_Sk

Prerequisite: G.1/11 -- TUG3 to VC-3 adaptation Sink function exists

G.4.3.2.3.1 Management information (TUG3/S3_A_Sk)

Table G.67: Configuration/provisioning information from EMF to TUG3/S3_A_Sk

Item	Configuration/provisioning information from EMF to TUG3/S3_A_Sk	Reference	Status	Support
1	TUG3/S3_A_Sk_MI_Active is provisionable from the EMF.	9.3.2.3	m	
2	The function can be activated (TUG3/S3_A_Sk_MI_Active is TRUE) and deactivated (TUG3/S3_A_Sk_MI_Active is FALSE).	9.3.2.3	c6701	
3	TUG3/S3_A_Sk_MI_AIS_Reported is provisionable from the EMF.	9.3.2.3	m	
4	TUG3/S3_A_Sk_MI_TSF_TU3 is provisionable from the EMF.	9.3.2.3	m	

c6701: IF G.67/1 THEN m ELSE n/a -- TUG3/S3_A_Sk_MI_Active provisionable

Table G.68: Signal reports from TUG3/S3_A_Sk to EMF

Item	Signal reports from TUG3/S3_A_Sk to EMF	Reference	Status	Support
1	TUG3/S3_A_Sk_MI_cAIS is reported to the EMF.	9.3.2.3	m	
2	TUG3/S3_A_Sk_MI_cLOP is reported to the EMF.	9.3.2.3	m	

G.4.3.2.3.2 Processes (TUG3/S3_A_Sk)

Table G.69: Adaptation process for TUG3/S3_A_Sk

Item	Adaptation process for TUG3/S3_A_Sk	Reference	Status	Support
1	This function recovers the VC-3 data with frame phase information from a TU-3.	9.3.2.3	m	

Table G.70: Pointer interpretation for TUG3/S3_A_Sk

Item	Pointer interpretation for TUG3/S3_A_Sk	Reference	Status	Support
1	The function performs TU-3 pointer interpretation as specified in annex B in EN 300 417-1-1 to recover the VC-3 frame phase within a TU-3 of a P4s.	9.3.2.3, EN 300 417-1-1 annex B	m	

Table G.71: Activation of TUG3/S3_A_Sk functions and timeslot access

Item	Activation of TUG3/S3_A_Sk functions and timeslot access	Reference	Status	Support
1	The adaptation sink function has access to a specific TU-3 of the TUG3 access point. The TU-3 is defined by the parameter K (K=A, B).	9.3.2.3	m	
2	The function performs the operation specified above when it is activated (MI_Active is true).	9.3.2.3	c7101	
3	When the function is not active it transmits the all-ONEs signal at its output (CI_D) and does not report its status via its management point.	9.3.2.3	m	

c7101: IF G.67/1 THEN m ELSE n/a -- TUG3/S3_A_Sk_MI_Active provisionable

G.4.3.2.3.3 Defects (TUG3/S3_A_Sk)

Table G.72: Defects for TUG3/S3_A_Sk

Item	Defects for TUG3/S3_A_Sk	Reference	Status	Support
1	The function detects the dAIS defect according to the algorithm described under the pointer interpreter process in EN 300 417-1-1 annex B.	9.3.2.3, EN 300 417-1-1 annex B	m	
2	The function detects the dLOP defect according to the algorithm described under the pointer interpreter process in EN 300 417-1-1 annex B.	9.3.2.3, EN 300 417-1-1 annex B	m	

G.4.3.2.3.4 Consequent actions (TUG3/S3_A_Sk)

Table G.73: Consequent actions for TUG3/S3_A_Sk

Item	Consequent actions for TUG3/S3_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- dAIS or dLOP or AI_TSF_TU3.	9.3.2.3	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 250 µs.	9.3.2.3	m	
3	On clearing of aAIS the function outputs normal data within 250 µs.	9.3.2.3	m	
4	The function implements the following logical equation: aSSF <-- dAIS or dLOP or AI_TSF_TU3.	9.3.2.3	m	

G.4.3.2.3.5 Defect Correlations (TUG3/S3_A_Sk)

Table G.74: Defect Correlations for TUG3/S3_A_Sk

Item	Defect Correlations for TUG3/S3_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: cAIS <-- dAIS and (not AI_TSF_TU3) and AIS_Reported.	9.3.2.3	c7401	
2	The function implements the following logical equation: cLOP <-- dLOP and (not AI_TSF_TU3).	9.3.2.3	c7402	

c7401: IF F.68/1 THEN m ELSE n/a -- cAIS is reported
c7402: IF F.68/2 THEN m ELSE n/a -- cLOP is reported

G.4.3.2.4 TUG3 to S2 Adaptation Sink TUG3/S2_A_Sk

Prerequisite: G.1/13 -- TUG3 to VC-2 adaptation Sink function exists

G.4.3.2.4.1 Management information (TUG3/S2_A_Sk)

Table G.75: Configuration/provisioning information from EMF to TUG3/S2_A_Sk

Item	Configuration/provisioning information from EMF to TUG3/S2_A_Sk	Reference	Status	Support
1	TUG3/S2_A_Sk_MI_Active is provisionable from the EMF.	9.3.2.4	m	
2	The function can be activated (TUG3/S2_A_Sk_MI_Active is TRUE) and deactivated (TUG3/S2_A_Sk_MI_Active is FALSE).	9.3.2.4	c7501	
3	TUG3/S2_A_Sk_MI_AIS_Reported is provisionable from the EMF.	9.3.2.4	m	
4	TUG3/S2_A_Sk_MI_TSF_TUG2 is provisionable from the EMF.	9.3.2.4	m	

c7501: IF G.91/1 THEN m ELSE n/a -- TUG3/S2_A_Sk_MI_Active provisionable

Table G.76: Signal reports from TUG3/S2_A_Sk to EMF

Item	Signal reports from TUG3/S2_A_Sk to EMF	Reference	Status	Support
1	TUG3/S2_A_Sk_MI_cAIS is reported to the EMF.	9.3.2.4	m	
2	TUG3/S2_A_Sk_MI_cLOP is reported to the EMF.	9.3.2.4	m	

G.4.3.2.4.2 Processes (TUG3/S2_A_Sk)

Table G.77: Adaptation process for TUG3/S2_A_Sk

Item	Adaptation process for TUG3/S2_A_Sk	Reference	Status	Support
1	This function recovers the VC-2 data with frame phase information from a TU-2.	9.3.2.4	m	

Table G.78: Pointer interpretation for TUG3/S2_A_Sk

Item	Pointer interpretation for TUG3/S2_A_Sk	Reference	Status	Support
1	The function performs TU-2 pointer interpretation as specified in annex B in EN 300 417-1-1 to recover the VC-2 frame phase within a TU-2 of a P4s.	9.3.2.4, EN 300 417-1-1 annex B	m	

Table G.79: Activation of TUG3/S2_A_Sk functions and timeslot access

Item	Activation of TUG3/S2_A_Sk functions and timeslot access	Reference	Status	Support
1	The adaptation sink function has access to a specific TU-2 of the TUG3 access point. The TU-2 is defined by the parameters K and L (K=A,B, L=1 to 7 and K=C, L=1to 5).	9.3.2.4	m	
2	The function performs the operation specified above when it is activated (MI_Active is true).	9.3.2.4	c7901	
3	When the function is not active it transmits the all-ONEs signal at its output (CI_D) and does not report its status via its management point.	9.3.2.4	m	

c7901: IF G.91/1 THEN m ELSE n/a -- TUG3/S2_A_Sk_MI_Active provisionable

G.4.3.2.4.3 Defects (TUG3/S2_A_Sk)

Table G.80: Defects for TUG3/S2_A_Sk

Item	Defects for TUG3/S2_A_Sk	Reference	Status	Support
1	The function detects the dAIS defect according to the algorithm described under the pointer interpreter process in EN 300 417-1-1 annex B.	9.3.2.4, EN 300 417-1-1 annex B	m	
2	The function detects the dLOP defect according to the algorithm described under the pointer interpreter process in EN 300 417-1-1 annex B.	9.3.2.4, EN 300 417-1-1 annex B	m	

G.4.3.2.4.4 Consequent actions (TUG3/S2_A_Sk)

Table G.81: Consequent actions for TUG3/S2_A_Sk

Item	Consequent actions for TUG3/S2_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- dAIS or dLOP or AI_TSF_TUG2.	9.3.2.4	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 1 ms.	9.3.2.4	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	9.3.2.4	m	
4	The function implements the following logical equation: aSSF <-- dAIS or dLOP or AI_TSF_TUG2.	9.3.2.4	m	

G.4.3.2.4.5 Defect Correlations (TUG3/S2_A_Sk)

Table G.82: Defect Correlations for TUG3/S2_A_Sk

Item	Defect Correlations for TUG3/S2_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: cAIS <-- dAIS and (not AI_TSF_TUG2) and AIS_Reported.	9.3.2.4	c8201	
2	The function implements the following logical equation: cLOP <-- dLOP and (not AI_TSF_TUG2).	9.3.2.4	c8202	

c8201: IF F.92/1 THEN m ELSE n/a -- cAIS is reported
c8202: IF F.92/2 THEN m ELSE n/a -- cLOP is reported

G.4.3.2.5 TUG3 to S12 Adaptation Sink TUG3/S12_A_Sk

Prerequisite: G.1/15 -- TUG3 to VC-12 adaptation Sink function exists

G.4.3.2.5.1 Management information (TUG3/S12_A_Sk)

Table G.83: Configuration/provisioning information from EMF to TUG3/S12_A_Sk

Item	Configuration/provisioning information from EMF to TUG3/S12_A_Sk	Reference	Status	Support
1	TUG3/S12_A_Sk_MI_Active is provisionable from the EMF.	9.3.2.5	m	
2	The function can be activated (TUG3/S12_A_Sk_MI_Active is TRUE) and deactivated (TUG3/S12_A_Sk_MI_Active is FALSE).	9.3.2.5	c8301	
3	TUG3/S12_A_Sk_MI_AIS_Reported is provisionable from the EMF.	9.3.2.5	m	
4	TUG3/S12_A_Sk_MI_TSF_TUG2 is provisionable from the EMF.	9.3.2.5	m	

c8301: IF G.91/1 THEN m ELSE n/a -- TUG3/S12_A_Sk_MI_Active provisionable

Table G.84: Signal reports from TUG3/S12_A_Sk to EMF

Item	Signal reports from TUG3/S12_A_Sk to EMF	Reference	Status	Support
1	TUG3/S12_A_Sk_MI_cAIS is reported to the EMF.	9.3.2.5	m	
2	TUG3/S12_A_Sk_MI_cLOP is reported to the EMF.	9.3.2.5	m	

G.4.3.2.5.2 Processes (TUG3/S12_A_Sk)

Table G.85: Adaptation process for TUG3/S12_A_Sk

Item	Adaptation process for TUG3/S12_A_Sk	Reference	Status	Support
1	This function recovers the VC-12 data with frame phase information from a TU-12.	9.3.2.5	m	

Table G.86: Pointer interpretation for TUG3/S12_A_Sk

Item	Pointer interpretation for TUG3/S12_A_Sk	Reference	Status	Support
1	The function performs TU-12 pointer interpretation as specified in annex B in EN 300 417-1-1 to recover the VC-12 frame phase within a TU-12 of a P4s.	9.3.2.5, EN 300 417-1-1 annex B	m	

Table G.87: Activation of TUG3/S12_A_Sk functions and timeslot access

Item	Activation of TUG3/S12_A_Sk functions and timeslot access	Reference	Status	Support
1	The adaptation sink function has access to a specific TU-12 of the TUG3 access point. The TU-12 is defined by the parameters K, L and M (K=A to C, L=1 to 7, M=1 to 3).	9.3.2.5	m	
2	The function performs the operation specified above when it is activated (MI_Active is true).	9.3.2.5	c8701	
3	When the function is not active it transmits the all-ONEs signal at its output (CI_D) and does not report its status via its management point.	9.3.2.5	m	

c8701: IF G.91/1 THEN m ELSE n/a -- TUG3/S12_A_Sk_MI_Active provisionable

G.4.3.2.5.3 Defects (TUG3/S12_A_Sk)

Table G.88: Defects for TUG3/S12_A_Sk

Item	Defects for TUG3/S12_A_Sk	Reference	Status	Support
1	The function detects the dAIS defect according to the algorithm described under the pointer interpreter process in EN 300 417-1-1 annex B.	9.3.2.5, EN 300 417-1-1 annex B	m	
2	The function detects the dLOP defect according to the algorithm described under the pointer interpreter process in EN 300 417-1-1 annex B.	9.3.2.5, EN 300 417-1-1 annex B	m	

G.4.3.2.5.4 Consequent actions (TUG3/S12_A_Sk)

Table G.89: Consequent actions for TUG3/S12_A_Sk

Item	Consequent actions for TUG3/S12_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- dAIS or dLOP or AI_TSF_TUG2.	9.3.2.5	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 1 ms.	9.3.2.5	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	9.3.2.5	m	
4	The function implements the following logical equation: aSSF <-- dAIS or dLOP or AI_TSF_TUG2.	9.3.2.5	m	

G.4.3.2.5.5 Defect Correlations (TUG3/S12_A_Sk)

Table G.90: Defect Correlations for TUG3/S12_A_Sk

Item	Defect Correlations for TUG3/S12_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: cAIS <-- dAIS and (not AI_TSF_TUG2) and AIS_Reported.	9.3.2.5	c9001	
2	The function implements the following logical equation: cLOP <-- dLOP and (not AI_TSF_TUG2).	9.3.2.5	c9002	

c9001: IF F.92/1 THEN m ELSE n/a -- cAIS is reported
c9002: IF F.92/2 THEN m ELSE n/a -- cLOP is reported

G.4.3.2.6 TUG3 to S11 Adaptation Sink TUG3/S11*_A_Sk

Prerequisite: G.1/17 -- TUG3 to VC-11 adaptation Sink function exists

G.4.3.2.6.1 Management information (TUG3/S11*_A_Sk)

Table G.91: Configuration/provisioning information from EMF to TUG3/S11*_A_Sk

Item	Configuration/provisioning information from EMF to TUG3/S11*_A_Sk	Reference	Status	Support
1	TUG3/S11*_A_Sk_MI_Active is provisionable from the EMF.	9.3.2.6	m	
2	The function can be activated (TUG3/S11*_A_Sk_MI_Active is TRUE) and deactivated (TUG3/S11*_A_Sk_MI_Active is FALSE).	9.3.2.6	c9101	
3	TUG3/S11*_A_Sk_MI_AIS_Reported is provisionable from the EMF.	9.3.2.6	m	
4	TUG3/S11*_A_Sk_MI_TSF_TUG2 is provisionable from the EMF.	9.3.2.6	m	

c9101: IF G.91/1 THEN m ELSE n/a -- TUG3/S11*_A_Sk_MI_Active provisionable

Table G.92: Signal reports from TUG3/S11*_A_Sk to EMF

Item	Signal reports from TUG3/S11*_A_Sk to EMF	Reference	Status	Support
1	TUG3/S11*_A_Sk_MI_cAIS is reported to the EMF.	9.3.2.6	m	
2	TUG3/S11*_A_Sk_MI_cLOP is reported to the EMF.	9.3.2.6	m	

G.4.3.2.6.2 Processes (TUG3/S11*_A_Sk)

Table G.93: Adaptation process for TUG3/S11*_A_Sk

Item	Adaptation process for TUG3/S11*_A_Sk	Reference	Status	Support
1	This function recovers the VC-11 data with frame phase information from a TU-12.	9.3.2.6	m	

Table G.94: Pointer interpretation for TUG3/S11*_A_Sk

Item	Pointer interpretation for TUG3/S11*_A_Sk	Reference	Status	Support
1	The function performs TU-12 pointer interpretation as specified in annex B in EN 300 417-1-1 to recover the VC-11 frame phase within a TU-12 of a P4s.	9.3.2.6, EN 300 417-1-1 annex B	m	

Table G.95: Activation of TUG3/S11*_A_Sk functions and timeslot access

Item	Activation of TUG3/S11*_A_Sk functions and timeslot access	Reference	Status	Support
1	The adaptation sink function has access to a specific TU-12 of the TUG3 access point. The TU-12 is defined by the parameters K, L and M (K=A to C, L=1 to 7,M=1 to 3).	9.3.2.6	m	
2	The function performs the operation specified above when it is activated (MI_Active is true).	9.3.2.6	c9501	
3	When the function is not active it transmits the all-ONEs signal at its output (CI_D) and does not report its status via its management point.	9.3.2.6	m	

c9501: IF G.91/1 THEN m ELSE n/a -- TUG3/S11*_A_Sk_MI_Active provisionable

G.4.3.2.6.3 Defects (TUG3/S11*_A_Sk)

Table G.96: Defects for TUG3/S11*_A_Sk

Item	Defects for TUG3/S11*_A_Sk	Reference	Status	Support
1	The function detects the dAIS defect according to the algorithm described under the pointer interpreter process in EN 300 417-1-1 annex B.	9.3.2.6, EN 300 417-1-1 annex B	m	
2	The function detects the dLOP defect according to the algorithm described under the pointer interpreter process in EN 300 417-1-1 annex B.	9.3.2.6, EN 300 417-1-1 annex B	m	

G.4.3.2.6.4 Consequent actions (TUG3/S11*_A_Sk)

Table G.97: Consequent actions for TUG3/S11*_A_Sk

Item	Consequent actions for TUG3/S11*_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- dAIS or dLOP or AI_TSF_TUG2.	9.3.2.6	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 1 ms.	9.3.2.6	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	9.3.2.6	m	
4	The function implements the following logical equation: aSSF <-- dAIS or dLOP or AI_TSF_TUG2.	9.3.2.6	m	

G.4.3.2.6.5 Defect Correlations (TUG3/S11*_A_Sk)

Table G.98: Defect Correlations for TUG3/S11*_A_Sk

Item	Defect Correlations for TUG3/S11*_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: cAIS <-- dAIS and (not AI_TSF_TUG2) and AIS_Reported.	9.3.2.6	c9801	
2	The function implements the following logical equation: cLOP <-- dLOP and (not AI_TSF_TUG2).	9.3.2.6	c9802	

c9801: IF F.92/1 THEN m ELSE n/a -- cAIS is reported
c9802: IF F.92/2 THEN m ELSE n/a -- cLOP is reported

G.4.3.3 P4s to VC-2, VC-12, VC-11 Compound Adaptation Source P4s/SX-TUG2_A_So

Prerequisite: G.1/18 -- P4s to VC-2, VC-12, VC-11 adaptation source function exists

Table G.99: Number of inputs for P4s/SX-TUG2_A_So

Item	Number of inputs for P4s/SX-TUG2_A_So	Reference	Status	Support
1	The maximum number of S2_CI inputs is 20.	9.3.3	c9901	
2	The maximum number of S12_CI inputs is 60.	9.3.3	c9902	
3	The maximum number of S11_CI inputs is 60.	9.3.3	c9903	

c9901: IF G.1/24 THEN m ELSE n/a -- TUG2/S2_A_So functions exist
c9902: IF G.1/26 THEN m ELSE n/a -- TUG2/S12_A_So functions exist
c9903: IF G.1/28 THEN m ELSE n/a -- TUG2/S11*_A_So functions exist

Table G.100: Adaptation process for P4s/SX-TUG2_A_So

Item	Adaptation process for P4s/SX-TUG2_A_So	Reference	Status	Support
1	The P4s/SX-TUG2_A_So compound function provides adaptation from the VC-2/12/11 layers to the P4s layer. This process is performed by a combination of several atomic functions as shown in figure 114.	9.3.3, figure 114	m	
2	All possible TUG2/Sm_A_So (m=2, 12, 11*) functions within a P4s/SX-TUG2_A_So compound function are listed in table 79.	9.3.3, table 79	m	
3	Only one of TUG2/Sm_A_So (m=2, 12, 11*) functions is allowed to access to the same TU timeslot at a time.	9.3.3	m	
4	P4s payload is always completely filled.	9.3.3	m	

G.4.3.3.1 P4s to TUG2 Adaptation Source P4s/TUG2_A_So

Prerequisite: G.1/20 - P4s to TUG2 adaptation source function exists

G.4.3.3.1.1 Management information (P4s/TUG2_A_So)

Table G.101: Configuration/provisioning information from EMF to P4s/TUG2_A_So

Item	Configuration/provisioning information from EMF to P4s/TUG2_A_So	Reference	Status	Support
1	P4s/TUG2_A_So_MI_Active is provisionable from the EMF.	9.3.3.1	c10101	
2	The function can be activated (P4s/TUG2_A_So_MI_Active is TRUE) and deactivated (P4s/TUG2_A_So_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	9.3.3.1	c10102	

c10101: IF G.2/1 THEN m ELSE n/a -- multiple Adaptation Source functions exist
c10102: IF G.101/1 THEN m ELSE n/a -- P4s/TUG2_A_So_MI_Active provisionable

G.4.3.3.1.2 Processes (P4s/TUG2_A_So)

Table G.102: Adaptation process for P4s/TUG2_A_So

Item	Adaptation process for P4s/TUG2_A_So	Reference	Status	Support
1	The function adds two payload specific signals (bits MA[3-5] and MA[6-7]) to the P4s POH as shown in figure 116.	9.3.3.1, figure 116	m	

Table G.103: Signal Label insertion for P4s/TUG2_A_So

Item	Signal Label insertion for P4s/TUG2_A_So	Reference	Status	Support
1	The function inserts in bits MA[3-5] the code "011" (SDH elements mapping I: 20 x TUG-2 structure) as defined in ETS 300 337.	9.3.3.1, ETS 300 337	m	
2	The value of the multiframe indicator MA[6-7] is set as specified by ETS 300 337 for 500 µs TU multiframe sequence, and aligned with TUG2_CI_MFS.	9.3.3.1, ETS 300 337	m	

Table G.104: Activation of P4s/TUG2_A_So function

Item	Activation of P4s/TUG2_A_So function	Reference	Status	Support
1	The function accesses the access point only when it is activated (MI_Active is true).	9.3.3.1	c10401	

c10401: IF G.101/1 THEN m ELSE n/a -- P4s/TUG2_A_So_MI_Active provisionable

G.4.3.3.2 TUG2 Termination Source TUG2_T_So

Table G.105: TUG2 Termination Source function

Item	TUG2 Termination Source function	Reference	Status	Support
1	No requirements	9.3.3.2	n/a	

G.4.3.3.3 TUG2 to S2 Adaptation Source TUG2/S2_A_So

Prerequisite: G.1/24 -- TUG2 to VC-2 adaptation source function exists

G.4.3.3.3.1 Management information (TUG2/S2_A_So)

Table G.106: Configuration/provisioning information from EMF to TUG2/S2_A_So

Item	Configuration/provisioning information from EMF to TUG2/S2_A_So	Reference	Status	Support
1	TUG2/S2_A_So_MI_Active is provisionable from the EMF.	9.3.3.3	m	
2	The function can be activated (TUG2/S2_A_So_MI_Active is TRUE) and deactivated (TUG2/S2_A_So_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	9.3.3.3	c10601	

c10601: IF G.106/1 THEN m ELSE n/a -- TUG2/S2_A_So_MI_Active provisionable

G.4.3.3.3.2 Processes (TUG2/S2_A_So)

Table G.107: Adaptation process for TUG2/S2_A_So

Item	Adaptation process for TUG2/S2_A_So	Reference	Status	Support
1	This function provides frequency justification and bitrate adaptation for a VC-2 signal, represented by a nominally (428 × 64/4) = 6 848 kbit/s information stream with a frequency accuracy within ± 4,6 ppm and the related frame phase, to be multiplexed into a P4s signal via a TU-2.	9.3.3.3	m	
2	The (500 µs) frame phase of the VC-2 is coded in the related TU-2 pointer.	9.3.3.3	m	

Table G.108: Frequency justification and bitrate adaptation for TUG2/S2_A_So

Item	Frequency justification and bitrate adaptation for TUG2/S2_A_So	Reference	Status	Support
1	The function provides for an elastic store (buffer) process.	9.3.3.3	m	
2	The data and frame start signals is written into the buffer under control of the associated input clock.	9.3.3.3	m	
3	The data and frame start signals are read out of the buffer under control of the P4s clock, frame position, and justification decision.	9.3.3.3	m	
4	Upon a positive justification action, the reading of 8 data bits are cancelled once and no data are written at the justification opportunity position V3+1.	9.3.3.3, figure 119	m	
5	Upon a negative justification action, an extra 8 data bits are read out once into the justification opportunity position V3.	9.3.3.3, figure 119	m	

Table G.109: Pointer generation for TUG2/S2_A_So

Item	Pointer generation for TUG2/S2_A_So	Reference	Status	Support
1	The TU-2 pointer is carried in bytes V1 and V2 of payload specific OH per 500 µs multiframe.	9.3.3.3, figure 119	m	
2	The TU-2 pointer is aligned in the P4s payload in fixed positions relative to the P4s frame and multiframe.	9.3.3.3	m	
3	The format of the TU-2 pointer and its location in the frame/multiframe are defined in ETS 300 337.	9.3.3.3, ETS 300 337	m	
4	The function generates the TU-2 pointer as is described in EN 300 417-1-1 annex A.	9.3.3.3, EN 300 417-1-1 annex A	m	
5	The SS field of the pointer is set to 00 to indicate TU-2.	9.3.3.3	m	

Table G.110: Activation of TUG2/S2_A_So functions and timeslot access

Item	Activation of TUG2/S2_A_So functions and timeslot access	Reference	Status	Support
1	The adaptation source function has access to a specific TU-2 of the TUG2 access point. The TU-2 is defined by the parameter L (L=1 to 20).	9.3.3.3	m	
2	The function accesses the access point only when it is activated (MI_Active is true).	9.3.3.3	c11001	

c11001: IF G.106/1 THEN m ELSE n/a -- TUG2/S2_A_So_MI_Active provisionable

G.4.3.3.3 Consequent actions (TUG2/S2_A_So)

Table G.111: Consequent actions for TUG2/S2_A_So

Item	Consequent actions for TUG2/S2_A_So	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- CI_SSF.	9.3.3.3	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 1 ms.	9.3.3.3	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	9.3.3.3	m	

G.4.3.3.4 TUG2 to S12 Adaptation Source TUG2/S12_A_So

Prerequisite: G.1/26 -- TUG2 to VC-12 adaptation source function exists

G.4.3.3.4.1 Management information (TUG2/S12_A_So)

Table G.112: Configuration/provisioning information from EMF to TUG2/S12_A_So

Item	Configuration/provisioning information from EMF to TUG2/S12_A_So	Reference	Status	Support
1	TUG2/S12_A_So_MI_Active is provisionable from the EMF.	9.3.3.4	c11201	
2	The function can be activated (TUG2/S12_A_So_MI_Active is TRUE) and deactivated (TUG2/S12_A_So_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	9.3.3.4	c11202	

c11201: IF (G.1/26 AND G.1/28) THEN m ELSE n/a -- multiple TUG2 to VC-12 or VC-11 Adaptation Source functions exist

c11202: IF G.112/1 THEN m ELSE n/a -- TUG2/S12_A_So_MI_Active provisionable

G.4.3.3.4.2 Processes (TUG2/S12_A_So)

Table G.113: Adaptation process for TUG2/S12_A_So

Item	Adaptation process for TUG2/S12_A_So	Reference	Status	Support
1	This function provides frequency justification and bitrate adaptation for a VC-12 signal, represented by a nominally (140 × 64 / 4) = 2 240 kbit/s information stream with a frequency accuracy within ± 4,6 ppm and the related frame phase, to be multiplexed into a P4s signal via a TU-12.	9.3.3.4	m	
2	The (500 µs) frame phase of the VC-12 is coded in the related TU-12 pointer.	9.3.3.4	m	

Table G.114: Frequency justification and bitrate adaptation for TUG2/S12_A_So

Item	Frequency justification and bitrate adaptation for TUG2/S12_A_So	Reference	Status	Support
1	The function provides for an elastic store (buffer) process.	9.3.3.4	m	
2	The data and frame start signals is written into the buffer under control of the associated input clock.	9.3.3.4	m	
3	The data and frame start signals are read out of the buffer under control of the P4s clock, frame position, and justification decision.	9.3.3.4	m	
4	Upon a positive justification action, the reading of 8 data bits are cancelled once and no data are written at the justification opportunity position V3+1.	9.3.3.4, figure 121	m	
5	Upon a negative justification action, an extra 8 data bits are read out once into the justification opportunity position V3.	9.3.3.4, figure 121	m	

Table G.115: Pointer generation for TUG2/S12_A_So

Item	Pointer generation for TUG2/S12_A_So	Reference	Status	Support
1	The TU-12 pointer is carried in bytes V1 and V2 of payload specific OH per 500 µs multiframe.	9.3.3.4, figure 121	m	
2	The TU-12 pointer is aligned in the P4s payload in fixed positions relative to the P4s frame and multiframe.	9.3.3.4	m	
3	The format of the TU-12 pointer and its location in the frame/multiframe are defined in ETS 300 337.	9.3.3.4, ETS 300 337	m	
4	The function generates the TU-12 pointer as is described in EN 300 417-1-1 annex A.	9.3.3.4, EN 300 417-1-1 annex A.	m	
5	The SS field of the pointer is set to 10 to indicate TU-12.	9.3.3.4	m	

Table G.116: Activation of TUG2/S12_A_So functions and timeslot access

Item	Activation of TUG2/S12_A_So functions and timeslot access	Reference	Status	Support
1	The adaptation source function has access to a specific TU-12 of the TUG2 access point. The TU-12 is defined by the parameters L and M (L=1 to 20, M=1 to 3).	9.3.3.4	m	
2	The function accesses the access point only when it is activated (MI_Active is true).	9.3.3.4	c11601	

c11601: IF G.112/1 THEN m ELSE n/a -- TUG2/S12_A_So_MI_Active provisionable

G.4.3.3.4.3 Consequent actions (TUG2/S12_A_So)

Table G.117: Consequent actions for TUG2/S12_A_So

Item	Consequent actions for TUG2/S12_A_So	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- CI_SSF.	9.3.3.4	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 1 ms.	9.3.3.4	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	9.3.3.4	m	

G.4.3.3.5 TUG2 to S11 Adaptation Source TUG2/S11*_A_So

Prerequisite: G.1/28 -- TUG2 to VC-11 adaptation source function exists

G.4.3.3.5.1 Management information (TUG2/S11*_A_So)

Table G.118: Configuration/provisioning information from EMF to TUG2/S11*_A_So

Item	Configuration/provisioning information from EMF to TUG2/S11*_A_So	Reference	Status	Support
1	TUG2/S11*_A_So_MI_Active is provisionable from the EMF.	9.3.3.5	c11801	
2	The function can be activated (TUG2/S11*_A_So_MI_Active is TRUE) and deactivated (TUG2/S11*_A_So_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	9.3.3.5	c11802	

c11801: IF (G.1/26 AND G.1/28) THEN m ELSE n/a -- multiple TUG2 to VC-12 or VC-11 Adaptation Source functions exist

c11802: IF G.118/1 THEN m ELSE n/a -- TUG2/S11*_A_So_MI_Active provisionable

G.4.3.3.5.2 Processes (TUG2/S11*_A_So)

Table G.119: Adaptation process for TUG2/S11*_A_So

Item	Adaptation process for TUG2/S11*_A_So	Reference	Status	Support
1	This function provides frequency justification and bitrate adaptation for a VC-11 signal, represented by a nominally (104 × 64 / 4) = 1 664 kbit/s information stream with a frequency accuracy within ± 4,6 ppm and the related frame phase, to be multiplexed into a P4s signal via a TU-12.	9.3.3.5	m	
2	This function adds 9 bytes of fixed stuff per 125 μs to the VC-11 as specified by ETS 300 147 to map the VC-11 into the TU-12 payload.	9.3.3.5, figure 123, ETS 300 147	m	
43	The (500 μs) frame phase of the VC-11 is coded in the related TU-12 pointer.	9.3.3.5	m	

Table G.120: Frequency justification and bitrate adaptation for TUG2/S11*_A_So

Item	Frequency justification and bitrate adaptation for TUG2/S11*_A_So	Reference	Status	Support
1	The function provides for an elastic store (buffer) process.	9.3.3.5	m	
2	The data and frame start signals is written into the buffer under control of the associated input clock.	9.3.3.5	m	
3	The data and frame start signals are read out of the buffer under control of the P4s clock, frame position, and justification decision.	9.3.3.5	m	
4	Upon a positive justification action, the reading of 8 data bits are cancelled once and no data are written at the justification opportunity position V3+1.	9.3.3.5, figure 123	m	
5	Upon a negative justification action, an extra 8 data bits are read out once into the justification opportunity position V3.	9.3.3.5, figure 123	m	

Table G.121: Pointer generation for TUG2/S11*_A_So

Item	Pointer generation for TUG2/S11*_A_So	Reference	Status	Support
1	The TU-12 pointer is carried in bytes V1 and V2 of payload specific OH per 500 μs multiframe.	9.3.3.5, figure 123	m	
2	The TU-12 pointer is aligned in the P4s payload in fixed positions relative to the P4s frame and multiframe.	9.3.3.5	m	
3	The format of the TU-12 pointer and its location in the frame/multiframe are defined in ETS 300 337.	9.3.3.5, ETS 300 337	m	
4	The function generates the TU-12 pointer as is described in EN 300 417-1-1 annex A.	9.3.3.5, EN 300 417-1-1 annex A.	m	
5	The SS field of the pointer is set to 10 to indicate TU-12.	9.3.3.5	m	

Table G.122: Activation of TUG2/S11*_A_So functions and timeslot access

Item	Activation of TUG2/S11*_A_So functions and timeslot access	Reference	Status	Support
1	The adaptation source function has access to a specific TU-12 of the TUG access point. The TU-12 is defined by the parameters L and M (L=1 to 20M=1 to 3).	9.3.3.5	m	
2	The function accesses the access point only when it is activated (MI_Active is true).	9.3.3.5	c12201	

c12201: IF G.118/1 THEN m ELSE n/a -- TUG2/S11*_A_So_MI_Active provisionable

G.4.3.3.5.3 Consequent actions (TUG2/S11*_A_So)

Table G.123: Consequent actions for TUG2/S11*_A_So

Item	Consequent actions for TUG2/S11*_A_So	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- CI_SSF.	9.3.3.5	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 1 ms.	9.3.3.5	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	9.3.3.5	m	

G.4.3.4 P4s to VC-2, VC-12, VC-11 Compound Adaptation Sink P4s/SX-TUG2_A_Sk

Prerequisite: G.1/19 -- P4s to VC-2, VC-12, VC-11 adaptation Sink function exists

Table G.124: Number of outputs for P4s/SX-TUG2_A_Sk

Item	Number of outputs for P4s/SX-TUG2_A_Sk	Reference	Status	Support
1	The maximum number of S2_CI outputs is 20.	9.3.4	c12401	
2	The maximum number of S12_CI outputs is 60.	9.3.4	c12402	
3	The maximum number of S11_CI outputs is 60.	9.3.4	c12403	

c12401: IF G.1/25 THEN m ELSE n/a -- TUG2/S2_A_Sk functions exist
c12402: IF G.1/27 THEN m ELSE n/a -- TUG2/S12_A_Sk functions exist
c12403: IF G.1/29 THEN m ELSE n/a -- TUG2/S11*_A_Sk functions exist

Table G.125: Adaptation process for P4s/SX-TUG2_A_Sk

Item	Adaptation process for P4s/SX-TUG2_A_Sk	Reference	Status	Support
1	The P4s/SX-TUG2_A_Sk compound function provides adaptation from the VC-2/12/11 layers to the P4s layer. This process is performed by a combination of several atomic functions as shown in figure 125.	9.3.4, figure 125	m	
2	All possible TUG2/Sm_A_Sk (m=2, 12, 11*) functions within a P4s/SX-TUG2_A_Sk compound function are listed in table 86.	9.3.4, table 86	m	
3	Only one of TUG2/Sm_A_Sk (m=2, 12, 11*) functions is allowed to access to the same TU timeslot at a time.	9.3.4	m	

G.4.3.4.1 P4s to TUG2 Adaptation Sink P4s/TUG2_A_Sk

Prerequisite: G.1/21 - P4s to TUG2 adaptation sink function exists

G.4.3.4.1.1 Management information (P4s/TUG2_A_Sk)

Table G.126: Configuration/provisioning information from EMF to P4s/TUG2_A_Sk

Item	Configuration/provisioning information from EMF to P4s/TUG2_A_Sk	Reference	Status	Support
1	P4s/TUG2_A_Sk_MI_Active is provisionable from the EMF.	9.3.4.1	c12601	
2	The function can be activated (P4s/TUG2_A_Sk_MI_Active is TRUE) and deactivated (P4s/TUG2_A_Sk_MI_Active is FALSE) when multiple payload adaptation functions are connected to the access point.	9.3.4.1	c12602	

c12601: IF G.2/2 THEN m ELSE n/a -- multiple Adaptation Sink functions exist
c12602: IF G.126/1 THEN m ELSE n/a -- P4s/TUG2_A_Sk_MI_Active provisionable

Table G.127: Signal reports from P4s/TUG2_A_Sk to EMF

Item	Signal reports from P4s/TUG2_A_Sk to EMF	Reference	Status	Support
1	P4s/TUG2_A_Sk_MI_cPLM is reported to the EMF.	9.3.4.1	m	
2	P4s/TUG2_A_Sk_MI_cLOM is reported to the EMF.	9.3.4.1	m	

G.4.3.4.1.2 Processes (P4s/TUG2_A_Sk)

Table G.128: Adaptation process for P4s/TUG2_A_Sk

Item	Adaptation process for P4s/TUG2_A_Sk	Reference	Status	Support
1	The function monitors two payload specific signals (bits MA[3-5] and MA[6-7]) of the P4s POH.	9.3.4.1	m	

Table G.129: Signal Label processing for P4s/TUG2_A_Sk

Item	Signal Label processing for P4s/TUG2_A_Sk	Reference	Status	Support
1	The function compares the content of the accepted MA[3-5] bits with the expected value code "011" (SDH elements mapping I: 20 x TUG-2 structure).	9.3.4.1	m	
2	The comparison is made as described in EN 300 417-1-1, subclauses 7.2 and 8.1.2.	9.3.4.1, EN 300 417-1-1 subclause 7.2, subclause 8.1.2	m	

Table G.130: Multiframe Start recovery for P4s/TUG2_A_Sk

Item	Multiframe Start recovery for P4s/TUG2_A_Sk	Reference	Status	Support
1	The function recovers the 500 μs (multi)frame start phase performing multi-frame alignment on bits 6 and 7 of byte MA.	9.3.4.1	m	
2	Out-of-multiframe (OOM) is assumed once when an error is detected in the MA bit 6 and 7 sequence.	9.3.4.1	m	
3	Multiframe alignment is assumed to be recovered, and the in-multiframe (IM) state is entered, when in four consecutive P4s frames an error free MA sequence is found.	9.3.4.1	m	

Table G.131: Activation of P4s/TUG2_A_Sk function

Item	Activation of P4s/TUG2_A_Sk function	Reference	Status	Support
1	The function performs the operation specified above when it is activated (MI_Active is true).	9.3.4.1	c13101	
2	When the function is not active it activates the SSF signal at its output (CI_SSF_TUG2) and does not report its status via the management point.	9.3.4.1	m	

c13101: IF G.126/1 THEN m ELSE n/a -- P4s/TUG2_A_Sk_MI_Active provisionable

G.4.3.4.1.3 Defects (P4s/TUG2_A_Sk)

Table G.132: Defects for P4s/TUG2_A_Sk function

Item	Defects for P4s/TUG2_A_Sk function	Reference	Status	Support
1	The function detects the dPLM defect according to the specification in EN 300 417-1-1, 8.2.1.	9.3.4.1, EN 300 417-1-1 subclause 8.2.1	m	
2	If the multiframe alignment process is in the OOM state and the MA[6-7] multiframe is not recovered within X ms, a dLOM defect is declared.	9.3.4.1	m	
3	Once in a dLOM state, this state is exited when the multiframe is recovered (multiframe alignment process enter the IM state).	9.3.4.1	m	
4	The value of X is not configurable.	9.3.4.1	m	

Table G.133: Value of X parameter for P4s/TUG2_A_Sk

Item	Value of X parameter for P4s/TUG2_A_Sk	Reference	Status	Support	Values	
					Allowed	Supported
1	Value of X parameter	9.3.4.1	m		1 ms ≤ X ≤ 5 ms	

G.4.3.4.2 TUG2 Termination Sink TUG2_T_Sk

Table G.134: TUG2 Termination Sink function

Item	TUG2 Termination Sink function	Reference	Status	Support
1	No requirements	9.3.4.2	n/a	

G.4.3.4.2.1 Consequent actions (TUG2_T_Sk)

Table G.135: Consequent actions for TUG2_T_Sk

Item	Consequent actions for TUG2_T_Sk	Reference	Status	Support
1	The function implements the following logical equation: aTSF <-- CI_SSF.	9.3.4.2	m	

G.4.3.4.3 TUG2 to S2 Adaptation Sink TUG2/S2_A_Sk

Prerequisite: G.1/25-- TUG2 to VC-2 adaptation Sink function exists

G.4.3.4.3.1 Management information (TUG2/S2_A_Sk)

Table G.136: Configuration/provisioning information from EMF to TUG2/S2_A_Sk

Item	Configuration/provisioning information from EMF to TUG2/S2_A_Sk	Reference	Status	Support
1	TUG2/S2_A_Sk_MI_Active is provisionable from the EMF.	9.3.4.3	m	
2	The function can be activated (TUG2/S2_A_Sk_MI_Active is TRUE) and deactivated (TUG2/S2_A_Sk_MI_Active is FALSE).	9.3.4.3	c13601	
3	TUG2/S2_A_Sk_MI_AIS_Reported is provisionable from the EMF.	9.3.4.3	m	

c13601: IF G.136/1 THEN m ELSE n/a -- TUG2/S2_A_Sk_MI_Active provisionable

Table G.137: Signal reports from TUG2/S2_A_Sk to EMF

Item	Signal reports from TUG2/S2_A_Sk to EMF	Reference	Status	Support
1	TUG2/S2_A_Sk_MI_cAIS is reported to the EMF.	9.3.4.3	m	
2	TUG2/S2_A_Sk_MI_cLOP is reported to the EMF.	9.3.4.3	m	

G.4.3.4.3.2 Processes (TUG2/S2_A_Sk)

Table G.138: Adaptation process for TUG2/S2_A_Sk

Item	Adaptation process for TUG2/S2_A_Sk	Reference	Status	Support
1	This function recovers the VC-2 data with frame phase information from a TU-2.	9.3.4.3	m	

Table G.139: Pointer interpretation for TUG2/S2_A_Sk

Item	Pointer interpretation for TUG2/S2_A_Sk	Reference	Status	Support
1	The function performs TU-2 pointer interpretation as specified in annex B in EN 300 417-1-1 to recover the VC-2 frame phase within a TU-2 of a P4s.	9.3.4.3, EN 300 417-1-1 annex B	m	

Table G.140: Activation of TUG2/S2_A_Sk functions and timeslot access

Item	Activation of TUG2/S2_A_Sk functions and timeslot access	Reference	Status	Support
1	The adaptation sink function has access to a specific TU-2 of the TUG2 access point. The TU-2 is defined by the parameters L (L=1 to 20).	9.3.4.3	m	
2	The function performs the operation specified above when it is activated (MI_Active is true).	9.3.4.3	c14001	
3	When the function is not active it transmits the all-ONEs signal at its output (CI_D) and does not report its status via its management point.	9.3.4.3	m	

c14001: IF G.136/1 THEN m ELSE n/a -- TUG2/S2_A_Sk_MI_Active provisionable

G.4.3.4.3.3 Defects (TUG2/S2_A_Sk)

Table G.141: Defects for TUG2/S2_A_Sk

Item	Defects for TUG2/S2_A_Sk	Reference	Status	Support
1	The function detects the dAIS defect according to the algorithm described under the pointer interpreter process in EN 300 417-1-1 annex B.	9.3.4.3, EN 300 417-1-1 annex B	m	
2	The function detects the dLOP defect according to the algorithm described under the pointer interpreter process in EN 300 417-1-1 annex B.	9.3.4.3, EN 300 417-1-1 annex B	m	

G.4.3.4.3.4 Consequent actions (TUG2/S2_A_Sk)

Table G.142: Consequent actions for TUG2/S2_A_Sk

Item	Consequent actions for TUG2/S2_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- dAIS or dLOP or AI_TSF.	9.3.4.3	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 1 ms.	9.3.4.3	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	9.3.4.3	m	
4	The function implements the following logical equation: aSSF <-- dAIS or dLOP or AI_TSF.	9.3.4.3	m	

G.4.3.4.3.5 Defect Correlations (TUG2/S2_A_Sk)

Table G.143: Defect Correlations for TUG2/S2_A_Sk

Item	Defect Correlations for TUG2/S2_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: cAIS <-- dAIS and (not AI_TSF) and AIS_Reported.	9.3.4.3	c14301	
2	The function implements the following logical equation: cLOP <-- dLOP and (not AI_TSF).	9.3.4.3	c14302	

c14301: IF F.137/1 THEN m ELSE n/a -- cAIS is reported
c14302: IF F.137/2 THEN m ELSE n/a -- cLOP is reported

G.4.3.4.4 TUG2 to S12 Adaptation Sink TUG2/S12_A_Sk

Prerequisite: G.1/27 -- TUG2 to VC-12 adaptation Sink function exists

G.4.3.4.4.1 Management information (TUG2/S12_A_Sk)

Table G.144: Configuration/provisioning information from EMF to TUG2/S12_A_Sk

Item	Configuration/provisioning information from EMF to TUG2/S12_A_Sk	Reference	Status	Support
1	TUG2/S12_A_Sk_MI_Active is provisionable from the EMF.	9.3.4.4	m	
2	The function can be activated (TUG2/S12_A_Sk_MI_Active is TRUE) and deactivated (TUG2/S12_A_Sk_MI_Active is FALSE).	9.3.4.4	c14401	
3	TUG2/S12_A_Sk_MI_AIS_Reported is provisionable from the EMF.	9.3.4.4	m	

c14401: IF G.144/1 THEN m ELSE n/a -- TUG2/S12_A_Sk_MI_Active provisionable

Table G.145: Signal reports from TUG2/S12_A_Sk to EMF

Item	Signal reports from TUG2/S12_A_Sk to EMF	Reference	Status	Support
1	TUG2/S12_A_Sk_MI_cAIS is reported to the EMF.	9.3.4.4	m	
2	TUG2/S12_A_Sk_MI_cLOP is reported to the EMF.	9.3.4.4	m	

G.4.3.4.4.2 Processes (TUG2/S12_A_Sk)

Table G.146: Adaptation process for TUG2/S12_A_Sk

Item	Adaptation process for TUG2/S12_A_Sk	Reference	Status	Support
1	This function recovers the VC-12 data with frame phase information from a TU-12.	9.3.4.4	m	

Table G.147: Pointer interpretation for TUG2/S12_A_Sk

Item	Pointer interpretation for TUG2/S12_A_Sk	Reference	Status	Support
1	The function performs TU-12 pointer interpretation as specified in annex B in EN 300 417-1-1 to recover the VC-12 frame phase within a TU-12 of a P4s.	9.3.4.4, EN 300 417-1-1 annex B	m	

Table G.148: Activation of TUG2/S12_A_Sk functions and timeslot access

Item	Activation of TUG2/S12_A_Sk functions and timeslot access	Reference	Status	Support
1	The adaptation sink function has access to a specific TU-12 of the TUG2 access point. The TU-12 is defined by the parameters L and M (L=1 to 20, M=1 to 3).	9.3.4.4	m	
2	The function performs the operation specified above when it is activated (MI_Active is true).	9.3.4.4	c14801	
3	When the function is not active it transmits the all-ONEs signal at its output (CI_D) and does not report its status via its management point.	9.3.4.4	m	

c14801: IF G.144/1 THEN m ELSE n/a -- TUG2/S12_A_Sk_MI_Active provisionable

G.4.3.4.4.3 Defects (TUG2/S12_A_Sk)

Table G.149: Defects for TUG2/S12_A_Sk

Item	Defects for TUG2/S12_A_Sk	Reference	Status	Support
1	The function detects the dAIS defect according to the algorithm described under the pointer interpreter process in EN 300 417-1-1 annex B.	9.3.4.4, EN 300 417-1-1 annex B	m	
2	The function detects the dLOP defect according to the algorithm described under the pointer interpreter process in EN 300 417-1-1 annex B.	9.3.4.4, EN 300 417-1-1 annex B	m	

G.4.3.4.4.4 Consequent actions (TUG2/S12_A_Sk)

Table G.150: Consequent actions for TUG2/S12_A_Sk

Item	Consequent actions for TUG2/S12_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- dAIS or dLOP or AI_TSF.	9.3.4.4	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 1 ms.	9.3.4.4	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	9.3.4.4	m	
4	The function implements the following logical equation: aSSF <-- dAIS or dLOP or AI_TSF.	9.3.4.4	m	

G.4.3.4.4.5 Defect Correlations (TUG2/S12_A_Sk)

Table G.151: Defect Correlations for TUG2/S12_A_Sk

Item	Defect Correlations for TUG2/S12_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: cAIS <-- dAIS and (not AI_TSF) and AIS_Reported.	9.3.4.4	c15101	
2	The function implements the following logical equation: cLOP <-- dLOP and (not AI_TSF).	9.3.4.4	c15102	

c15101: IF F.145/1 THEN m ELSE n/a -- cAIS is reported
c15102: IF F.145/2 THEN m ELSE n/a -- cLOP is reported

G.4.3.4.5 TUG2 to S11 Adaptation Sink TUG2/S11*_A_Sk

Prerequisite: G.1/29 -- TUG2 to VC-11 adaptation Sink function exists

G.4.3.4.5.1 Management information (TUG2/S11*_A_Sk)

Table G.152: Configuration/provisioning information from EMF to TUG2/S11*_A_Sk

Item	Configuration/provisioning information from EMF to TUG2/S11*_A_Sk	Reference	Status	Support
1	TUG2/S11*_A_Sk_MI_Active is provisionable from the EMF.	9.3.4.5	m	
2	The function can be activated (TUG2/S11*_A_Sk_MI_Active is TRUE) and deactivated (TUG2/S11*_A_Sk_MI_Active is FALSE).	9.3.4.5	c15201	
3	TUG2/S11*_A_Sk_MI_AIS_Reported is provisionable from the EMF.	9.3.4.5	m	

c15201: IF G.152/1 THEN m ELSE n/a -- TUG2/S11*_A_Sk_MI_Active provisionable

Table G.153: Signal reports from TUG2/S11*_A_Sk to EMF

Item	Signal reports from TUG2/S11*_A_Sk to EMF	Reference	Status	Support
1	TUG2/S11*_A_Sk_MI_cAIS is reported to the EMF.	9.3.4.5	m	
2	TUG2/S11*_A_Sk_MI_cLOP is reported to the EMF.	9.3.4.5	m	

G.4.3.4.5.2 Processes (TUG2/S11*_A_Sk)

Table G.154: Adaptation process for TUG2/S11*_A_Sk

Item	Adaptation process for TUG2/S11*_A_Sk	Reference	Status	Support
1	This function recovers the VC-11 data with frame phase information from a TU-12.	9.3.4.5	m	

Table G.155: Pointer interpretation for TUG2/S11*_A_Sk

Item	Pointer interpretation for TUG2/S11*_A_Sk	Reference	Status	Support
1	The function performs TU-12 pointer interpretation as specified in annex B in EN 300 417-1-1 to recover the VC-11 frame phase within a TU-12 of a P4s.	9.3.4.5, EN 300 417-1-1 annex B	m	

Table G.156: Activation of TUG2/S11*_A_Sk functions and timeslot access

Item	Activation of TUG2/S11*_A_Sk functions and timeslot access	Reference	Status	Support
1	The adaptation sink function has access to a specific TU-12 of the TUG2 access point. The TU-12 is defined by the parameters L and M (L=1 to 20, M=1 to 3).	9.3.4.5	m	
2	The function performs the operation specified above when it is activated (MI_Active is true).	9.3.4.5	c15601	
3	When the function is not active it transmits the all-ONEs signal at its output (CI_D) and does not report its status via its management point.	9.3.4.5	m	

c15601: IF G.152/1 THEN m ELSE n/a -- TUG2/S11*_A_Sk_MI_Active provisionable

G.4.3.4.5.3 Defects (TUG2/S11*_A_Sk)

Table G.157: Defects for TUG2/S11*_A_Sk

Item	Defects for TUG2/S11*_A_Sk	Reference	Status	Support
1	The function detects the dAIS defect according to the algorithm described under the pointer interpreter process in EN 300 417-1-1 annex B.	9.3.4.5, EN 300 417-1-1 annex B	m	
2	The function detects the dLOP defect according to the algorithm described under the pointer interpreter process in EN 300 417-1-1 annex B.	9.3.4.5, EN 300 417-1-1 annex B	m	

G.4.3.4.5.4 Consequent actions (TUG2/S11*_A_Sk)

Table G.158: Consequent actions for TUG2/S11*_A_Sk

Item	Consequent actions for TUG2/S11*_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- dAIS or dLOP or AI_TSF.	9.3.4.5	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 1 ms.	9.3.4.5	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	9.3.4.5	m	
4	The function implements the following logical equation: aSSF <-- dAIS or dLOP or AI_TSF.	9.3.4.5	m	

G.4.3.4.5.5 Defect Correlations (TUG2/S11*_A_Sk)

Table G.159: Defect Correlations for TUG2/S11*_A_Sk

Item	Defect Correlations for TUG2/S11*_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: cAIS <-- dAIS and (not AI_TSF) and AIS_Reported.	9.3.4.5	c15901	
2	The function implements the following logical equation: cLOP <-- dLOP and (not AI_TSF).	9.3.4.5	c15902	

c15901: IF F.153/1 THEN m ELSE n/a -- cAIS is reported
c15902: IF F.153/2 THEN m ELSE n/a -- cLOP is reported

G.4.3.5 P4s to P0s Adaptation Source P4s/P0s_A_So

Prerequisite: G.1/30 -- P4s to P0s adaptation source function exists

G.4.3.5.1 Management information (P4s/P0s_A_So)

Table G.160: Configuration/provisioning information from EMF to P4s/P0s_A_So

Item	Configuration/provisioning information from EMF to P4s/P0s_A_So	Reference	Status	Support
1	P4s/P0s_A_So_MI_Active is provisionable from the EMF.	9.3.5	c16001	
2	The function can be activated (P4s/P0s_A_So_MI_Active is TRUE) and deactivated (P4s/P0s_A_So_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	9.3.5	c16002	

c16001: IF G.2/1 THEN m ELSE n/a -- multiple Adaptation Source functions exist
c16002: IF G.160/1 THEN m ELSE n/a -- P4s/P0s_A_So_MI_Active provisionable

G.4.3.5.2 Processes (P4s/P0s_A_So)

Table G.161: Adaptation process for P4s/P0s_A_So

Item	Adaptation process for P4s/P0s_A_So	Reference	Status	Support
1	This function provides the multiplexing of the P0s_CI 64 kbit/s information stream, defined in ETS 300 166, into the P4s_AI using slip buffering.	9.3.5, ETS 300 166	m	
2	This function inserts it into the P4s POH byte GC as defined in ETS 300 337 and depicted in figure 53.	9.3.5, figure 88 ETS 300 337	m	

Table G.162: Activation of P4s/P0s_A_So functions

Item	Activation of P4s/P0s_A_So functions	Reference	Status	Support
1	The function accesses the access point only when it is activated (MI_Active is true).	9.3.5	c16201	

c16201: IF G.160/1 THEN m ELSE n/a -- P4s/P0s_A_So_MI_Active provisionable

Table G.163: Frequency justification and bitrate adaptation for P4s/P0s_A_So

Item	Frequency justification and bitrate adaptation for P4s/P0s_A_So	Reference	Status	Support
1	The function provides for an elastic store (buffer) process.	9.3.5	m	
2	The data and frame start signals is written into the buffer under control of the associated input clock.	9.3.5	m	
3	The data and frame start signals are read out of the buffer under control of the P4s clock, frame position (P4s_TI), and justification decision.	9.3.5	m	
4	Upon a positive justification (slip) action, the reading of one 64 kbit/s octet (8 bits) is cancelled once.	9.3.5	m	
5	Upon a negative justification (slip) action, the same 64 kbit/s octet (8 bits) is read out a second time.	9.3.5	m	
6	The elastic store (slip buffer) accommodates at least 18 μs of wander without introducing errors.	9.3.5	m	

G.4.3.6 P4s to P0s Adaptation Sink P4s/P0s_A_Sk

Prerequisite: G.1/31 -- P4s to P0s adaptation sink function exists

G.4.3.6.1 Management information (P4s/P0s_A_Sk)

Table G.164: Configuration/provisioning information from EMF to P4s/P0s_A_Sk

Item	Configuration/provisioning information from EMF to P4s/P0s_A_Sk	Reference	Status	Support
1	P4s/P0s_A_Sk_MI_Active is provisionable from the EMF.	9.3.6	c16401	
2	The function can be activated (P4s/P0s_A_Sk_MI_Active is TRUE) and deactivated (P4s/P0s_A_Sk_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	9.3.6	c16402	

c16401: IF G.2/2 THEN m ELSE n/a -- multiple Adaptation Sink functions exist
c16402: IF G.164/1 THEN m ELSE n/a -- P4s/P0s_A_Sk_MI_Active provisionable

G.4.3.6.2 Processes (P4s/P0s_A_Sk)

Table G.165: Adaptation process for P4s/P0s_A_Sk

Item	Adaptation process for P4s/P0s_A_Sk	Reference	Status	Support
1	The function extracts the general communications channel byte GC from the P4s layer Characteristic Information.	9.3.6	m	

Table G.166: Data latching and smoothing process for P4s/P0s_A_Sk

Item	Data latching and smoothing process for P4s/P0s_A_Sk	Reference	Status	Support
1	The function provides a data latching and smoothing function.	9.3.6	m	
2	Each 8-bit octet received are written and latched into a data store under the control of the P4s signal clock.	9.3.6	m	
3	The eight data bits are read out of the data store using a nominal 64 kHz clock.	9.3.6	m	

Table G.167: Activation of P4s/P0s_A_Sk function

Item	Activation of P4s/P0s_A_Sk functions	Reference	Status	Support
1	The function performs the operation specified above when it is activated (MI_Active is true).	9.3.6	c16701	
2	If the function is not active (MI_Active is False) it transmits the all-ONEs signal at its output (CI_D).	9.3.6	c16701	

c16701: IF G.164/1 THEN m ELSE n/a -- P4s/P0s_A_Sk_MI_Active provisionable

G.4.3.6.3 Consequent actions (P4s/P0s_A_Sk)

Table G.168: Consequent actions for P4s/P0s_A_Sk

Item	Consequent actions for P4s/P0s_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- AI_TSF.	9.3.6	m	
2	On declaration of aAIS the function outputs an all-ONEs (AIS) - complying to the frequency limits for this signal (a bit rate in range 64 kbit/s ± 100 ppm) - signal within 1 ms.	9.3.6	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	9.3.6	m	

G.4.3.7 P4s to V0x Adaptation Source P4s/V0x_A_So

Prerequisite: G.1/32 -- P4s to V0x adaptation source function exists

G.4.3.7.1 Management information (P4s/V0x_A_So)

Table G.169: Configuration/provisioning information from EMF to P4s/V0x_A_So

Item	Configuration/provisioning information from EMF to P4s/V0x_A_So	Reference	Status	Support
1	P4s/V0x_A_So_MI_Active is provisionable from the EMF.	9.3.7	c16901	
2	The function can be activated (P4s/V0x_A_So_MI_Active is TRUE) and deactivated (P4s/V0x_A_So_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	9.3.7	c16902	

c16901: IF G.2/1 THEN m ELSE n/a -- multiple Adaptation Source functions exist
c16902: IF G.169/1 THEN m ELSE n/a -- P4s/V0x_A_So_MI_Active provisionable

G.4.3.7.2 Processes (P4s/V0x_A_So)

Table G.170: Adaptation process for P4s/V0x_A_So

Item	Adaptation process for P4s/V0x_A_So	Reference	Status	Support
1	This function multiplexes the V0x_CI data (64 kbit/s) into the byte location GC as defined in ETS 300 337 and depicted in figure 88.	9.3.7, figure 88 ETS 300 337	m	

Table G.171: Activation of P4s/V0x_A_So functions

Item	Activation of P4s/V0x_A_So functions	Reference	Status	Support
1	The function accesses the access point only when it is activated (MI_Active is true).	9.3.7	c17101	

c17101: IF G.169/1 THEN m ELSE n/a -- P4s/V0x_A_So_MI_Active provisionable

G.4.3.8 P4s to V0x Adaptation Sink P4s/V0x_A_Sk

Prerequisite: G.1/33 -- P4s to V0x adaptation sink function exists

G.4.3.8.1 Management information (P4s/V0x_A_Sk)

Table G.172: Configuration/provisioning information from EMF to P4s/V0x_A_Sk

Item	Configuration/provisioning information from EMF to P4s/V0x_A_Sk	Reference	Status	Support
1	P4s/V0x_A_Sk_MI_Active is provisionable from the EMF.	9.3.8	c17201	
2	The function can be activated (P4s/V0x_A_Sk_MI_Active is TRUE) and deactivated (P4s/V0x_A_Sk_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	9.3.8	c17202	

c17201: IF G.2/2 THEN m ELSE n/a -- multiple Adaptation Sink functions exist
c17202: IF G.172/1 THEN m ELSE n/a -- P4s/V0x_A_Sk_MI_Active provisionable

G.4.3.8.2 Processes (P4s/V0x_A_Sk)

Table G.173: Adaptation process for P4s/V0x_A_Sk

Item	Adaptation process for P4s/V0x_A_Sk	Reference	Status	Support
1	This function separates user channel data from P4s Overhead (byte GC) as defined in ETS 300 337 and depicted in figure 88.	9.3.8, figure 88 ETS 300 337	m	

Table G.174: Activation of P4s/V0x_A_Sk function

Item	Activation of P4s/V0x_A_Sk functions	Reference	Status	Support
1	The function performs the operation specified above when it is activated (MI_Active is true).	9.3.8	c17401	
2	If the function is not active (MI_Active is False) it transmits the all-ONEs signal at its output (CI_D).	9.3.8	c17401	

c17401: IF G.172/1 THEN m ELSE n/a -- P4s/V0x_A_Sk_MI_Active provisionable

G.4.3.8.3 Consequent actions (P4s/V0x_A_Sk)

Table G.175: Consequent actions for P4s/V0x_A_Sk

Item	Consequent actions for P4s/V0x_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- AI_TSF.	9.3.8	m	
2	On declaration of aAIS the function outputs an all-ONEs (AIS) - complying to the frequency limits for this signal (a bit rate in range 64 kbit/s ± X ppm) - signal within 1 ms.	9.3.8	m	
3	On clearing of aAIS the function outputs normal data within 1 ms.	9.3.8	m	
4	The function implements the following logical equation: aSSF <-- AI_TSF.	9.3.8	m	

G.4.3.9 P4s to DCC Adaptation Source P4s/DCC_A_So

Prerequisite: G.1/34 -- P4s to DCC adaptation source function exists

G.4.3.9.1 Management information (P4s/DCC_A_So)

Table G.176: Configuration/provisioning information from EMF to P4s/DCC_A_So

Item	Configuration/provisioning information from EMF to P4s/DCC_A_So	Reference	Status	Support
1	P4s/DCC_A_So_MI_Active is provisionable from the EMF.	9.3.9	c17601	
2	The function can be activated (P4s/DCC_A_So_MI_Active is TRUE) and deactivated (P4s/DCC_A_So_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	9.3.9	c17602	

c17601: IF G.2/1 THEN m ELSE n/a -- multiple Adaptation Source functions exist
c17602: IF G.176/1 THEN m ELSE n/a -- P4s/DCC_A_So_MI_Active provisionable

G.4.3.9.2 Processes (P4s/DCC_A_So)

Table G.177: Adaptation process for P4s/DCC_A_So

Item	Adaptation process for P4s/DCC_A_So	Reference	Status	Support
1	This function multiplexes the DCC_CI data (64 kbit/s) into the byte location GC as defined in ETS 300 337 and depicted in figure 88.	9.3.9, figure 88 ETS 300 337	m	
2	DCC transmission can be "disabled" when the matrix connection in the connected DCC_C function is removed.	9.3.9	o	

Table G.178: Activation of P4s/DCC_A_So functions

Item	Activation of P4s/DCC_A_So functions	Reference	Status	Support
1	The function accesses the access point only when it is activated (MI_Active is true).	9.3.9	c17801	

c17801: IF G.176/1 THEN m ELSE n/a -- P4s/DCC_A_So_MI_Active provisionable

G.4.3.10 P4s to DCC Adaptation Sink P4s/DCC_A_Sk

Prerequisite: G.1/35 -- P4s to DCC adaptation sink function exists

G.4.3.10.1 Management information (P4s/DCC_A_Sk)

Table G.179: Configuration/provisioning information from EMF to P4s/DCC_A_Sk

Item	Configuration/provisioning information from EMF to P4s/DCC_A_Sk	Reference	Status	Support
1	P4s/DCC_A_Sk_MI_Active is provisionable from the EMF.	9.3.10	c17901	
2	The function can be activated (P4s/DCC_A_Sk_MI_Active is TRUE) and deactivated (P4s/DCC_A_Sk_MI_Active is FALSE) when multiple adaptation functions are connected to the access point.	9.3.10	c17902	

c17901: IF G.2/2 THEN m ELSE n/a -- multiple Adaptation Sink functions exist
c17902: IF G.179/1 THEN m ELSE n/a -- P4s/DCC_A_Sk_MI_Active provisionable

G.4.3.10.2 Processes (P4s/DCC_A_Sk)

Table G.180: Adaptation process for P4s/DCC_A_Sk

Item	Adaptation process for P4s/DCC_A_Sk	Reference	Status	Support
1	This function separates user channel data from P4s Overhead (byte GC) as defined in ETS 300 337 and depicted in figure 88.	9.3.10, figure 88 ETS 300 337	m	

Table G.181: Activation of P4s/DCC_A_Sk function

Item	Activation of P4s/DCC_A_Sk functions	Reference	Status	Support
1	The function performs the operation specified above when it is activated (MI_Active is true).	9.3.10	c18101	
2	If the function is not active (MI_Active is False) it transmits the all-ONEs signal at its output (CI_D).	9.3.10	c18101	

c18101: IF G.179/1 THEN m ELSE n/a -- P4s/DCC_A_Sk_MI_Active provisionable

G.4.3.10.3 Consequent actions (P4s/DCC_A_Sk)

Table G.182: Consequent actions for P4s/DCC_A_Sk

Item	Consequent actions for P4s/DCC_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aSSF <-- AI_TSF.	9.3.6	m	

G.4.3.11 P4s to SD adaptation source P4s/SD_A_So

Under Study (EN 300 417-6-2 [18]).

G.4.3.12 P4s to SD adaptation sink P4s/SD_A_Sk

Under Study (EN 300 417-6-2 [18]).

G.4.3.13 P4s to ATM VP compound adaptation source P4s/Avp_A_So

For further study.

G.4.3.14 P4s to ATM VP compound adaptation sink P4s/Avp_A_Sk

For further study.

G.4.3.15 P4s Layer Clock adaptation source P4s-LC_A_So

Under Study (EN 300 417-6-2 [18]).

G.4.4 P4s Layer Monitoring Functions

G.4.4.1 P4s Layer Non-intrusive Monitoring Function P4sm_TT_Sk

Prerequisite: G.1/41 -- a non-intrusive trail termination sink function exists

G.4.4.1.1 Management information (P4sm_TT_Sk)

Table G.183: Configuration/provisioning of information from EMF to P4sm_TT_Sk

Item	Configuration/provisioning of information from EMF to P4sm_TT_Sk	Reference	Status	Support
1	P4sm_TT_Sk_MI_Tpmode is provisionable from the EMF.	9.4.1	m	
2	P4sm_TT_Sk_MI_SSF_Reported is provisionable from the EMF.	9.4.1	m	
3	P4sm_TT_Sk_MI_RDI_Reported is provisionable from the EMF.	9.4.1	m	
4	P4sm_TT_Sk_MI_1second is provisioned by the EMF.	9.4.1	m	
5	P4sm_TT_Sk_MI_DEGM is provisionable from the EMF.	9.4.1	m	
6	P4sm_TT_Sk_MI_DEGTHR is provisionable from the EMF.	9.4.1	m	
7	P4sm_TT_Sk_MI_ ExTI is provisionable from the EMF.	9.4.1	m	
8	P4sm_TT_Sk_MI_TIMdis is provisionable from the EMF.	9.4.1	m	

Table G.184: Signal reports from P4sm_TT_Sk to EMF

Item	Signal reports from P4sm_TT_Sk to EMF	Reference	Status	Support
1	P4sm_TT_Sk_MI_cRDI is reported to the EMF.	9.4.1	m	
2	P4sm_TT_Sk_MI_cSSF is reported to the EMF.	9.4.1	m	
3	P4sm_TT_Sk_MI_cDEG is reported to the EMF.	9.4.1	m	
4	P4sm_TT_Sk_MI_cUNEQ is reported to the EMF.	9.4.1	m	
5	P4sm_TT_Sk_MI_cTIM is reported to the EMF.	9.4.1	m	
6	P4sm_TT_Sk_MI_AcTI is reported to the EMF.	9.4.1	m	
7	P4sm_TT_Sk_MI_pN_DS is reported to the EMF.	9.4.1	m	
8	P4sm_TT_Sk_MI_pN_EBC is reported to the EMF.	9.4.1	m	
9	P4sm_TT_Sk_MI_pF_DS is reported to the EMF.	9.4.1	m	
10	P4sm_TT_Sk_MI_pF_EBC is reported to the EMF.	9.4.1	m	

NOTE: Reporting should be understood as reporting to the Management Point (i.e. to the Equipment Management Function), not as reporting to the user through a management interface.

G.4.4.1.2 Processes (P4sm_TT_Sk)

Table G.185: Trail Termination Point mode process

Prerequisite: G.184/1 -- MI_TPmode provisionable from the EMF

Item	Trail Termination Point mode process	Reference	Status	Support
1	The Trail Termination Point Mode supports "not monitored" (NMON) status.	EN 300 417-1-1 subclause 8.5	m	
2	The Trail Termination Point Mode supports "monitored" (MON) status.	EN 300 417-1-1 subclause 8.5	m	

Table G.186: RDI processing

Item	RDI processing	Reference	Status	Support
1	The information carried in the RDI bit, MA[1], is extracted to enable single ended maintenance of a bi-directional Trail (Path).	9.4.1	m	
2	A "1" indicates an RDI state.	9.4.1, EN 300 417-1-1 subclause 7.4.11 and 8.2	m	
3	A "0" indicates the normal state.	9.4.1	m	

Table G.187: REI processing

Item	REI processing	Reference	Status	Support
1	The information carried in the REI bit, MA[2] is extracted to monitor the error performance of the reverse direction of transmission.	9.4.1	m	
2	The application process is performed as specified in EN 300 417-1-1 subclause 7.4.2.	9.4.1, EN 300 417-1-1 subclause 7.4.2	m	

Table G.188: Trail Trace Identifier processing

Item	Trail Trace Identifier processing	Reference	Status	Support
1	The 16 byte Trail Trace Identifier (TTI) is recovered from the TR byte and made available for network management purposes as AcTI.	9.4.1	m	
2	The trace identifier process supports only "mode 1" (EN 300 417-1-1 subclause 7.1).	9.4.1, EN 300 417-1-1 subclause 7.1	m	

Table G.189: Error Detection Code processing

Item	Error Detection Code processing	Reference	Status	Support
1	Even bit parity (BIP-8) is computed for each bit n of every byte of the preceding frame and compared with bit n of EM byte recovered from the current frame (n=1 to 8 inclusive).	9.4.1	m	
2	A difference between the computed and recovered EM values is taken as evidence of one or more errors (nN_B) in the computation block.	9.4.1	m	

Table G.190: Signal Label processing

Item	Signal Label processing	Reference	Status	Support
1	The information in the signal label bits, MA[3-5], is extracted to allow unequipped P4s and P4s-AIS defect detection.	9.4.1	m	

G.4.4.1.3 Defects (P4sm_TT_Sk)

Table G.191: Defects for P4sm_TT_Sk

Item	Defects for P4sm_TT_Sk	Reference	Status	Support
1	The function detects the dRDI defect according to the specification in EN 300 417-1-1, subclauses 7.4.1, 8.2.1.5, 9.4.1.2, with the condition "aSSF" read as "aSSF or P4s dAIS".	9.4.1, EN 300 417-1-1 subclause 7.4.1, 8.2.1.5, 9.4.1.2	m	
2	The function detects dDEG defect according to the specification in subclause 8.2.1 in EN 300 417-1-1 with the condition "aSSF" read as "aSSF or P4s dAIS".	9.4.1, EN 300 417-1-1 subclause 8.2.1	m	
3	The function detects dTIM defect according to the specification in subclause 8.2.1 in EN 300 417-1-1 with the condition "aSSF" read as "aSSF or P4s dAIS".	9.4.1, EN 300 417-1-1 subclause 8.2.1	m	
4	The function detects dUNEQ defect according to the specification in subclause 8.2.1 in EN 300 417-1-1 with the condition "aSSF" read as "aSSF or P4s dAIS".	9.4.1, EN 300 417-1-1 subclause 8.2.1	m	
5	If 5 consecutive frames contain the "111" pattern in bits 3 to 5 of the MA byte a dAIS defect is detected.	9.4.1, EN 300 417-1-1 subclause 8.2.1	m	
6	The dAIS is cleared if in 5 consecutive frames any pattern other than the "111" is detected in bits 3 to 5 of the MA byte.	9.4.1	m	

G.4.4.1.4 Consequent actions (P4sm_TT_Sk)

Table G.192: Consequent actions for P4sm_TT_Sk

Item	Consequent actions for P4sm_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: aTSF <-- CI_SSF or dAIS or dUNEQ or dTIM.	9.4.1	m	
2	The function implements the following logical equation: aTSD <-- dDEG.	9.4.1	m	

G.4.4.1.5 Defect Correlations (P4sm_TT_Sk)

Table G.193: Defect Correlations for P4sm_TT_Sk

Item	Defect Correlations for P4sm_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: cRDI <-- dRDI and MON and (not dTIM) and (not dUNEQ) and RDI_Reported.	9.4.1	c19301	
2	The function implements the following logical equation: cSSF <-- (CI_SSF or dAIS) and MON and SSF_Reported.	9.4.1	c19302	
3	The function implements the following logical equation: cDEG <-- dDEG and MON and (not dTIM) and (not dUNEQ).	9.4.1	c19303	
4	The function implements the following logical equation: cUNEQ <-- MON and dUNEQ.	9.4.1	c19304	
5	The function implements the following logical equation: cTIM <-- MON and dTIM and (not dUNEQ).	9.4.1	c19305	

c19301: IF G.184/1 THEN m ELSE n/a -- cRDI is reported
c19302: IF G.184/2 THEN m ELSE n/a -- cSSF is reported
c19303: IF G.184/3 THEN m ELSE n/a -- cDEG is reported
c19304: IF G.184/4 THEN m ELSE n/a -- cUNEQ is reported
c19305: IF G.184/5 THEN m ELSE n/a -- cTIM is reported

G.4.4.1.6 Performance Monitoring (P4sm_TT_Sk)

Table G.194: Performance Monitoring (P4sm_TT_Sk)

Item	Performance Monitoring (P4sm_TT_Sk)	Reference	Status	Support
1	The function implements the following logical equation: pN_DS <-- aTSF or dEQ.	9.4.1	c19401	
2	The function implements the following logical equation: pF_DS <-- dRDI.	9.4.1	c19402	
3	The function implements the following logical equation: pN_EBC <-- Sum(nN_B) The "Sum" is calculated over a one-second period.	9.4.1	c19403	
4	The function implements the following logical equation: pF_EBC <-- Sum(nF_B) The "Sum" is calculated over a one-second period.	9.4.1	c19404	

c19401: IF G.184/6 THEN m ELSE n/a -- pN_DS is reported
c19402: IF G.184/7 THEN m ELSE n/a -- pF_DS is reported
c19403: IF G.184/8 THEN m ELSE n/a -- pN_EBC is reported
c19404: IF G.184/9 THEN m ELSE n/a -- pF_EBC is reported

G.4.5 P4s layer trail protection functions

For further study.

G.4.6 P4s Tandem Connection Sub-layer functions

Prerequisite: G.1/42 OR G.1/43 OR G.1/46 -- a Tandem Connection Sub-layer function exists

G.4.6.1 P4s Tandem Connection Trail Termination Source P4s_TT_So

Prerequisite: G.1/42 -- a Tandem Connection trail termination source function exists

G.4.6.1.1 Management information (P4sD_TT_So)

Table G.195: Configuration/provisioning of information from EMF to P4sD_TT_So

Item	Configuration/provisioning of information from EMF to P4e_TT_So	Reference	Status	Support
1	P4sD_TT_So_MI_TxTI is provisionable from the EMF.	9.6.1	m	

G.4.6.1.2 Processes (P4sD_TT_So)

Table G.196: Frame Alignment Signal insertion (P4sD_TT_So)

Item	Frame Alignment Signal insertion (P4sD_TT_So)	Reference	Status	Support
1	The function inserts the Frame Alignment Signal (FAS) "1111 1111 1111 1110" in FAS bits in frames 1 to 8 of the multiframed NR[7-8] channel.	9.6.1	m	

Table G.197: RDI insertion/removal (P4sD_TT_So)

Prerequisite: G.1/42 AND G.1/43 -- bi-directional Tandem Connection sub-layer supported

Item	RDI insertion (P4sD_TT_So)	Reference	Status	Support
1	The function inserts the TC RDI code in the NR[8][73] bit, within 1 multiframe (9,5 ms) after the RDI request generation (RI_RDI) in the tandem connection trail termination sink function.	9.6.1	m	
2	The function ceases TC RDI code insertion within 1 multiframe (9,5 ms) after the TC RDI request has cleared.	9.6.1	m	

Comment: NR[x][y] refers to bit x (x = 7,8) of byte NR in frame y (y=1 to 76) of the 76 frame multiframe.

Table G.198: REI insertion (P4sD_TT_So)

Prerequisite: G.1/42 AND G.1/43 -- bi-directional Tandem Connection sub-layer supported

Item	REI insertion (P4sD_TT_So)	Reference	Status	Support
1	The function inserts the RI_REI value in the REI bit (NR[5]) in the following frame.	9.6.1	m	

Table G.199: TC Trace Identifier insertion (P4sD_TT_So)

Item	TC Trace Identifier insertion (P4sD_TT_So)	Reference	Status	Support
1	The function inserts the TC trace identifier, received via MI_TxTI, in the TC-TI bits in frames 9 to 72 of the multiframed NR[7-8] channel.	9.6.1	m	

Table G.200: Error Detection Code insertion (P4sD_TT_So)

Item	Error Detection Code insertion (P4sD_TT_So)	Reference	Status	Support
1	Even BIP-8 are computed for each bit n of every byte of the preceding incoming P4s frame (P4s_AI) including EM byte and compared with byte EM recovered from the current frame.	9.6.1	m	
2	A difference between the computed and recovered BIP-8 values is taken as evidence of one or more errors in the computation block, and is inserted in bits 1 to 4 of byte NR.	9.6.1, figure 139, table 100	m	
3	If AI_SF is true, code "1110" is inserted in bits 1 to 4 of byte NR instead of the number of incoming BIP-8 violations.	9.6.1	m	
4	The function compensates P4s BIP-8 (in byte EM) according to the logical equation given in subclause 9.6.1 of EN 300 417-5-1 [1].	9.6.1	m	

Table G.201: ODI insertion/removal (P4sD_TT_So)

Prerequisite: G.1/42 AND G.1/43 -- bi-directional Tandem Connection sub-layer supported

Item	ODI insertion (P4sD_TT_So)	Reference	Status	Support
1	The function inserts the TC ODI code in the NR[7][74] bit, within 1 multiframe (9,5 ms) after the ODI request generation (aODI) in the tandem connection trail termination sink function.	9.6.1	m	
2	The function ceases TC ODI code insertion at the first opportunity after the ODI request has cleared.	9.6.1	m	

Comment: NR[x][y] refers to bit x (x = 7,8) of byte NR in frame y (y=1 to 76) of the 76 frame multiframe.

Table G.202: OEI insertion (P4sD_TT_So)

Prerequisite: G.1/42 AND G.1/43 -- bi-directional Tandem Connection sub-layer supported

Item	OEI insertion (P4sD_TT_So)	Reference	Status	Support
1	The function inserts the RI_OEI value in the OEI bit (NR[6]) in the following frame.	9.6.1	m	

Table G.203: Multiframed channel stuffing (P4sD_TT_So)

Item	Multiframed channel stuffing (P4sD_TT_So)	Reference	Status	Support
1	The function inserts the value "0" in the six reserved bits in frames 73 to 76 of the multiframed NR[7-8] channel.	9.6.1	m	

G.4.6.2 P4s Trail Termination Sink P4sD_TT_Sk

Prerequisite: G.1/43 -- a termination sink function exists

G.4.6.2.1 Management information (P4sD_TT_Sk)

Table G.204: Configuration/provisioning of information from EMF to P4sD_TT_Sk

Item	Configuration/provisioning of information from EMF to P4sD_TT_Sk	Reference	Status	Support
1	P4sD_TT_Sk_MI_TPmode is provisionable from the EMF.	9.6.2	m	
2	P4sD_TT_Sk_MI_SSF_Reported is provisionable from the EMF.	9.6.2	m	
3	P4sD_TT_Sk_MI_RDI_Reported is provisionable from the EMF.	9.6.2	c20401	
4	P4sD_TT_Sk_MI_1second is provisioned by the EMF.	9.6.2	m	
5	P4sD_TT_Sk_MI_DEGM is provisionable from the EMF.	9.6.2	m	
6	P4sD_TT_Sk_MI_DEGTHR is provisionable from the EMF.	9.6.2	m	
7	P4sD_TT_Sk_MI_ExTI is provisionable from the EMF.	9.6.2	m	
8	P4sD_TT_Sk_MI_TIMdis is provisionable from the EMF.	9.6.2	m	
9	P4sD_TT_Sk_MI_AIS_Reported is provisionable from the EMF.	9.6.2	m	
10	P4sD_TT_Sk_MI_ODI_Reported is provisionable from the EMF.	9.6.2	c20401	

c20401: IF G.1/42 AND G.1/43 THEN m ELSE n/a -- bi-directional Tandem Connection sub-layer supported

Table G.205: Signal reports from P4sD_TT_Sk to EMF

Item	Signal reports from P4sD_TT_Sk to EMF	Reference	Status	Support
1	P4sD_TT_Sk_MI_cRDI is reported to the EMF.	9.6.2	c20501	
2	P4sD_TT_Sk_MI_cSSF is reported to the EMF.	9.6.2	m	
3	P4sD_TT_Sk_MI_cDEG is reported to the EMF.	9.6.2	m	
4	P4sD_TT_Sk_MI_cUNEQ is reported to the EMF.	9.6.2	m	
5	P4sD_TT_Sk_MI_cTIM is reported to the EMF.	9.6.2	m	
6	P4sD_TT_Sk_MI_AcTI is reported to the EMF.	9.6.2	m	
7	P4sD_TT_Sk_MI_pN_DS is reported to the EMF.	9.6.2	m	
8	P4sD_TT_Sk_MI_pN_EBC is reported to the EMF.	9.6.2	m	
9	P4sD_TT_Sk_MI_pF_DS is reported to the EMF.	9.6.2	c20501	
10	P4sD_TT_Sk_MI_pF_EBC is reported to the EMF.	9.6.2	c20501	
11	P4sD_TT_Sk_MI_cLTC is reported to the EMF.	9.6.2	m	
12	P4sD_TT_Sk_MI_cODI is reported to the EMF.	9.6.2	c20501	
13	P4sD_TT_Sk_MI_cIncAIS is reported to the EMF.	9.6.2	m	
14	P4sD_TT_Sk_MI_pOF_DS is reported to the EMF.	9.6.2	c20501	
15	P4sD_TT_Sk_MI_pOF_EBC is reported to the EMF.	9.6.2	c20501	
16	P4sD_TT_Sk_MI_pON_DS is reported to the EMF.	9.6.2	m	
17	P4sD_TT_Sk_MI_pON_EBC is reported to the EMF.	9.6.2	m	

c20501: IF G.1/42 AND G.1/43 THEN m ELSE n/a -- bi-directional Tandem Connection sub-layer supported

NOTE: Reporting should be understood as reporting to the Management Point (i.e. to the Equipment Management Function), not as reporting to the user through a management interface.

G.4.6.2.2 Processes (P4sD_TT_Sk)

Table G.206: Trail Termination Point mode process

Prerequisite: G.204/1 -- MI_TPmode provisionable from the EMF

Item	Trail Termination Point mode process	Reference	Status	Support
1	The Trail Termination Point Mode supports "not monitored" (NMON) status.	EN 300 417-1-1 subclause 8.5	m	
2	The Trail Termination Point Mode supports "monitored" (MON) status.	EN 300 417-1-1 subclause 8.5	m	

Table G.207: Multiframe Alignment recovery (P4sD_TT_So)

Item	Trail Termination Point mode process	Reference	Status	Support
1	The function performs a multiframe alignment on bits 7 and 8 of byte NR.	9.6.2	m	
2	The multiframe alignment is found by searching for the pattern "1111 1111 1111 1110" within the bits 7 and 8 of byte NR. The signal is continuously checked with the presumed multiframe start position for the alignment.	9.6.2	m	
3	Frame alignment is deemed to have been lost (entering Out Of Multiframe (OOM) state) when two consecutive FAS are detected in error (i.e. ≥ 1 error in each FAS).	9.6.2	m	
4	Frame alignment is deemed to have been recovered (entering In Multiframe (IM) state) when one non-errored FAS is found.	9.6.2	m	

Table G.208: RDI processing

Prerequisite: G.1/42 AND G.1/43 -- bi-directional Tandem Connection sub-layer supported

Item	RDI processing	Reference	Status	Support
1	The information carried in the RDI bit, NR[8][73], is extracted to enable single ended maintenance of a bi-directional Trail (Path).	9.6.2	m	
2	A "1" indicates a Remote Defect Indication state.	9.6.2, EN 300 417-1-1 subclause 7.4.1 and 8.2	m	
3	A "0" indicates the normal state.	9.6.2, EN 300 417-1-1 subclause 7.4.1 and 8.2	m	

Table G.209: REI processing

Prerequisite: G.1/42 AND G.1/43 -- bi-directional Tandem Connection sub-layer supported

Item	REI processing	Reference	Status	Support
1	The information carried in the REI bit, NR[5] is extracted to monitor the error performance of the other direction of transmission.	9.6.2	m	
2	The application process is performed as specified in EN 300 417-1-1 subclause 7.4.2.	9.6.2, EN 300 417-1-1 subclause 7.4.2	m	

Table G.210: Trail Trace Identifier processing

Item	Trail Trace Identifier processing	Reference	Status	Support
1	The Received Trail Trace Identifier RxTI is recovered from the tandem connection trail trace identifier overhead (NR[7-8][9-72]) and is made available as AcTI for network management purposes.	9.6.2	m	
2	The application and acceptance process is performed as specified in EN 300 417-1-1, subclauses 7.1, and 8.2.1.3.	9.6.2, EN 300 417-1-1 subclause 7.1 and 8.2.1.3	m	
3	The trace identifier process supports only "mode 1" (EN 300 417-1-1 subclause 7.1).	9.6.2, EN 300 417-1-1 subclause 7.1	m	

Table G.211: Error Detection Code processing

Item	Error Detection Code processing	Reference	Status	Support
1	The function extracts the Incoming Error Code (IEC) from NR[1-4] bits.	9.6.2	m	
2	Even bit parity is computed for each bit n of every byte of the preceding P4s and compared with bit n of EM recovered from the current frame (n=1 to 8 inclusive).	9.6.2	m	
3	A difference between the computed and recovered EM values is taken as evidence of one or more errors in the computation block (nON_B).	9.6.2	m	
4	If the magnitude (absolute value) of the difference between this calculated number of errors and the number of errors written into the IEC (see table 102) is one or more, an errored TC block is detected (nN_B).	9.6.2, table 102, figure 142	m	
5	If one or more errors were detected in the computation block, an errored P4s block (nON_B) is declared.	9.6.2	m	
6	The function compensates the P4s BIP8 (in byte EM) according the algorithm defined in P4sD_TT_So.	9.6.2	m	

Table G.212: ODI processing

Prerequisite: G.1/42 AND G.1/43 -- bi-directional Tandem Connection sub-layer supported

Item	ODI processing	Reference	Status	Support
1	The information carried in the ODI bit, NR[7][74], is extracted to enable single ended (intermediate) maintenance of a the P4s egressing the tandem connection Trail.	9.6.2	m	
2	A "1" indicates a Outgoing Defect Indication state.	9.6.2, EN 300 417-1-1 subclause 7.4.1 and 8.2	m	
3	A "0" indicates the normal state.	9.6.2, EN 300 417-1-1 subclause 7.4.1 and 8.2	m	

Table G.213: OEI processing

Prerequisite: G.1/42 AND G.1/43 -- bi-directional Tandem Connection sub-layer supported

Item	OEI processing	Reference	Status	Support
1	The information carried in the OEI bit, NR[6] is extracted to monitor the error performance of the other direction of transmission.	9.6.2	m	
2	The application process is performed as specified in EN 300 417-1-1 subclause 7.4.2.	9.6.2, EN 300 417-1-1 subclause 7.4.2	m	

Table G.214: Incoming AIS code processing

Item	Incoming AIS code processing	Reference	Status	Support
1	The function extracts the Incoming AIS code from bits NR[1-4].	9.6.2	m	

Table G.215: NR channel final processing

Item	NR channel final processing	Reference	Status	Support
1	The function terminates NR channel by inserting an all-ZEROs pattern.	9.6.2	m	

G.4.6.2.3 Defects (P4sD_TT_Sk)

Table G.216: Defects for P4sD_TT_Sk

Item	Defects for P4sD_TT_Sk	Reference	Status	Support
1	The function detects for an unequipped Tandem Connection (dUNEQ) condition by monitoring byte NR for code "00000000".	9.6.2	m	
2	The unequipped defect (dUNEQ) is detected if five consecutive P4s frames contain the "0000 0000" pattern in byte NR.	9.6.2	m	
3	The dUNEQ defect is cleared if in five consecutive NR frames any pattern other than the "0000 0000" is detected in byte NR.	9.6.2	m	
4	The loss of tandem connection defect (dLTC) is detected if the multiframe alignment process is in the OOM state.	9.6.2	m	
5	The dLTC is cleared if the multiframe alignment process is in the IM state.	9.6.2	m	
6	The function shall detect for a TC mis-connection condition by monitoring the TC trace identifier.	9.6.2	m	
7	The Trace Identifier Mismatch defect (dTIM) is detected within a maximum period of 1 s in the absence of bit errors.	9.6.2	m	
8	The Trace Identifier Mismatch defect (dTIM) is cleared within a maximum period of 1 s in the absence of bit errors.	9.6.2	m	
9	The defect is suppressed during the receipt of SSF.	9.6.2	m	

Item	Defects for P4sD_TT_Sk	Reference	Status	Support
10	It is possible to disable the trace identifier mismatch defect detection (TIMdis).	9.6.2	m	
11	The function detects for a TC signal degrade defect (dDEG) condition by monitoring for TC BIP-8 violations, according subclause 8.2.1.4 in EN 300 417-1-1.	9.6.2, EN 300 417-1-1 subclause 8.2.1.4	m	
12	The function detects for a TC remote defect indication defect (dRDI) condition by monitoring the TC RDI signal, according subclause 8.2.1.5 in EN 300 417-1-1.	9.6.2, EN 300 417-1-1 subclause 8.2.1.5	m	
13	The function detects for a TC remote outgoing P4s defect indication defect (dODI) condition by monitoring the TC ODI signal, according subclause 8.2.1.5 in EN 300 417-1-1.	9.6.2, EN 300 417-1-1 subclause 8.2.1.5	m	
14	The function detects for a tandem connection incoming AIS (dIncAIS) condition by monitoring the IEC bits in byte NR for code "1110".	9.6.2	m	
15	If 5 consecutive frames contain the "1110" pattern in the IEC bits a dIncAIS defect is detected.	9.6.2	m	
16	dIncAIS is cleared if in 5 consecutive frames any pattern other than the "1110" is detected in the IEC bits.	9.6.2	m	

G.4.6.2.4 Consequent actions (P4sD_TT_Sk)

Table G.217: Consequent actions for P4sD_TT_Sk

Item	Consequent actions for P4sD_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: aTSF <-- CI_SSF or dUNEQ or dTIM or dLTC.	9.6.2	m	
2	The function implements the following logical equation: aRDI <-- CI_SSF or dUNEQ or dTIM or dLTC.	9.6.2	c21701	
3	The function implements the following logical equation: aTSD <-- dDEG.	9.6.2	m	
4	The function implements the following logical equation: aREI <-- nN_B.	9.6.2	c21701	
5	The function implements the following logical equation: aODI <-- CI_SSF or dUNEQ or dTIM or dIncAIS or dLTC.	9.6.2	c21701	
6	The function implements the following logical equation: aOEI <-- nON_B.	9.6.2	c21701	

Item	Consequent actions for P4sD_TT_Sk	Reference	Status	Support
7	The function implements the following logical equation: aOSF <-- CI_SSF or dUNEQ or dTIM or dLTC or dIncAIS.	9.6.2	m	
8	The function implements the following logical equation: aAIS <-- dUNEQ or dTIM or dLTC.	9.6.2	m	
9	On declaration of an aAIS the function outputs an all ONEs signal within 250 µs.	9.6.2	m	
10	On clearing of aAIS the function outputs normal data within 250 µs.	9.6.2	m	

c21701: IF G.1/42 AND G.1/43 THEN m ELSE n/a -- bi-directional Tandem Connection sub-layer supported

G.4.6.2.5 Defect Correlations (P4sD_TT_Sk)

Table G.218: Defect Correlations for P4sD_TT_Sk

Item	Defect Correlations for P4sD_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: cRDI <-- MON and (not dUNEQ) and (not dTIM) and (not dLTC) and dRDI and RDI_Reported.	9.6.2	c21801	
2	The function implements the following logical equation: cSSF <-- MON and CI_SSF and SSF_reported.	9.6.2	c21802	
3	The function implements the following logical equation: cDEG <-- MON and (not dTIM) and (not dLTC) and dDEG.	9.6.2	c21803	
4	The function implements the following logical equation: cUNEQ <-- MON and dUNEQ.	9.6.2	c21804	
5	The function implements the following logical equation: cTIM <-- MON and (not dUNEQ) and (not dLTC) and dTIM.	9.6.2	c21805	
6	The function implements the following logical equation: cLTC <-- MON and (not dUNEQ) and dLTC.	9.6.2	c21806	
7	The function implements the following logical equation: cODI <-- MON and (not dUNEQ) and (not dTIM) and (not dLTC) and dODI and ODI_Reported.	9.6.2	c21807	
8	The function implements the following logical equation: cIncAIS <-- MON and dIncAIS and (not CI_SSF) and (not dLTC) and (not dTIM) and AIS_reported.	9.6.2	c21808	

c21801: IF G.205/1 THEN m ELSE n/a -- cRDI is reported
c21802: IF G.205/2 THEN m ELSE n/a -- cSSF is reported
c21803: IF G.205/3 THEN m ELSE n/a -- cDEG is reported
c21804: IF G.205/4 THEN m ELSE n/a -- cUNEQ is reported
c21805: IF G.205/5 THEN m ELSE n/a -- cTIM is reported
c21806: IF G.205/11 THEN m ELSE n/a -- cLTC is reported

c21807: IF G.205/12 THEN m ELSE n/a -- cODI is reported
c21808: IF G.205/13 THEN m ELSE n/a -- cIncAIS is reported

G.4.6.2.6 Performance monitoring (P4sD_TT_Sk)

Table G.219: Performance Monitoring (P4sD_TT_Sk)

Item	Performance Monitoring (P4sD_TT_Sk)	Reference	Status	Support
1	The function implements the following logical equation: pN_DS <-- aTSF or dEQ.	9.6.2	c21901	
2	The function implements the following logical equation: pN_EBC <-- Sum(nN_B) The "Sum" is calculated over a one-second period.	9.6.2	c21902	
3	The function implements the following logical equation: pF_DS <-- dRDI.	9.6.2	c21903	
4	The function implements the following logical equation: pF_EBC <-- Sum(nF_B) The "Sum" is calculated over a one-second period.	9.6.2	c21904	
5	The function implements the following logical equation: pOF_DS <-- dODI.	9.6.2	c21905	
6	The function implements the following logical equation: pOF_EBC <-- Sum(nOF_B) The "Sum" is calculated over a one-second period.	9.6.2	c21906	
7	The function implements the following logical equation: pON_DS <-- aODI or dEQ.	9.6.2	c21907	
8	The function implements the following logical equation: pON_EBC <-- Sum(nON_B) The "Sum" is calculated over a one-second period.	9.6.2	c21908	

c21901: IF G.205/7 THEN m ELSE n/a -- pN_DS is reported
c21902: IF G.205/8 THEN m ELSE n/a -- pN_EBC is reported
c21903: IF G.205/9 THEN m ELSE n/a -- pF_DS is reported
c21904: IF G.205/10 THEN m ELSE n/a -- pF_EBC is reported
c21905: IF G.205/14 THEN m ELSE n/a -- pOF_DS is reported
c21906: IF G.205/15 THEN m ELSE n/a -- pOF_EBC is reported
c21907: IF G.205/16 THEN m ELSE n/a -- pON_DS is reported
c21908: IF G.205/17 THEN m ELSE n/a -- pON_EBC is reported

G.4.6.3 P4sD to P4s Adaptation Source P4sD/P4s_A_So

Prerequisite: G.1/44 -- P4sD to P4s adaptation Source function exists

G.4.6.3.1 Processes (P4sD/P4s_A_So)

Table G.220: Adaptation process for P4sD/P4s_A_So

Item	Adaptation process for P4sD/P4s_A_So	Reference	Status	Support
1	The function replaces the incoming P4s signal (P4s_CI) by a local generated P4s frame with valid FA1 and FA2 bytes and all ONEs for all other bytes if an all-ONEs (AIS) P4s is received.	9.6.3	m	
2	The local frame start is generated with the P4s_TI timing.	9.6.3	m	

G.4.6.3.2 Consequent actions (P4sD/P4s_A_So)

Table G.221: Consequent actions for P4sD/P4s_A_So

Item	Consequent actions for P4sD/P4s_A_So	Reference	Status	Support
1	The function implements the following logical equation: AI_SF <-- CI_SSF.	9.6.4	m	

G.4.6.4 P4sD to P4s Adaptation Sink P4sD/P4s_A_Sk

Prerequisite: G.1/45 -- P4sD to P4s adaptation Sink function exists

G.4.6.4.1 Processes (P4sD/P4s_A_Sk)

Table G.222: Adaptation process for P4sD/P4s_A_Sk

Item	Adaptation process for P4sD/P4s_A_Sk	Reference	Status	Support
1	The function restores the invalid frame start condition (i.e. output aSSF = true) if that existed at the ingress of the tandem connection.	9.6.4	m	
2	The invalid frame start condition is activated on a tandem connection connectivity defect condition that causes all-ONEs (AIS) insertion in the P4sD_TT_Sk.	9.6.4	m	

G.4.6.4.2 Consequent actions (P4sD/P4s_A_Sk)

Table G.223: Consequent actions for P4sD/P4s_A_Sk

Item	Consequent actions for P4sD/P4s_A_Sk	Reference	Status	Support
1	The function implements the following logical equation: aAIS <-- AI_OSF.	9.6.4	m	
2	On declaration of aAIS the function outputs an all-ONEs signal within 250 µs.	9.6.4	m	
3	On clearing of aAIS the function outputs normal data within 250 µs.	9.6.4	m	
4	The function implements the following logical equation: aSSF <-- AI_OSF.	9.6.4	m	

G.4.6.5 P4s Trail Termination Sink P4sDm_TT_Sk

Prerequisite: G.1/46 -- a termination sink function exists

G.4.6.5.1 Management information (P4sDm_TT_Sk)

Table G.224: Configuration/provisioning of information from EMF to P4sDm_TT_Sk

Item	Configuration/provisioning of information from EMF to P4sDm_TT_Sk	Reference	Status	Support
1	P4sDm_TT_Sk_MI_TPmode is provisionable from the EMF.	9.6.5	m	
2	P4sDm_TT_Sk_MI_SSF_Reported is provisionable from the EMF.	9.6.5	m	
3	P4sDm_TT_Sk_MI_RDI_Reported is provisionable from the EMF.	9.6.5	m	
4	P4sDm_TT_Sk_MI_1second is provisioned by the EMF.	9.6.5	m	
5	P4sDm_TT_Sk_MI_DEGM is provisionable from the EMF.	9.6.5	m	
6	P4sDm_TT_Sk_MI_DEGTHR is provisionable from the EMF.	9.6.5	m	
7	P4sDm_TT_Sk_MI_ExTI is provisionable from the EMF.	9.6.5	m	
8	P4sDm_TT_Sk_MI_TIMdis is provisionable from the EMF.	9.6.5	m	
9	P4sDm_TT_Sk_MI_ODI_Reported is provisionable from the EMF.	9.6.5	m	

Table G.225: Signal reports from P4sDm_TT_Sk to EMF

Item	Signal reports from P4sDm_TT_Sk to EMF	Reference	Status	Support
1	P4sDm_TT_Sk_MI_cRDI is reported to the EMF.	9.6.5	m	
2	P4sDm_TT_Sk_MI_cSSF is reported to the EMF.	9.6.5	m	
3	P4sDm_TT_Sk_MI_cDEG is reported to the EMF.	9.6.5	m	
4	P4sDm_TT_Sk_MI_cUNEQ is reported to the EMF.	9.6.5	m	
5	P4sDm_TT_Sk_MI_cTIM is reported to the EMF.	9.6.5	m	
6	P4sDm_TT_Sk_MI_AcTI is reported to the EMF.	9.6.5	m	
7	P4sDm_TT_Sk_MI_pN_DS is reported to the EMF.	9.6.5	m	
8	P4sDm_TT_Sk_MI_pN_EBC is reported to the EMF.	9.6.5	m	
9	P4sDm_TT_Sk_MI_pF_DS is reported to the EMF.	9.6.5	m	
10	P4sDm_TT_Sk_MI_pF_EBC is reported to the EMF.	9.6.5	m	
11	P4sDm_TT_Sk_MI_cLTC is reported to the EMF.	9.6.5	m	
12	P4sDm_TT_Sk_MI_cODI is reported to the EMF.	9.6.5	m	
13	P4sDm_TT_Sk_MI_pOF_DS is reported to the EMF.	9.6.5	m	
14	P4sDm_TT_Sk_MI_pOF_EBC is reported to the EMF.	9.6.5	m	

NOTE: Reporting should be understood as reporting to the Management Point (i.e. to the Equipment Management Function), not as reporting to the user through a management interface.

G.4.6.5.2 Processes (P4sDm_TT_Sk)

Table G.226: Trail Termination Point mode process

Prerequisite: G.224/1 -- MI_TPmode provisionable from the EMF

Item	Trail Termination Point mode process	Reference	Status	Support
1	The Trail Termination Point Mode supports "not monitored" (NMON) status.	EN 300 417-1-1 subclause 8.5	m	
2	The Trail Termination Point Mode supports "monitored" (MON) status.	EN 300 417-1-1 subclause 8.5	m	

Table G.227: Multiframe Alignment recovery (P4sDm_TT_So)

Item	Trail Termination Point mode process	Reference	Status	Support
1	The function performs a multiframe alignment on bits 7 and 8 of byte NR.	9.6.5	m	
2	The multiframe alignment is found by searching for the pattern "1111 1111 1111 1110" within the bits 7 and 8 of byte NR. The signal is continuously checked with the presumed multiframe start position for the alignment.	9.6.5	m	
3	Frame alignment is deemed to have been lost (entering Out Of Multiframe (OOM) state) when two consecutive FAS are detected in error (i.e. ≥ 1 error in each FAS).	9.6.5	m	
4	Frame alignment is deemed to have been recovered (entering In Multiframe (IM) state) when one non-errored FAS is found.	9.6.5	m	

Table G.228: RDI processing

Item	RDI processing	Reference	Status	Support
1	The information carried in the RDI bit, NR[8][73], is extracted to enable single ended maintenance of a bi-directional Trail (Path).	9.6.5	m	
2	A "1" indicates a Remote Defect Indication state.	9.6.5, EN 300 417-1-1 subclause 7.4.1 and 8.2	m	
3	A "0" indicates the normal state.	9.6.5, EN 300 417-1-1 subclause 7.4.1 and 8.2	m	

Table G.229: REI processing

Item	REI processing	Reference	Status	Support
1	The information carried in the REI bit, NR[5] is extracted to monitor the error performance of the other direction of transmission.	9.6.5	m	
2	The application process is performed as specified in EN 300 417-1-1 subclause 7.4.2.	9.6.5, EN 300 417-1-1 subclause 7.4.2	m	

Table G.230: Trail Trace Identifier processing

Item	Trail Trace Identifier processing	Reference	Status	Support
1	The Received Trail Trace Identifier RxTI is recovered from the tandem connection trail trace identifier overhead (NR[7-8][9-72]) and is made available as AcTI for network management purposes.	9.6.5	m	
2	The application and acceptance process is performed as specified in EN 300 417-1-1, subclauses 7.1, and 8.2.1.3.	9.6.5, EN 300 417-1-1 subclause 7.1 and 8.2.1.3	m	
3	The trace identifier process supports only "mode 1" (EN 300 417-1-1 subclause 7.1).	9.6.5, EN 300 417-1-1 subclause 7.1	m	

Table G.231: Error Detection Code processing

Item	Error Detection Code processing	Reference	Status	Support
1	The function extracts the Incoming Error Code (IEC) from NR[1-4] bits.	9.6.5	m	
2	Even bit parity is computed for each bit n of every byte of the preceding P4s and compared with bit n of EM recovered from the current frame (n=1 to 8 inclusive).	9.6.5	m	
3	A difference between the computed and recovered EM values is taken as evidence of one or more errors in the computation block (nON_B).	9.6.5	m	
4	If the magnitude (absolute value) of the difference between this calculated number of errors and the number of errors written into the IEC (see table 102) is one or more, an errored TC block is detected (nN_B).	9.6.5, table 102, figure 142	m	
5	If one or more errors were detected in the computation block, an errored P4s block (nON_B) is declared.	9.6.5	m	

Table G.232: ODI processing

Item	ODI processing	Reference	Status	Support
1	The information carried in the ODI bit, NR[7][74], is extracted to enable single ended (intermediate) maintenance of a the P4s egressing the tandem connection Trail.	9.6.5	m	
2	A "1" indicates a Outgoing Defect Indication state.	9.6.5, EN 300 417-1-1 subclause 7.4.1 and 8.2	m	
3	A "0" indicates the normal state.	9.6.5, EN 300 417-1-1 subclause 7.4.1 and 8.2	m	

Table G.233: OEI processing

Item	OEI processing	Reference	Status	Support
1	The information carried in the OEI bit, NR[6] is extracted to monitor the error performance of the other direction of transmission.	9.6.5	m	
2	The application process is performed as specified in EN 300 417-1-1 subclause 7.4.2.	9.6.5, EN 300 417-1-1 subclause 7.4.2	m	

Table G.234: Incoming AIS code processing

Item	Incoming AIS code processing	Reference	Status	Support
1	The function extracts the Incoming AIS code from bits NR[1-4].	9.6.5	m	

G.4.6.5.3 Defects (P4sDm_TT_Sk)

Table G.235: Defects for P4sDm_TT_Sk

Item	Defects for P4sDm_TT_Sk	Reference	Status	Support
1	The function detects for an unequipped Tandem Connection (dUNEQ) condition by monitoring byte NR for code "00000000".	9.6.5	m	
2	The unequipped defect (dUNEQ) is detected if five consecutive P4s frames contain the "0000 0000" pattern in byte NR.	9.6.5	m	
3	The dUNEQ defect is cleared if in five consecutive NR frames any pattern other than the "0000 0000" is detected in byte NR.	9.6.5	m	
4	The loss of tandem connection defect (dLTC) is detected if the multiframe alignment process is in the OOM state.	9.6.5	m	
5	The dLTC is cleared if the multiframe alignment process is in the IM state.	9.6.5	m	
6	The function shall detect for a TC mis-connection condition by monitoring the TC trace identifier.	9.6.5	m	
7	The Trace Identifier Mismatch defect (dTIM) is detected within a maximum period of 1 s in the absence of bit errors.	9.6.5	m	
8	The Trace Identifier Mismatch defect (dTIM) is cleared within a maximum period of 1 s in the absence of bit errors.	9.6.5	m	
9	The defect is suppressed during the receipt of SSF.	9.6.5	m	
10	It is possible to disable the trace identifier mismatch defect detection (TIMdis).	9.6.5	m	
11	The function detects for a TC signal degrade defect (dDEG) condition by monitoring for TC BIP-8 violations, according subclause 8.2.1.4 in EN 300 417-1-1.	9.6.5, EN 300 417-1-1 subclause 8.2.1.4	m	
12	The function detects for a TC remote defect indication defect (dRDI) condition by monitoring the TC RDI signal, according subclause 8.2.1.5 in EN 300 417-1-1.	9.6.5, EN 300 417-1-1 subclause 8.2.1.5	m	
13	The function detects for a TC remote outgoing P4s defect indication defect (dODI) condition by monitoring the TC ODI signal, according subclause 8.2.1.5 in EN 300 417-1-1.	9.6.5, EN 300 417-1-1 subclause 8.2.1.5	m	

G.4.6.5.4 Consequent actions (P4sDm_TT_Sk)

Table G.236: Consequent actions for P4sDm_TT_Sk

Item	Consequent actions for P4sDm_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: aTSF <-- CI_SSF or dUNEQ or dTIM or dLTC.	9.6.5	m	
2	The function implements the following logical equation: aTSD <-- dDEG.	9.6.5	m	

G.4.6.5.5 Defect Correlations (P4sDm_TT_Sk)

Table G.237: Defect Correlations for P4sDm_TT_Sk

Item	Defect Correlations for P4sDm_TT_Sk	Reference	Status	Support
1	The function implements the following logical equation: cRDI <-- MON and (not dUNEQ) and (not dTIM) and (not dLTC) and dRDI and RDI_Reported.	9.6.5	c23701	
2	The function implements the following logical equation: cSSF <-- MON and CI_SSF and SSF_reported.	9.6.5	c23702	
3	The function implements the following logical equation: cDEG <-- MON and (not dTIM) and (not dLTC) and dDEG.	9.6.5	c23703	
4	The function implements the following logical equation: cUNEQ <-- MON and dUNEQ.	9.6.5	c23704	
5	The function implements the following logical equation: cTIM <-- MON and (not dUNEQ) and (not dLTC) and dTIM.	9.6.5	c23705	
6	The function implements the following logical equation: cLTC <-- MON and (not dUNEQ) and dLTC.	9.6.5	c23706	
7	The function implements the following logical equation: cODI <-- MON and (not dUNEQ) and (not dTIM) and (not dLTC) and dODI and ODI_Reported.	9.6.5	c23707	

c23701: IF G.225/1 THEN m ELSE n/a -- cRDI is reported
c23702: IF G.225/2 THEN m ELSE n/a -- cSSF is reported
c23703: IF G.225/3 THEN m ELSE n/a -- cDEG is reported
c23704: IF G.225/4 THEN m ELSE n/a -- cUNEQ is reported
c23705: IF G.225/5 THEN m ELSE n/a -- cTIM is reported
c23706: IF G.225/11 THEN m ELSE n/a -- cLTC is reported
c23707: IF G.225/12 THEN m ELSE n/a -- cODI is reported

G.4.6.5.6 Performance monitoring (P4sDm_TT_Sk)

Table G.238: Performance Monitoring (P4sDm_TT_Sk)

Item	Performance Monitoring (P4sDm_TT_Sk)	Reference	Status	Support
1	The function implements the following logical equation: pN_DS <-- aTSF or dEQ.	9.6.5	c23801	
2	The function implements the following logical equation: pN_EBC <-- Sum(nN_B) The "Sum" is calculated over a one-second period.	9.6.5	c23802	
3	The function implements the following logical equation: pF_DS <-- dRDI.	9.6.5	c23803	
4	The function implements the following logical equation: pF_EBC <-- Sum(nF_B) The "Sum" is calculated over a one-second period.	9.6.5	c23804	
5	The function implements the following logical equation: pOF_DS <-- dODI.	9.6.5	c23805	
6	The function implements the following logical equation: pOF_EBC <-- Sum(nOF_B) The "Sum" is calculated over a one-second period.	9.6.5	c23806	

c23801: IF G.225/7 THEN m ELSE n/a -- pN_DS is reported
c23802: IF G.225/8 THEN m ELSE n/a -- pN_EBC is reported
c23803: IF G.225/9 THEN m ELSE n/a -- pF_DS is reported
c23804: IF G.225/10 THEN m ELSE n/a -- pF_EBC is reported
c23805: IF G.225/13 THEN m ELSE n/a -- pOF_DS is reported
c23806: IF G.225/14 THEN m ELSE n/a -- pOF_EBC is reported

Annex H (normative): ICS proforma for P4x Path Layer

There are currently no P4x atomic functions defined. P4x_CP is defined only, supporting fixed interconnections.

Annex I (normative): ICS proforma for P32x Path Layer

There are currently no P32x atomic functions defined. P32x_CP is defined only, supporting fixed interconnections.

Annex J (normative): ICS proforma for P31x Path Layer

There are currently no P31x atomic functions defined. P31x_CP is defined only, supporting fixed interconnections.

Annex K (normative): ICS proforma for P22x Path Layer

There are currently no P22x atomic functions defined. P22x_CP is defined only, supporting fixed interconnections.

Annex L (normative): ICS proforma for P12x Path Layer

There are currently no P12x atomic functions defined. P12x_CP is defined only, supporting fixed interconnections.

Annex M (normative): ICS proforma for P11x Path Layer

There are currently no P11x atomic functions defined. P11x_CP is defined only, supporting fixed interconnections.

Annex N (normative): ICS proforma for P0s Path Layer

There are currently no P0s atomic functions defined. P0s_CP is defined only, supporting fixed interconnections.

Annex O (normative): ICS proforma for P0-31c Path Layer

There are currently no P0-31c atomic functions defined. P0-31c_CP is defined only, supporting fixed interconnections.

History

Document history				
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