

# ETSI ES 200 778-3 V1.1.1 (2002-01)

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*ETSI Standard*

**Access and Terminals (AT);  
Analogue access to the  
Public Switched Telephone Network (PSTN);  
Protocol over the Local loop for display and related services;  
Terminal equipment requirements;  
Part 3: Protocol Implementation Conformance  
Statement (PICS) proforma specification  
On-Hook and Off-Hook**

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Reference

DES/AT-030001-3

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Keywords

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## Foreword

This ETSI Standard (ES) has been produced by ETSI Technical Committee Access and Terminals (AT).

The present document is part 3 of a multi-part deliverable covering the PSTN subscriber line protocol over the local loop for display (and related) services, as identified below:

EN 300 778-1: "On-hook data transmission";

EN 300 778-2: "Off-hook data transmission";

**ES 200 778-3: "Protocol Implementation Conformance Statement (PICS) proforma specification On-Hook and Off-Hook";**

ES 200 778-4: "Test Suite Structure and Test Purposes (TSS&TP); On-Hook and Off-Hook";

ES 200 778-5: "TTCN (On-Hook and Off-Hook)".

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## 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 given protocol. Such a statement is called an Implementation Conformance Statement (ICS). An ICS stating what capabilities and options have been implemented for a particular protocol is called a protocol ICS. This is commonly abbreviated to "PICS".

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# 1 Scope

The present document provides the Protocol Implementation Conformance Statement (PICS) proforma for the subscriber line protocol for the support of PSTN display services at Local Exchange (LE) in "on-hook" state defined in EN 300 778-1 [1] and in EN 300 659-3 [3] in compliance with the relevant requirements and in accordance with the relevant guidance given in ISO/IEC 9646-7 [5].

The present document also provides the Protocol Implementation Conformance Statement (PICS) proforma for the subscriber line protocol for the support of PSTN display services at Local Exchange (LE) in "off-hook" state defined in EN 300 778-2 [2] and in EN 300 659-3 [3] in compliance with the relevant requirements and in accordance with the relevant guidance given in ISO/IEC 9646-7 [5].

The supplier of a protocol implementation that is claimed to conform to either EN 300 778-1 [1] and EN 300 659-3 [3], EN 300 778-2 [2] and EN 300 659-3 [3] or both is required to complete a copy of the PICS proforma provided in annex A of the present document and is required to provide the information necessary to identify both the supplier and the implementation.

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# 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 and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

- [1] ETSI EN 300 778-1 (V1.2.1): "Access and Terminals (AT); Analogue access to the Public Switched Telephone Network (PSTN); Protocol over the local loop for display and related services; Terminal Equipment requirements; Part 1: On-hook data transmission".
- [2] ETSI EN 300 778-2 (V1.2.1): "Access and Terminals (AT); Analogue access to the Public Switched Telephone Network (PSTN); Protocol over the local loop for display and related services; Terminal Equipment requirements; Part 2: Off-hook data transmission".
- [3] ETSI EN 300 659-3 (V1.3.1): "Access and Terminals (AT); Analogue access to the Public Switched Telephone Network (PSTN); Subscriber line protocol over the local loop for display (and related) services; Part 3: Data link message and parameter codings".
- [4] ETSI EN 300 659-1 (V1.3.1): "Access and Terminals (AT); Analogue access to the Public Switched Telephone Network (PSTN); Subscriber line protocol over the local loop for display (and related) services; Part 1: On-hook data transmission".
- [5] ISO/IEC 9646-7 (1995): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".
- [6] ISO/IEC 9646-1 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".

## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in EN 300 778-1 [1], EN 300 778-2 [2], EN 300 659-3 [3], ISO/IEC 9646-1 [6], ISO/IEC 9646-7 [5] and in particular ISO/IEC 9646-1 [6] and the following 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

NOTE: The ICS can take several forms: protocol ICS, profile ICS, profile specific ICS, and information object ICS.

**Protocol Implementation Conformance Statement (PICS):** ICS for an implementation or system claimed to conform to a given protocol specification

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

### 3.2 Abbreviations

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

From the conformance documents:

ICS	Implementation Conformance Statement
IUT	Implementation Under Test
PICS	Protocol ICS
SUT	System Under Test

From EN 300 778-1 [1]:

AS	Alerting Signal
CLIP	Calling Line Identification Presentation
DC	Direct Current
DIT	Display Information Transfer
DT-AS	Dual Tone-Alerting Signal
DTMF	Dual Tone Multi-Frequency
FSK	Frequency-Shift Keying
LE	Local Exchange
LR	Line Reversal
LR+DT-AS	Line Reversal followed by a Dual Tone-Alerting Signal
PSTN	Public Switched Telephone Network
RP-AS	Ringing Pulse Alerting Signal
TAS	TE Alerting Signal
TE	Terminal Equipment

From EN 300 778-2 [2]:

TE-ACK	TE ACKnowledgement signal
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From EN 300 659-3 [3]:

AOC-D	Advice Of Charge During the call
AOC-E	Advice Of Charge at the End of the call
CCBS	Completion of Calls to Busy Subscriber
CCNR	Completion of Calls on No Reply
CLIR	Calling Line Identification Restriction
CNIP	Calling Name Identification Presentation
CNIR	Calling Name Identification Restriction

CT	Connection Type
MSN	Multiple Subscriber Number
MWI	Message Waiting Indication
SMS	Short Message Service
SUB	SUBaddressing
VPN	Virtual Private Network

---

## 4 Conformance

A PICS proforma that conforms to this PICS proforma specification shall be technically equivalent to annex A, and shall preserve the numbering and ordering of the items in annex A.

A PICS that conforms to this PICS proforma specification shall:

- a) describe an implementation which conforms to either both EN 300 778-1 [1] and EN 300 659-3 [3] or both EN 300 778-2 [2] and EN 300 659-3 [3];
- b) be a conforming PICS proforma, which has been completed in accordance with the instructions for completion given in clause A.1;
- c) include the information necessary to uniquely identify both the supplier and the implementation.

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## Annex A (normative): PICS proforma for EN 300 778-1, EN 300 778-2 and EN 300 659-3

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the PICS proforma in this annex so that it can be used for its intended purposes and may further publish the completed PICS.
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### A.1 Guidance for completing the ICS proforma

#### A.1.1 Purposes and structure

The purpose of this PICS proforma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in either EN 300 778-1 [1] and EN 300 659-3 [3] or EN 300 778-2 [2] and EN 300 659-3 [3] may provide information about the implementation in a standardized manner.

The PICS proforma is subdivided into clauses as follows:

- A.1: guidance for completing the various parts of the PICS proforma;
- A.2: identification of the implementation;
- A.3: identification of the protocol to which this PICS proforma applies;
- A.4: global statement of conformance;
- A.5: roles;
- A.6: questions to determine roles;

#### A.1.2 Abbreviations and conventions

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

##### Item column

The item column contains an identifier related to 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?".

##### Reference column

For protocol related items, the reference column makes reference to EN 300 778-1, except where explicitly stated otherwise.

For messages and parameters, the reference column makes reference to EN 300 659-3, except where explicitly stated otherwise.



### Condition for status column

This column, if used, defines the boolean condition, which applies to the status on the same line.

In case of absence of a condition for status, the status is always applicable.

EXAMPLE:

Item	Major capabilities: Does the implementation support...	Reference	Conditions for status	Status	Support
item.x	...		C1 C2	M O	
item.y	...			M	

The status of the **item.x** is as following:

When C1 is true: M (mandatory),

When C2 is true O (optional).

NOTE 1: C1 and C2 shall be mutually exclusive, when none of the listed conditions is true, the status for the item is implicitly N/A (not applicable).

The **item.y** item is always Mandatory.

### Status column

The following notations, defined in ISO/IEC 9646-7, are used for the status column:

M mandatory - the capability shall 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.

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

### Allowed values column

This column shall be filled out with a value or a range of value that are allowed for the item, according to the conditions.

EXAMPLE: 500 ms ≤ t ≤ 2 000 ms.

### Support or Value column

The support column shall be filled in by the supplier of the implementation. The following common notations, defined in ISO/IEC 9646-7, 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).

1 000 ms the corresponding item was implemented with a value of 1 000 ms.

NOTE 2: As stated in ISO/IEC 9646-7, support for a received PDU requires the ability to parse all valid parameters of that PDU. Supporting a PDU while having no ability to parse a valid parameter is non-conformant. Support for a parameter on a PDU means that the semantics of that parameter are supported.

## References to items

For each possible item answer (answer in the support column) within the PICS proforma a unique reference exists, used, for example, in the conditional expressions.

## 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 PICS proforma

The supplier of the implementation shall complete the PICS proforma in each of the spaces provided. In particular, an explicit answer shall be entered, in each of the support or supported column boxes provided, using the notation described in clause A.1.2.

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

More detailed instructions are given at the beginning of the different subclasses of the PICS proforma.

## A.2 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.

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 PICS should be named as the contact person.

### A.2.1 Date of the statement

.....

### A.2.2 Implementation Under Test (IUT) identification

IUT name:

.....

.....

IUT version:

.....

### A.2.3 System Under Test (SUT) identification

SUT name:

.....

.....

Hardware configuration:

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

Operating system:

.....

## A.2.4 Product supplier

Name:

.....

Address:

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

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

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

## A.2.5 Client (if different from product supplier)

Name:

.....

Address:

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

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

## A.2.6 PICS contact person

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

Name:

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

---

## A.3 Identification of the reference specification type

This PICS proforma applies to the following standards:

**EN 300 778-1 (V1.2.1):** "Public Switched Telephone Network (PSTN); Subscriber line protocol over the local loop for display (and related) services; Part 1: On-hook data transmission".

**EN 300 659-3 (V1.2.1):** "Public Switched Telephone Network (PSTN); Subscriber line protocol over the local loop for display (and related) services; Part 3: Data link message and parameter coding".

**EN 300 778-2 (V1.2.1):** "Public Switched Telephone Network (PSTN); Subscriber line protocol over the local loop for display (and related) services; Part 2: Off-hook data transmission".

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## A.4 Global statement of conformance

Are all mandatory capabilities implemented? (Yes/No)

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

## A.5 Roles

**Table A.1: Roles**

Item	Role	Reference	Status	Support
R.1	Terminal Equipment (TE)	EN 300 778-1 1	M	<input type="checkbox"/> Yes <input type="checkbox"/> No
NOTE: Local Exchange is outside the scope of the present document.				

## A.6 TE role

This clause contains the PICS proforma tables related to the TE role. They need to be completed only for TE implementations:

Prerequisite: A.1/1 -- TE role

### A.6.1 Major capabilities

**Table A.2: Data Transmission**

Item	Major capabilities: Does the implementation support...	Reference	Conditions for status	Status	Support
MC.1	FSK	EN 300 778-1, clause 1 EN 300 778-2, clause 4.4		O.1	
MC.2	DTMF	EN 300 778-1, annex A		O.1	
MC.3	On-hook	EN 300 778-1, clause 1	MC.1	M	
MC.4	Off-hook	EN 300 778-2, clause 1	MC.1	O	
MC.5	Data transmission associated with ringing	EN 300 778-1, clause 4.2.1	MC.3	O.2	
MC.5.1	Data transmission associated with ringing prior to ringing	EN 300 778-1, clause 4.2.1.1	MC.5	O.3	
MC.5.2	Data transmission associated with ringing during ringing	EN 300 778-1, clause 4.2.2	MC.5	O.3	
MC.6	Data transmission not associated with ringing	EN 300 778-1, clause 4.2.2	MC.3	O.2	
O.1	Support of at least one of these options is required.				
O.2	Support of at least one of these options is required.				
O.3	Support of at least one of these options is required.				
Comments:					

## A.6.2 Service capabilities

**Table A.3: Services supported by TE**

Item	Service capabilities: Does the implementation support...	Reference EN 300 659-3	Conditions for status	Status	Support
<b>SC.1</b>	CLIP	annex B	MC.3 OR MC.4	O.1	
<b>SC.2</b>	CLIR	annex B	MC.3 OR MC.4	O.1	
<b>SC.3</b>	CNIP	annex B	MC.3 OR MC.4	O.1	
<b>SC.4</b>	CNIR	annex B	MC.3 OR MC.4	O.1	
<b>SC.5</b>	AOC-D	annex B	MC.3 OR MC.4	O.1	
<b>SC.6</b>	AOC-E	annex B	MC.3 OR MC.4	O.1	
<b>SC.7</b>	SMS	annex B	MC.3 OR MC.4	O.1	
<b>SC.8</b>	CCBS	annex B	MC.3	O.1	
<b>SC.9</b>	CCNR	annex B	MC.3	O.1	
<b>SC.10</b>	MWI	annex B	MC.3 OR MC.4	O.1	
<b>SC.11</b>	MSN	annex B	MC.3 OR MC.4	O.1	
<b>SC.12</b>	SUB	annex B	MC.3 OR MC.4	O.1	
<b>SC.13</b>	CT	annex B	MC.3 OR MC.4	O.1	
<b>SC.14</b>	CALL RETURN	annex B	MC.4	O.1	
<b>SC.15</b>	ALARM CALL	annex B	MC.3 OR MC.4	O.1	
<b>SC.16</b>	USER PROCEDURE NOTIFICATION	annex B	MC.3 OR MC.4	O.1	
<b>SC.17</b>	MONITORING SERVICE	annex B	MC.3 OR MC.4	O.1	
O.1	Support of at least one of these options is required.				
Comments:					

## A.6.3 Physical Layer

### A.6.3.1 Electrical

**Table A.4: Physical Layer Electrical**

Item	Electrical: Does the implementation support...	Reference	Conditions for status	Status	Support
	FSK electrical requirements				
<b>Phy.1</b>	The data signals frequency requirements	EN 300 778-1, clause 4.1.5.1	MC.1	M	
<b>Phy.2</b>	The Data signals rate requirements	EN 300 778-1, clause 4.1.5.2	MC.1	M	
<b>Phy.3</b>	The Data signals levels requirements	EN 300 778-1, clause 4.1.5.3	MC.1	M	
<b>Phy.4</b>	The Data signal unwanted signals requirements	EN 300 778-1, clause 4.1.5.4	MC.1	M	
	On-hook electrical requirements				
<b>Phy.5</b>	The Polarity requirements	EN 300 778-1, clause 4.1.2	MC.3	M	
<b>Phy.6</b>	The AC Termination requirements	EN 300 778-1, clause 4.1.3	MC.3	M	
<b>Phy.7</b>	The DC termination requirements	EN 300 778-1, clause 4.1.4	MC.3	M	
	Off-hook electrical requirements				
<b>Phy.8</b>	Muting of voice path and disabling of manual signalling facility requirements	EN 300 778-2, clause 4.2.1, 2)	MC.4	M	
<b>Phy.9</b>	Sending TE-Ack signal requirements	EN 300 778-2, clause 4.2.1, 3)	MC.4	M	
<b>Phy.10</b>	Entering off-hook signalling state requirements	EN 300 778-2, clause 4.2.1, 4)	MC.4	M	
<b>Phy.11</b>	Restoring voice path after completion of data transmission requirements	EN 300 778-2, clause 4.2.1, 6)	MC.4	M	
<b>Phy.12</b>	Restoring of voice path if no data transmission is received requirements	EN 300 778-2, clause 4.2.1	MC.4	M	
	DTMF electrical requirements				
<b>Phy.13</b>	The additional Polarity requirements	EN 300 778-1, clause A.3.1.3	MC.2	M	
<b>Phy.14</b>	The DC resistance in the DIT state requirements	EN 300 778-1, clause A.3.2.2	MC.2	M	
<b>Phy.15</b>	The AC impedance in the DIT state requirements	EN 300 778-1, clause A.3.2.3	MC.2	M	
<b>Phy.16</b>	The DTMF code reception in DIT state requirements	EN 300 778-1, clause A.3.3	MC.2	M	
Comments:					

## A.6.3.2 Alerting signal types

Table A.5: Alerting signal types

Item	Does the implementation support...	Reference EN 300 778-1	Conditions for status	Status	Support
<b>Alert.1</b>	The Dual Tone Alerting Signal detection (DT-AS)	clause 4.2.1.1.1	MC.5.1 OR MC.6 OR MC.4	O.1	
<b>Alert.2</b>	The Ringing Pulse Alerting Signal detection (RP-AS)	clause 4.2.1.1.2	MC.5.1 OR MC.6	O.1	
<b>Alert.3</b>	The Line-reversal + Dual Tone Alerting Signal detection (LR+DT-AS)	clause 4.2.1.1.3	MC.5.1 OR MC.6	O.1	
<b>Alert.4</b>	First ring pattern detection	clause 4.2.1.2	MC.5.2	M	
<b>Alert.5</b>	Display Information Transfer (DIT) phase	annex A	MC.2	M	
O.1	Support of at least one of these options is required.				
Comments:					



## A.6.3.3 Alerting signals

Table A.6: Alerting signal characteristics

Item	Does the implementation support the detection of...	Reference	Conditions	Allowed value	Value
DT-AS signal characteristics					
<b>AlertSig.1</b>	The nominal low frequency	EN 300 778-1, clause 4.2.3.1 EN 300 778-2, clause 4.2.2	Alert.1	2 130 Hz $\pm$ 0,5 %	
<b>AlertSig.2</b>	The nominal high frequency	EN 300 778-1, clause 4.2.3.1 EN 300 778-2, clause 4.2.2	Alert.1	2 750 Hz $\pm$ 0,5 %	
<b>AlertSig.3</b>	The signal level	EN 300 778-1, clause 4.2.3.1 EN 300 778-2, clause 4.2.2	Alert.1 AND MC.3 Alert.1 AND MC.4	-9 to -40 dBV/tone -12 to -35 dBV/tone	
<b>AlertSig.4</b>	The twist	EN 300 778-1, clause 4.2.3.1 EN 300 778-2, clause 4.2.2	Alert.1	6 dB max	
<b>AlertSig.5</b>	The signal duration	EN 300 778-1, clause 4.2.3.1 EN 300 778-2, clause 4.2.2	Alert.1 AND MC.3 Alert.1 AND MC.4	100 ms $\pm$ 10 ms 80 ms $\pm$ 5 ms	
RP-AS signal characteristics					
<b>AlertSig.6</b>	The frequency	EN 300 778-1, clause 4.2.3.2 EN 300 778-2, clause 4.2.2	Alert.2	25 Hz OR 50 Hz	
<b>AlertSig.7</b>	The amplitude	EN 300 778-1, clause 4.2.3.2 EN 300 778-2, clause 4.2.2	Alert.2	30 to 90 Vms	
<b>AlertSig.8</b>	The signal duration	EN 300 778-1, clause 4.2.3.2 EN 300 778-2, clause 4.2.2	Alert.2	200 to 300 ms	
Comments:					

### A.6.3.4 Criteria for leaving the DIT state

**Table A.7: Criteria for leaving the DIT state**

Item	Does the implementation leave the DIT state on...	Reference EN 300 778-1	Conditions for status	Status	Support
<b>DIT.1</b>	DTMF code <C> received	clause A.3.4.2	Alert.5	O	
<b>DIT.2</b>	Ringing signal received	clause A.3.4.2	Alert.5	O	
<b>DIT.3</b>	Feeding voltage polarity back to idle polarity	clause A.3.4.2	Alert.5	O	
<b>DIT.4</b>	No DTMF code is received within 1 s after the reversal of the feeding voltage polarity and the reversed voltage has reached a level of higher than 30 V DC	clause A.3.4.2	Alert.5	M	
<b>DIT.5</b>	After receipt of a DTMF code the DTMF pause condition is present for more than 1 s	clause A.3.4.2	Alert.5	M	
Comments:					

### A.6.3.5 Timers

**Table A.8: Physical Layer Timers**

Item	Does the implementation support ...	Reference	Conditions	Allowed value	Value
<b>Timer. 1</b>	The timer T0	EN 300 778-1, clause 4.2.1 EN 300 659-1, clause 6	Alert.3	$\geq 100$ ms	
<b>Timer. 2</b>	The timer T1	EN 300 778-1, clause 4.2.1 EN 300 659-1, clause 6	Alert.3	$\geq 45$ ms	
<b>Timer. 3</b>	The timer T2	EN 300 778-1, clause 4.2.1 EN 300 659-1, clause 6	MC.5.1	$200 \text{ ms} \leq T2 \leq 500 \text{ ms}$	
<b>Timer. 4</b>	The timer T3	EN 300 778-1, clause 4.2.1 EN 300 659-1, clause 6	Alert.2	$500 \text{ ms} \leq T3 \leq 800 \text{ ms}$	
<b>Timer. 5</b>	The timer T4	EN 300 778-1, clause 4.2.1 EN 300 659-1, clause 6	Alert.1	$45 \text{ ms} \leq T4 \leq 500 \text{ ms}$	
<b>Timer. 6</b>	The timer T5	EN 300 778-1, clause 4.2.1 EN 300 659-1, clause 6	MC.5.2	$500 \text{ ms} \leq T5 \leq 2000 \text{ ms}$	
<b>Timer. 7</b>	The timer T6	EN 300 659-1, clause 6	MC.5.2	$\geq 100$ ms	
<b>Timer. 8</b>	The timer T7	EN 300 659-1, clause 6	Alert.3	$\leq 700$ ms	
<b>Timer. 9</b>	The timer T8	EN 300 778-1, clause 4.2.1 EN 300 659-1, clause 6	MC.6	$200 \text{ ms} \leq T8 \leq 500 \text{ ms}$	
<b>Timer. 10</b>	The timer T <sub>D</sub>	EN 300 778-1, clause 4.2.4	Alert.3	$\leq 45$ ms	

Item	Does the implementation support ...	Reference	Conditions	Allowed value	Value
<b>Timer. 11</b>	The timer $T_R$	EN 300 778-1, clause 4.2.4	Alert.3	$\leq 500$ ms	
<b>Timer. 12</b>	The timer $T_{res}$	EN 300 778-1, clause 4.2.4	Alert.3	$\leq 150$ ms	
<b>Timer. 13</b>	The timer $T_A$	EN 300 778-2, clause 4.3	MC.4	85 ms	
<b>Timer. 14</b>	The timer $T_{TE-ACK}$	EN 300 778-2, clause 4.3	MC.4	$65 \text{ ms} \leq T_{TE-ACK} \leq 90 \text{ ms}$	
<b>Timer. 15</b>	The timer $T_F$	EN 300 778-2, clause 4.3	MC.4	295 ms	
<b>Timer. 16</b>	The timer $T_U$	EN 300 778-2, clause 4.3	MC.4	120 ms	

Comments:

### A.6.3.6 Data signal characteristics

**Table A.9: Data signals characteristics**

Item	Does the implementation support ...	Reference EN 300 778-1	Conditions	Allowed value	Value
<b>DataSig. 1</b>	The mark (logical "1" frequency)	clause 4.1.5	MC.1	$1\ 300 \text{ Hz} \pm 1,5\%$	
<b>DataSig. 2</b>	The space (logical "0" frequency)	clause 4.1.5	MC.1	$2\ 100 \text{ Hz} \pm 1,5\%$	
<b>DataSig. 3</b>	The rate	clause 4.1.5	MC.1	$1\ 200 \text{ bit/s} \pm 1\%$	
<b>DataSig. 4</b>	The signal level	clause 4.1.5	MC.3 MC.4	-8 dBV to -36 dBV -11 dBV to -33 dBV	
<b>DataSig. 5</b>	The twist	clause 4.1.5	MC.1	6 dB max	

Comments:

## A.6.4 Data Link Layer

### A.6.4.1 Data Link message format

**Table A.10: Data Link message format**

Item	Does the implementation support ...	Reference	Conditions for status	Status	Support
<b>Datalink.1</b>	Channel seizure (300 alternating bits of mark-space starting with a space)	EN 300 778-1, clause 5.1	MC.3	M	
<b>Datalink.2</b>	Mark signal $180 \pm 25$ mark bits (case a)	EN 300 778-1, clause 5.2 a)	MC.3	O.1	
<b>Datalink.3</b>	Mark signal $80 \pm 25$ mark bits (case b)	EN 300 778-1, clause 5.2 b) EN 300 778-2, clause 5.2	MC.3 MC.4	O.1 M	
<b>Datalink.4</b>	Message length of a value of 3 bytes to 255 bytes	EN 300 778-1, clause 5.4 EN 300 778-2, clause 5.4	MC.1	M	
<b>Datalink.5</b>	Checksum	EN 300 778-1, clause 5.5 EN 300 778-2, clause 5.5	MC.1	M	
<b>Datalink.6</b>	Restoring of the voice paths on detection of an incorrect checksum	EN 300 778-2, clause 5.6	MC.4	M	
O.1	Support of at least one of these options is required.				
Comments:					

## A.6.4.2 Data Link Message Types

**Table A.11: Data link message types**

Item	Does the implementation support ...	Reference EN 300 659-3	Conditions for status	Status	Support
<b>MSGtype.1</b>	Call Set-Up	clause 5.1	(SC.1 or .2 or .3 OR SC.4 or C.8 or C.9 or SC.11 or SC.12 or SC.13 or SC.14 or SC.15 or SC.17)	M	
<b>MSGtype.2</b>	Message Waiting Indicator	clause 5.2	(SC.10 or SC.11 or SC.12 or SC.13)	M	
<b>MSGtype.3</b>	Advice of Charge	clause 5.3	(SC.5 or SC.6 or SC.11 or SC.12 or SC.13)	M	
<b>MSGtype.4</b>	Short Message Service	clause 5.4	(SC.7 or SC.11 or SC.12 or SC.13 or SC.16)	M	
Comments:					

## A.6.5 Presentation layer

Indicating support for an item in the following tables, states that the implementation is able to decode the parameter related to that item. The actual requirement for support of that parameter is indicated in separate tables for different message types.

NOTE: Excepted for the parameter Call Type (see clause "Parameter Coding"), all the coding values inside each parameter type shall be recognized.

### A.6.5.1 Call Set Up Message Parameters

**Table A.12: Call Set-Up Message Parameters**

Item	Does the implementation support ...	Reference EN 300 659-3	Conditions for status	Status	Support
<b>CallSetUp.1</b>	Date and Time	annex B	(SC.1 or SC.2 or SC.3 or SC.4 or SC.8 or SC.9 or SC.11 or SC.12 or SC.13 or SC.14 or SC.15 or SC.17)	O	
<b>CallSetUp.2</b>	Calling Line Identity	annex B	((SC.1 or SC.14) AND NOT (CallSetup.3))  (SC.3 or SC.4 or SC.8 or SC.9 or SC.11 or SC.12 or SC.13 or SC.17)	M  O	

Item	Does the implementation support ...	Reference EN 300 659-3	Conditions for status	Status	Support
<b>CallSetup.3</b>	Reason for absence of Calling Line Identity	annex B	((SC.2 or SC.14) AND NOT (CallSetup.2))  (SC.1 or SC.3 or SC.4 or SC.8 or SC.9 or SC.11 or SC.12 or SC.13 or SC.17)	M  O	
<b>CallSetup.4</b>	Called Line Identity	annex B	(SC.1 or SC.2 or SC.3 or SC.4 or SC.8 or SC.9 or SC.11 or SC.12 or SC.13 or SC.17)	O	
<b>CallSetup.5</b>	Calling Party Name	annex B	(SC.3 and not (CallSetup.6))  (SC.1 or SC.2 or SC.11 or SC.12 or SC.13 or SC.14 or SC.17)	M  O	
<b>CallSetup.6</b>	Reason for absence of Calling Party Name	annex B	(SC.4 and not (CallSetup.5))  (SC.1 or SC.2 or SC.3 or SC.11 or SC.12 or SC.13 or SC.14 or SC.17)	M  O	
<b>CallSetup.7</b>	Complementary Calling Line Identity	annex B	(SC.1 or SC.2 or SC.3 or SC.4 or SC.11 or SC.12 or SC.13 or SC.14 or SC.17)	O	
<b>CallSetup.8</b>	Call Type	annex B	(SC.8 or SC.14 or SC.15 or SC.17)  (SC.1 or SC.2 or SC.3 or SC.4 or SC.11 or SC.12 or SC.13)	M  O	
<b>CallSetup.9</b>	First Called Line Identity	annex B	(SC.1 or SC.2 or SC.3 or SC.4 or SC.11 or SC.12 or SC.13 or SC.14 or SC.17)	O	
<b>CallSetup.10</b>	Number of Messages	annex B	(SC.11 or SC.12 or SC.13)	O	
<b>CallSetup.11</b>	Type of Forwarded Call	annex B	(SC.1 or SC.2 or SC.3 or SC.4 or SC.11 or SC.12 or SC.13 or SC.14 or SC.17)	O	
<b>CallSetup.12</b>	Type of Calling User	annex B	(SC.1 or SC.2 or SC.3 or SC.4 or SC.11 or SC.12 or SC.13 or SC.14 or SC.17)	O	
<b>CallSetup.13</b>	Redirecting Number	annex B	(SC.1 or SC.2 or SC.3 or SC.4 or SC.11 or SC.12 or SC.13 or SC.14 or SC.17)	O	

Item	Does the implementation support ...	Reference EN 300 659-3	Conditions for status	Status	Support
<b>CallSetUp.14</b>	Network Provider Identity	annex B	SC.1 or SC.2 or SC.3 or SC.4 or SC.8 or SC.9 or SC.11 or SC.12 or SC.13 or SC.14 or SC.15 or SC.17	O	
<b>CallSetUp.15</b>	Carrier Identity	annex B	(SC.8 or SC.9)	O	
<b>CallSetUp.16</b>	Selection of Terminal Function	annex B	(SC.11 or SC.12 or SC.13)  (SC.1 or SC.2 or SC.3 or SC.4 or SC.8 or SC.9 or SC.14 or SC.15 or SC.17)	M  O	
<b>CallSetUp.17</b>	Display Information	annex B	SC.7  (SC.1 or SC.2 or SC.3 or SC.4 or SC.8 or SC.9 or SC.11 or SC.12 or SC.13 or SC.14 or SC.15 or SC.17)	M  O	
<b>CallSetUp.18</b>	Extension for network operator use	annex B	(SC.1 or SC.2 or SC.3 or SC.4 or SC.8 or SC.9 or SC.11 or SC.12 or SC.13 or SC.14 or SC.15 or SC.17)	O	
<b>CallSetUp.19</b>	Service Information	annex B (see note)	SC.17	O	
NOTE: The Service information parameter is not included in the CallSetup message parameter list in EN 300 659-3, clause 5.2.1.					
Comments:					

## A.6.5.1.1 Message Waiting Indicator Message Parameters

Table A.13: Message Waiting Indicator Message Parameters

Item	Does the implementation support ...	Reference EN 300 659-3	Conditions for status	Status	Support
<b>MWI.1</b>	Date and Time	annex B	SC.10	O	
<b>MWI.2</b>	Calling Line Identity	annex B	(SC.10 and not (MWI.3))	O	
<b>MWI.3</b>	Reason for absence of Calling Line Identity	annex B	(SC.10) and not (MWI.2))	O	
<b>MWI.4</b>	Calling Party Name	annex B	(SC.10 and not (MWI.5))	O	
<b>MWI.5</b>	Reason for absence of Calling Party Name	annex B	(SC.10 and not (MWI.4))	O	
<b>MWI.6</b>	Visual Indicator	annex B	SC.10	M	
<b>MWI.7</b>	Message Identification	annex B	SC.10	O	
<b>MWI.8</b>	Last Message CLI	annex B	SC.10	O	
<b>MWI.9</b>	Complementary Date and Time	annex B	SC.10	O	
<b>MWI.10</b>	Complementary Calling Line Identity	annex B	SC.10	O	
<b>MWI.11</b>	Number of Messages	annex B	SC.10	O	
<b>MWI.12</b>	Type of Calling User	annex B	SC.10	O	
<b>MWI.13</b>	Network Provider Identity	annex B	SC.10	O	
<b>MWI.14</b>	Selection of Terminal Function	annex B	SC.10	O	
<b>MWI.15</b>	Display Information	annex B	SC.10	O	
<b>MWI.16</b>	Extension for network operator use	annex B	SC.10	O	

Comments:



## A.6.5.1.2 Advice of Charge Message Parameters

Table A.14: Advice of Charge Message Parameters

Item	Does the implementation support ...	Reference EN 300 659-3	Conditions for status	Status	Support
<b>AOC.1</b>	Date and Time	annex B	(SC.5 or SC.6)	O	
<b>AOC.2</b>	Calling Line Identity	annex B	((SC.5 or SC.6) and not (AOC.3))	O	
<b>AOC.3</b>	Reason for absence of Calling Line Identity	annex B	((SC.5 or SC.6) and not (AOC.2))	O	
<b>AOC.4</b>	Called Line Identity	annex B	(SC.5 or SC.6)	O	
<b>AOC.5</b>	Complementary Calling Line Identity	annex B	(SC.5 or SC.6)	O	
<b>AOC.6</b>	Charge	annex B	(SC.5 or SC.6)	M	
<b>AOC.7</b>	Additional charge	annex B	(SC.5 or SC.6)	O	
<b>AOC.8</b>	Duration of the call	annex B	(SC.5 or SC.6)	O	
<b>AOC.9</b>	Network Provided Identity	annex B	(SC.5 or SC.6)	O	
<b>AOC.10</b>	Carrier Identity	annex B	(SC.5 or SC.6)	O	
<b>AOC.11</b>	Selection of Terminal Function	annex B	(SC.5 or SC.6)	O	
<b>AOC.12</b>	Display Information	annex B	(SC.5 or SC.6)	O	
<b>AOC.13</b>	Extension for network operator use	annex B	(SC.5 or SC.6)	O	
Comments:					

## A.6.5.1.3 Short Message Service Message Parameters

Table A.15: Short Message Service Message Parameters

Item	Does the implementation support ...	Reference EN 300 659-3	Conditions for status	Status	Support
<b>SMS.1</b>	Date and Time	annex B	SC.7	O	
<b>SMS.2</b>	Calling Line Identity	annex B	(SC.7 and not (SMS.3))	O	
<b>SMS.3</b>	Reason for absence of Calling Line Identity	annex B	(SC.7) and not (SMS.2))	O	
<b>SMS.4</b>	Calling Party Name	annex B	(SC.7 and not (SMS.5))	O	
<b>SMS.5</b>	Reason for absence of Calling Party Name	annex B	(SC.7 and not (SMS.4))	O	
<b>SMS.6</b>	Complementary Calling Line Identity	annex B	SC.7	O	
<b>SMS.7</b>	Type of Calling User	annex B	SC.7	O	
<b>SMS.8</b>	Network Provider Identity	annex B	SC.7	O	
<b>SMS.9</b>	Selection of Terminal Function	annex B	SC.7	O	
<b>SMS.10</b>	Display Information	annex B	SC.7	M	
<b>SMS.11</b>	Service Information	annex B	SC.7	O	
<b>SMS.12</b>	Extension for network operator use	annex B	SC.7	O	
Comments:					

## A.6.5.2 Parameter Coding

## A.6.5.2.1 Call Type Parameter Coding

Table A.16: Call Type Parameter Coding

Item	Does the implementation support ...	Reference EN 300 659-3	Conditions for status	Status	Support
<b>CallType.1</b>	Normal (Voice) Code	clause 5.4.12	(SC.1 or SC.2 or SC.3 or SC.4 or SC.11 or SC.12 or SC.13)	O	
<b>CallType.2</b>	CCBS or CCNR (ring-back)	clause 5.4.12	(SC.8 or SC.9)  (SC.11 or SC.12 or SC.13)	M  O	
<b>CallType.3</b>	Calling name delivery	clause 5.4.12	(SC.3 or SC.4 or SC.11 or SC.12 or SC.13)	O	
<b>CallType.4</b>	Call Return	clause 5.4.12	SC.14  (SC.11 or SC.12 or SC.13)	M  O	
<b>CallType.5</b>	Alarm Call	clause 5.4.12	SC.15  (SC.11 or SC.12 or SC.13)	M  O	
<b>CallType.6</b>	Download function	clause 5.4.12	(SC.1 or SC.2 or SC.3 or SC.4 or SC.11 or SC.12 or SC.13)	O	
<b>CallType.7</b>	Reverse Charging Call	clause 5.4.12	(SC.1 or SC.2 or SC.3 or SC.4 or SC.11 or SC.12 or SC.13)	O	
<b>CallType.8</b>	External Call (VPN)	clause 5.4.12	(SC.1 or SC.2 or SC.3 or SC.4 or SC.11 or SC.12 or SC.13)	O	
<b>CallType.9</b>	Internal Call (VPN)	clause 5.4.12	(SC.1 or SC.2 or SC.3 or SC.4 or SC.11 or SC.12 or SC.13)	O	
<b>CallType.10</b>	Monitoring Call	clause 5.4.12	SC.17  (SC.11 or SC.12 or SC.13)	M  O	
<b>CallType.11</b>	Message waiting	clause 5.4.12	(SC.11 or SC.12 or SC.13)	O	
Comments:					

## A.6.5.3 Handling of invalid presentation messages

Table A.17: TE considerations

Item	Does the implementation support ...	Reference EN 300 659-3	Conditions for status	Status	Support
<b>Invalid.1</b>	Discard a parameter with an unknown value	clause 5.1.3		O	
<b>Invalid.2</b>	Discard an unknown message	clause 5.1.3		O	
<b>Invalid.3</b>	Discard an unknown parameter in a known message, keeping the known parameters	clause 5.1.3		O	
<b>Invalid.4</b>	Discard the message in which exclusive parameters are found	clause 5.1.3		O	
<b>Invalid.5</b>	Discard the message in which two or more of the same parameters are found in a message with different values	clause 5.1.3		O	
<b>Invalid.6</b>	Discard the second parameter in the case where two parameters are identical within a message	clause 5.1.3		O	
<b>Invalid.7</b>	Process the network operator specific message if the IUT recognizes the "Extension for network operator" parameter data	clause 5.1.3		O	
<b>Invalid.8</b>	Discard the complete message if the IUT does not recognize the "Extension for network operator" parameter and if it is a network operator specific type of message	clause 5.1.3	NOT (Invalid.9)	O	
<b>Invalid.9</b>	Discard the parameter if the IUT does not recognize the "Extension for network operator" parameter and if it is a network operator specific parameter or parameter value	clause 5.1.3	NOT (Invalid.8)	O	
Comments:					

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## Annex B (informative): Bibliography

ETSI EN 300 659-2: "Access and Terminals (AT); Analogue access to the Public Switched Telephone Network (PSTN); Subscriber line protocol over the local loop for display (and related) services; Part 2: Off-hook data transmission".

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## History

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