ETSI EN 300 659-3 V1.3.1 (2001-01)

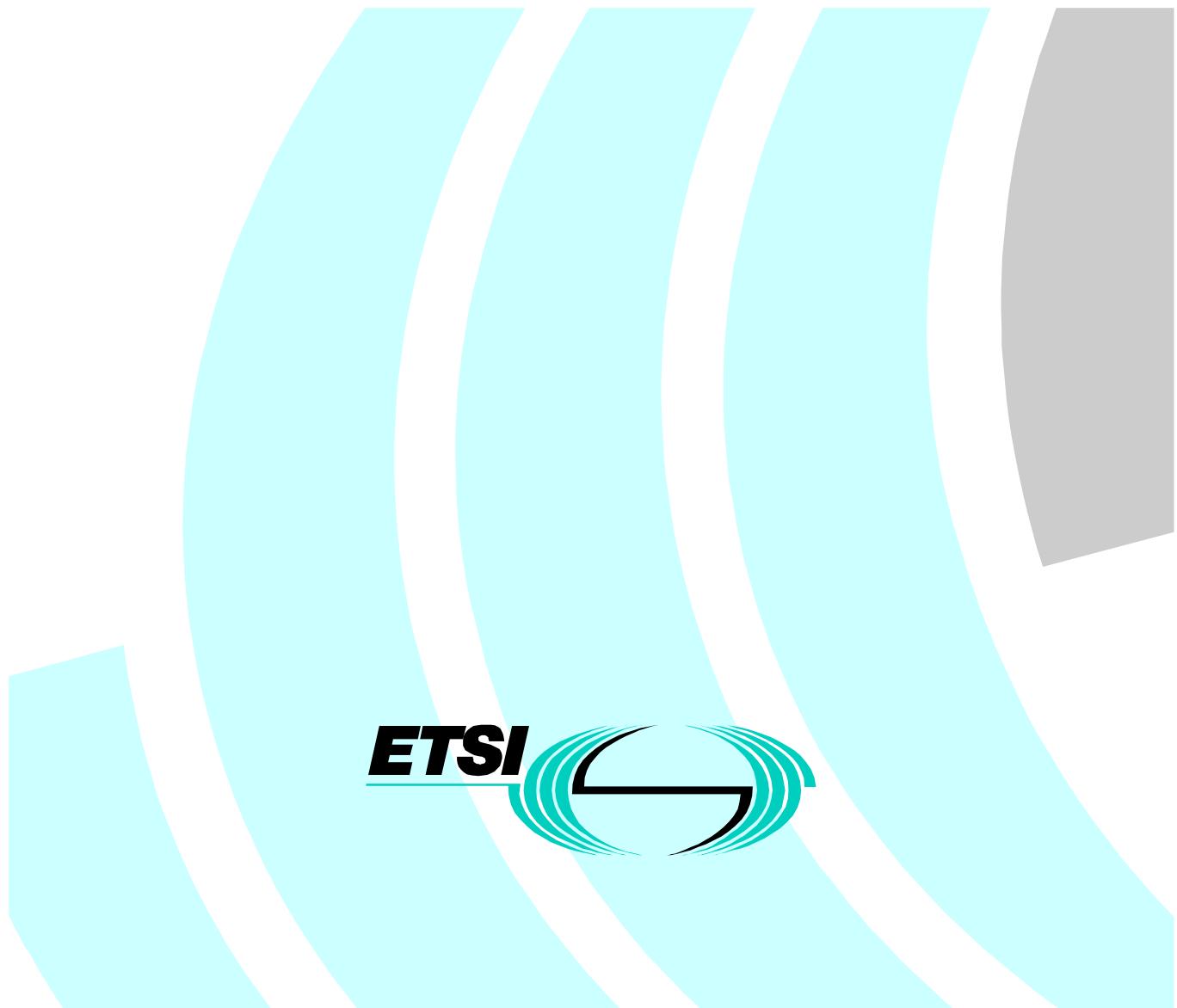*European Standard (Telecommunications series)*

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

ETSI

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Foreword

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

Version 1.2.1 of the present document had been submitted to One-step Approval Procedure 200017 but was withdrawn due to the receipt of substantial technical comments.

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

Part 1: "On-hook data transmission";

Part 2: "Off-hook data transmission";

Part 3: "Data link message and parameter codings".

National transposition dates	
Date of adoption of this EN:	12 January 2001
Date of latest announcement of this EN (doa):	30 April 2001
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 October 2001
Date of withdrawal of any conflicting National Standard (dow):	31 October 2001

1   Scope

The present document specifies the data link message and parameter codings for the PSTN subscriber line protocol to support display and related services sent by the Local Exchange (LE). The data transmission in the subscriber line protocol is accomplished by using asynchronous voice-band Frequency-Shift Keying (FSK) signalling.

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]   ETSI ETS 300 648 (1997): "Public Switched Telephone Network (PSTN); Calling Line Identification Presentation (CLIP) supplementary service; Service description".

[2]   CCITT Recommendation Q.11 (1988): "Numbering plan for the international telephone service".

[3]   CCITT Recommendation T.50 (1992): "International Reference Alphabet (IRA) (Formerly International Alphabet No. 5 or IA5) - Information technology - 7-bit coded character set for information interchange".

[4]   ETSI TR 101 292: "Public Switched Telephone Network (PSTN); Protocol over the local loop for display and related services; Proposed enhancements and maintenance of existing standards".

3   Definitions and abbreviations

3.1   Definitions

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

calling line identity: see ETS 300 648 [1]

graphic character: character that has a visual representation normally hand-written, printed or displayed; in IRA characters 2/1 to 7/14 (see CCITT Recommendation T.50 [3])

3.2   Abbreviations

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

AOC-D	Advice Of Charge During the call
AOC-E	Advice Of Charge at the End of the call
AOC-S	Advice Of Charge at call Set-up
AN	Access Network
CCBS	Completion of Calls to Busy Subscriber
CCNR	Completion of Calls on No Reply
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction

CNIP	Calling Name Identification Presentation
CNIR	Calling Name Identification Restriction
CT	Connection Type
FSK	Frequency-Shift Keying
IRA	International Reference Alphabet
LE	Local Exchange
MSN	Multiple Subscriber Number
MWI	Message Waiting Indication
NPI	Network Provider Identity
NPN	Network Provided Number
PSTN	Public Switched Telephone Network
SDSS	Server Display and Script Services
SMS	Short Message Service
SUB	Subaddressing
TE	Terminal Equipment
UPN	User Provided Number
VPN	Virtual Private Network

4 Data encoding

IRA, as specified in CCITT recommendation T.50 [3] (see annex C) including national versions, shall be used for the character coding.

Control characters 0/0 to 1/15 and 7/15 are not used within this protocol. Characters 8/0 to 15/15 are reserved for network operator use.

5 Data Link message and parameter codings

5.1 Data Link message and general parameter requirements

5.1.1 Data Link Message

A Data Link message (for simplicity: a message) is generally related to a given service, but can be used in support of several different applications (each of them requiring different parameters).

For each message type (or for each service if the same message type is used for different applications) a list of parameters is defined.

Parameters may be sent in any order within a message.

A message can contain parameters for network operator use only.

A range within the Message type coding is reserved for network operator use.

5.1.2 Parameter

A parameter shall be used only once in each message.

The parameter "Extension for network operator use" (see subclause 5.4.26) shall be included in the message when a reserved value for network operator is used in Message type, Parameter type or Parameter data value.

The same parameter may be used within different messages (or different services).

Parameters can be either mandatory or optional according to the service description.

A range within the Parameter type coding is reserved for network operator use.

A range within the values of a parameter can be reserved for network operator use.

5.1.3   TE considerations

The TE does not need to know which parameters are mandatory/optional.

The TE decides how to handle the parameters (e.g. to display information or not).

The TE should discard a parameter with an unknown value.

The TE should discard an unknown message.

The TE should discard an unknown parameter in a known message, keeping the known parameters.

If mutually exclusive parameters are found in a message, the TE should discard the message.

If two or more of the same parameters, but with different values, are found in a message, the TE should discard the message.

If two parameters within a message are identical (same type coding value) the TE should discard the second parameter.

If the TE recognizes the "Extension for network operator" parameter data, it should process the network operator specific Message and/or Parameter in accordance with the network operator specifications.

If the TE does not recognize the "Extension for network operator" parameter, the TE should discard:

- the complete message, if it is a network operator specific type of Message;

- the parameter, if it is a network operator specific Parameter or Parameter value.

5.2   Data Link message types

Table 1 summarizes the messages supported in the present document.

Table 1: Data Link message types

Message Type	Binary coding	Hexadecimal coding	Reference (clause)
Call Set-up	1000 0000	80	5.2.1
Message Waiting Indicator	1000 0010	82	5.2.2
Advice of Charge	1000 0110	86	5.2.3
Short Message Service	1000 1001	89	5.2.4
Reserved for Network Operator use	1111 0001 to 1111 1111	F1 to FF	-

5.2.1   Call Setup message

This message is used to send information related with an incoming call. E.g. Calling Line Identification Presentation (CLIP) and related services.

The Call set-up message may contain the following parameters:

Table 2: Call set-up message parameters

Parameter type	Reference (clause)
Date and Time	5.4.1
Calling Line Identity Or	5.4.2
Reason for absence of Calling Line Identity	5.4.4
Called Line Identity	5.4.3

Calling Party Name	5.4.5
Or	
Reason for absence of Calling Party Name	5.4.6
Complementary Calling Line Identity	5.4.11
Call type	5.4.12
First Called Line Identity	5.4.13
Number of Messages	5.4.14
Type of Forwarded call	5.4.15
Type of Calling User	5.4.16
Redirecting Number	5.4.17
Network Provider Identity	5.4.21
Carrier Identity	5.4.22
Selection of Terminal Function	5.4.23
Display Information	5.4.24
Extension for network operator use	5.4.26
Network operator parameter	-

See annex A and annex B for the parameter status (mandatory/optional at the LE) according to service requirements.

5.2.2 Message Waiting Indicator message

This message type is used to handle information related to messages in a message system.

The Message Waiting Indicator message may contain the following parameters:

Table 3: Message Waiting Indicator message parameters

Parameter type	Reference (clause)
Date and Time	5.4.1
Calling Line Identity	5.4.2
Or	
Reason for absence of Calling Line Identity	5.4.4
Calling Party Name	5.4.5
Or	
Reason for absence of Calling Party Name	5.4.6
Visual Indicator	5.4.7
Message Identification	5.4.8
Last Message CLI	5.4.9
Complementary Date and Time	5.4.10
Complementary Calling Line Identity	5.4.11
Number of Messages	5.4.14
Type of Calling User	5.4.16
Network Provider Identity	5.4.21
Selection of Terminal Function	5.4.23
Display Information	5.4.24
Extension for network operator use	5.4.26
Network operator parameter	-

See annex B for the parameter status (mandatory/optional at the LE) according to service requirements.

5.2.3   Advice of Charge message

This message is used to send information related to the charge of a call.

The Advice Of Charge message may contain the following parameters:

Table 4: Advice Of Charge message parameters

Parameter type	Reference (clause)
Date and Time	5.4.1
Calling Line Identity Or	5.4.2
Reason for absence of Calling Line Identity	5.4.4
Called line identity	5.4.3
Complementary Calling Line Identity	5.4.11
Charge	5.4.18
Additional Charge	5.4.19
Duration of the call	5.4.20
Network Provider Identity	5.4.21
Carrier Identity	5.4.22
Selection of Terminal Function	5.4.23
Display information	5.4.24
Extension for network operator use	5.4.26
Network operator parameter	-

See annex B for the parameter status (mandatory/optional at the LE) according to service requirements.

NOTE: The Advice of charge at call Set-up (AOC-S) has not been included in the present document because it has not been deemed feasible in the PSTN network. The charging information is very complex and not uniform with all operators. The information transfer may interfere with the communication and disturb the user or ongoing data transmission.

5.2.4   Short Message Service message

This message is used to send short text messages to a TE.

The Short Message Service message may contain the following parameters:

Table 5: Short Message Service message parameters

Parameter type	Reference (clause)
Date and Time	5.4.1
Calling Line Identity Or	5.4.2
Reason for absence of Calling Line Identity	5.4.4
Calling Party Name Or	5.4.5
Reason for absence of Calling Party Name	5.4.6
Complementary Calling Line Identity	5.4.11
Type of Calling User	5.4.16
Network Provider Identity	5.4.21
Selection of Terminal Function	5.4.23
Display Information	5.4.24
Service Information	5.4.25
Extension for network operator use	5.4.26
Network operator parameter	-

See annex B for the parameter status (mandatory/optional at the LE) according to service requirements.

5.3   Parameter types

Table 6 summarizes the Parameter types that are supported.

Table 6: Parameter types

Binary coding	Hexadecimal coding	Length	Parameter type
0000 0001	01	8	Date and Time
0000 0010	02	max. 20 (note)	Calling Line Identity
0000 0011	03	max. 20 (note)	Called Line Identity
0000 0100	04	1	Reason for Absence of Calling Line Identity
0000 0111	07	max. 50	Calling Party Name
0000 1000	08	1	Reason for absence of Calling Party Name
0000 1011	0B	1	Visual Indicator
0000 1101	0D	3	Message Identification
0000 1110	0E	max. 20 (note)	Last Message CLI
0000 1111	0F	8 or 10	Complementary Date and Time
0001 0000	10	max. 20 (note)	Complementary Calling Line Identity
0001 0001	11	1	Call type
0001 0010	12	max. 20 (note)	First Called Line Identity
0001 0011	13	1	Number of Messages
0001 0101	15	1	Type of Forwarded call
0001 0110	16	1	Type of Calling user
0001 1010	1A	max. 20 (note)	Redirecting Number
0010 0000	20	14	Charge
0010 0001	21	14	Additional Charge
0010 0011	23	6	Duration of the Call
0011 0000	30	max. 20	Network Provider Identity
0011 0001	31	max. 20	Carrier Identity
0100 0000	40	max. 21	Selection Of Terminal Function
0101 0000	50	max. 253	Display Information
0101 0101	55	1	Service Information
1110 0000	E0	10	Extension for network operator use
1110 0001 to 1111 1111	E1 to FF	-	Reserved for network operator use

NOTE: New applications have been identified that require more than 20 digits and these may be implemented in the future by some network operators. As a result studies have been initiated to identify a method of extending the parameter fields that:
- allows existing terminals to display useful information when receiving more than 20 digits;
- allows further extension in the future (if required).

5.4   Parameter coding

5.4.1   Date and time parameter

The purpose of the Date and time parameter is to provide the date and the time to the user. It indicates the point in time when the message has been generated by the LE.

Table 7

Octet number	Binary coding	Hexadecimal coding	Contents
1	0000 0001	01	Date and Time
2	0000 1000	08	Parameter length (8)
3	0011 XXXX	3X	Month's most significant digit
4	0011 XXXX	3X	Month's least significant digit
5	0011 XXXX	3X	Day's most significant digit
6	0011 XXXX	3X	Day's least significant digit
7	0011 XXXX	3X	Hour's most significant digit
8	0011 XXXX	3X	Hour's least significant digit
9	0011 XXXX	3X	Minute's most significant digit
10	0011 XXXX	3X	Minute's least significant digit

Days shall range from 01 to 31. Months shall range from 01 (January) to 12 (December). Hours shall range from 00 (midnight) to 23. Minutes shall range from 00 to 59.

Each digit shall be coded according to CCITT Recommendation T.50 [3].

5.4.2 Calling Line Identity parameter

The purpose of the Calling Line Identity parameter is to identify the origin of a call.

Table 8

Octet number	Binary coding	Hexadecimal coding	Contents
1	0000 0010	02	Calling Line Identity (CLI)
2	000X XXXX	XX	Parameter length (max. 20)
3	XXXX XXXX	XX	Digit 1
...	...	...	...
n + 2	XXXX XXXX	XX	Digit n

Digits (0 to 9, * and #) shall be coded according to CCITT Recommendation T.50 [3]. The digits may be interspersed with characters "space" (2/0), "-" (2/13), "(" (2/8), or ")" (2/9).

5.4.3 Called Line Identity parameter

The purpose of the Called Line Identity parameter is to identify the called party of a call.

Table 9

Octet number	Binary coding	Hexadecimal coding	Contents
1	0000 0011	03	Called Line Identity
2	000X XXXX	XX	Parameter length (max. 20)
3	XXXX XXXX	XX	Digit 1
...	...	...	...
n + 2	XXXX XXXX	XX	Digit n

Digits (0 to 9, * and #) shall be coded according to CCITT Recommendation T.50 [3]. The digits may be interspersed with characters "space" (2/0), "-" (2/13), "(" (2/8), or ")" (2/9).

5.4.4   Reason for Absence of Calling Line Identity parameter

The purpose of the Reason for Absence of Calling Line Identity parameter is to describe the reason for absence of Calling Line Identity. The parameters "Calling Line Identity" and "Reason for Absence of Calling Line Identity" are mutually exclusive within a message.

Table 10

Octet number	Binary coding	Hexadecimal coding	Contents
1	0000 0100	04	Reason for absence of CLI
2	0000 0001	01	Parameter length (1)
3	0100 1111	4F	Unavailable
	0101 0000	50	Private (CLIR involved)
	1000 0000 to 1111 1111	80 to FF	reserved for network operator use

5.4.5   Calling Party Name parameter

The purpose of the Calling Party Name parameter is to identify the name of the party originating a call.

Table 11

Octet number	Binary coding	Hexadecimal coding	Contents
1	0000 0111	07	Calling Party Name
2	00XX XXXX	XX	Parameter length (max. 50)
3	XXXX XXXX	XX	Character 1
...	...	...	...
n + 2	XXXX XXXX	XX	Character n

Characters shall be coded according to CCITT Recommendation T.50 [3].

5.4.6   Reason for Absence of Calling Party Name parameter

The purpose of the Reason for Absence of Calling Party Name parameter is to describe the reason for absence of the Calling Party Name.

Table 12

Octet number	Binary coding	Hexadecimal coding	Contents
1	0000 1000	08	Reason for absence of Calling Party Name
2	0000 0001	01	Parameter length (1)
3	0100 1111	4F	Unavailable
	0101 0000	50	Private (Name delivery has been blocked)
	1000 0000 to 1111 1111	80 to FF	reserved for network operator use

5.4.7 Visual Indicator parameter

The purpose of the Visual Indicator parameter is to switch on/off a TE visual indicator (presence/absence of waiting messages).

Table 13

Octet number	Binary coding	Hexadecimal coding	Contents
1	0000 1011	0B	Visual Indicator
2	0000 0001	01	Parameter length (1)
3	0000 0000	00	Deactivation (indicator off)
	1111 1111	FF	Activation (indicator on)
	1000 0000 to 1111 1110	80 to FE	reserved for network operator use

5.4.8 Message Identification parameter

The purpose of the Message Identification parameter is to provide the reference and status of the indicated (displayed or not) message.

Table 14

Octet Number	Binary coding	Hexadecimal coding	Contents	
1	0000 1101	0D	Message Identification	
2	0000 0011	03	Parameter length (3)	
3	0000 0000	00	Removed Message	
	0101 0101	55	Message Reference only	
	1111 1111	FF	Added Message	
4	XXXX XXXX	XX	Message Reference: most significant octet	Integer:
5	XXXX XXXX	XX	Message Reference: least significant octet	0 ... 65535

5.4.9 Last Message CLI parameter

The purpose of the Last Message CLI parameter is to provide the CLI of the calling party who has left the last message in the message system.

Table 15

Octet number	Binary coding	Hexadecimal coding	Contents
1	0000 1110	0E	Last Message CLI
2	000X XXXX	XX	Parameter length (max. 20)
3	XXXX XXXX	XX	Digit 1
...	...	...	...
n + 2	XXXX XXXX	XX	Digit n

Digits (0 to 9, * and #) shall be coded according to CCITT Recommendation T.50 [3]. The digits may be interspersed with characters "space" (2/0), "-" (2/13), "(" (2/8), or ")" (2/9).

5.4.10 Complementary Date and Time parameter

The purpose of the Complementary Date and Time parameter is to provide an additional (service specific) date and time information to the user. The Complementary Date and Time parameter may optionally contain the indication of seconds.

In case of Message Waiting Indication, the Complementary Date and Time parameter indicates the point in time when the related message has been left in a message system.

Table 16

Octet number	Binary coding	Hexadecimal coding	Contents
1	0000 1111	0F	Complementary Date and Time
2	0000 10X0	0X	Parameter length (8 or 10)
3	0011 XXXX	3X	Month's most significant digit
4	0011 XXXX	3X	Month's least significant digit
5	0011 XXXX	3X	Day's most significant digit
6	0011 XXXX	3X	Day's least significant digit
7	0011 XXXX	3X	Hour's most significant digit
8	0011 XXXX	3X	Hour's least significant digit
9	0011 XXXX	3X	Minute's most significant digit
10	0011 XXXX	3X	Minute's least significant digit
11	0011 XXXX	3X	Second's most significant digit (optional)
12	0011 XXXX	3X	Second's least significant digit (optional)

Days shall range from 01 to 31. Months shall range from 01 (January) to 12 (December). Hours shall range from 00 (midnight) to 23. Minutes shall range from 00 to 59. Seconds shall range from 00 to 59.

Each digit shall be coded according to CCITT Recommendation T.50 [3].

5.4.11 Complementary Calling Line Identity parameter

The purpose of the Complementary Calling Line Identity is to convey the Network Provided Number (NPN) when a User Provided Number (UPN) is available and the UPN is transmitted in the Calling Line Identity parameter.

Table 17

Octet number	Binary coding	Hexadecimal coding	Contents
1	0001 0000	10	Complementary CLI
2	000X XXXX	XX	Parameter length (max. 20)
3	XXXX XXXX	XX	Digit 1
...	...	...	...
n + 2	XXXX XXXX	XX	Digit n

Digits (0 to 9, * and #) shall be coded according to CCITT Recommendation T.50 [3]. The digits may be interspersed with characters "space" (2/0), "-" (2/13), "(" (2/8), or ")" (2/9).

5.4.12   Call Type parameter

The purpose of the Call Type parameter is to identify the type of the incoming call and/or the associated service.

Table 18

Octet number	Binary coding	Hexadecimal coding	Contents
1	0001 0001	11	Call Type
2	0000 0001	01	Parameter length (1)
3	0000 0001	01	Normal (voice) Call
	0000 0010	02	CCBS / CCNR
	0000 0011	03	Calling Name Delivery
	0000 0100	04	Call Return
	0000 0101	05	Alarm Call
	0000 0110	06	Download Function
	0000 0111	07	Reverse Charging Call
	0001 0000	10	External Call (VPN)
	0001 0001	11	Internal Call (VPN)
	0101 0000	50	Monitoring Call
	1000 0001	81	Message Waiting Call
	1000 0010 to 1111 1111	82 to FF	reserved for network operator use

5.4.13   First Called Line Identity parameter

In case of forwarded call, the purpose of First Called Line Identity parameter is to identify the first called party.

Table 19

Octet number	Binary coding	Hexadecimal coding	Contents
1	0001 0010	12	First Called Line Identity
2	000X XXXX	XX	Parameter length (max. 20)
3	XXXX XXXX	XX	Digit 1
...	...	...	...
n + 2	XXXX XXXX	XX	Digit n

Digits (0 to 9, * and #) shall be coded according to CCITT Recommendation T.50 [3]. The digits may be interspersed with characters "space" (2/0), "-" (2/13), "(" (2/8), or ")" (2/9).

5.4.14   Number of Messages parameter

The purpose of Number of Messages is to specify the number of waiting messages in a message system.

Table 20

Octet number	Binary coding	Hexadecimal coding	Contents
1	0001 0011	13	Number of Messages
2	0000 0001	01	Parameter length (1)
3	0000 0000	00	No messages
	0000 0001	01	1 message or unspecified number of messages waiting
	0000 0010 to 1111 1111	02 to FF	Number of messages waiting in the message system

The number of messages shall be binary encoded.

5.4.15   Type of Forwarded Call parameter

The purpose of Type of Forwarded Call parameter is to identify the type of call forwarding in case of forwarded calls.

Table 21

Octet number	Binary coding	Hexadecimal coding	Contents
1	0001 0101	15	Type of Forwarded Call
2	0000 0001	01	Parameter length (1)
3	0000 0000	00	Unavailable or unknown forwarded call type
	0000 0001	01	Forwarded call on busy
	0000 0010	02	Forwarded call on no reply
	0000 0011	03	Unconditional forwarded call
	0000 0100	04	Deflected call (after alerting)
	0000 0101	05	Deflected call (immediate)
	0000 0110	06	Forwarded call on inability to reach mobile subscriber
	1000 0000 to 1111 1111	80 to FF	reserved for network operator use

5.4.16   Type of Calling User parameter

The purpose of Type of Calling User parameter is to identify the origin of the call.

Table 22

Octet number	Binary coding	Hexadecimal coding	Contents
1	0001 0110	16	Type of Calling User
2	0000 0001	01	Parameter length (1)
3	0000 0000	00	Origination unknown or unavailable
	0000 0001	01	Voice Call
	0000 0010	02	Text Call
	0000 0011	03	VPN (Virtual Private Network)
	0000 0100	04	Mobile phone
	0000 0101	05	Mobile phone + VPN
	0000 0110	06	Fax Call
	0000 0111	07	Video Call
	0000 1000	08	E-mail Call
	0000 1001	09	Operator Call
	0000 1010	0A	Ordinary calling subscriber
	0000 1011	0B	Calling subscriber with priority
	0000 1100	0C	Data Call
	0000 1101	0D	Test call
	0000 1110	0E	Telemetric Call
	0000 1111	0F	Payphone

5.4.17 Redirecting Number parameter

In case of chained forwarded call, the purpose of Redirecting Number parameter is to identify the last redirecting party.

Table 23

Octet number	Binary coding	Hexadecimal coding	Contents
1	0001 1010	1A	Redirecting Number
2	000X XXXX	XX	Parameter length (max. 20)
3	XXXX XXXX	XX	Digit 1
...	...	...	...
n + 2	XXXX XXXX	XX	Digit n

Digits (0 to 9, * and #) shall be coded according to CCITT Recommendation T.50 [3]. The digits may be interspersed with characters "space" (2/0), "-" (2/13), "(" (2/8), or ")" (2/9).

5.4.18 Charge parameter

The purpose of the Charge parameter is to provide the charging information.

The value of bits 6 and 7 of octet 6 shall not be the same in both parameters when the charge parameter and the additional charge parameter are used at the same time.

Table 24

Octet Number	Binary coding	Hexadecimal coding	Content
1	0010 0000	20	Charge
2	0000 1110	0E	Parameter length (14)
3	XXXX XXXX	XX	Currency: character 1
4	XXXX XXXX	XX	Currency: character 2
5	XXXX XXXX	XX	Currency: character 3
6: bit 1	XXXX XXX0 XXXX XXX1	XX XX	Normal charging Free of Charge
6: bit 2	XXXX XX0X XXXX XX1X	XX XX	Total (AOC-E) Subtotal (AOC-D)
6: bit 3	XXXX X0XX XXXX X1XX	XX XX	Normal charging Credit/Debit Card Charging
6: bit 4	XXXX 0XXX XXXX 1XXX	XX XX	Charging information available Charging information not available
6: bit 5	XXX0 XXXX XXX1 XXXX	XX XX	Currency amount Charged units or, charged units and price per unit
6: bits 6 and 7	X00X XXXX X01X XXXX X10X XXXX X11X XXXX	XX XX XX XX	Current call charge Accumulated charge (last call included) Extra charge (note) (for future use)
7	XXXX XXXX	XX	Cost (10 digits): Digit 1 (most significant digit) Or Units (5 digits): Digit 1 (most significant digit)
...	...	...	...
11	XXXX XXXX	XX	Cost Or Units (5 digits) : Digit 5 (least significant digit)
12	XXXX XXXX	XX	Cost Or Price per unit (5 digits): Digit 1 (most significant digit)
...	...	...	...
16	XXXX XXXX	XX	Cost (10 digits) : Digit 10 (least significant digit) Or Price per unit (5 digits): Digit 5 (least significant digit)

NOTE: The purpose of the "Extra Charge" is to provide the cumulated charging information of all calls which have not been made directly on an access and have been terminated at the time when the transmission takes place, e.g. call forwarded calls.

Currency code according to:

international monetary 3-letter acronym Characters shall be coded according to CCITT Recommendation T.50 [3].

E.g. "ITL" is Italian Lira, where "I" is the first character.

Or three characters "-" (2/13, 2/13, 2/13), in the case that only the number of units is provided.

One of the octets in the "cost" or "price per unit" fields may be substituted by "," (comma) indicating a decimal comma.

Digits (0 to 9) and "," (comma) shall be coded according to CCITT Recommendation T.50 [3].

If the value for cost, units or price per unit does not use all of the available digits within the parameter, the leading digits shall be filled with the digit "0".

If units are provided without price per units, price per unit digits are replaced by the character "-" (2/13).

If charging information not available, Currency and Cost shall be replaced by the character "-" (2/13).

Examples of the use of this parameter can be found in annex D.

5.4.19 Additional Charge parameter

The purpose of the Additional Charge parameter is to provide additional charging information when the Charge parameter is already being used.

The value of bits 6 and 7 of octet 6 shall not be the same in both parameters when the charge parameter and the additional charge parameter are used at the same time.

Table 25

Octet Number	Binary coding	Hexadecimal coding	Content
1	0010 0001	21	Additional charge
2	0000 1110	0E	Parameter length (14)
3	XXXX XXXX	XX	Currency: character 1
4	XXXX XXXX	XX	Currency: character 2
5	XXXX XXXX	XX	Currency: character 3
6: bit 1	XXXX XXX0 XXXX XXX1	XX XX	Normal charging Free of Charge
6: bit 2	XXXX XX0X XXXX XX1X	XX XX	Total (AOC-E) Subtotal (AOC-D)
6: bit 3	XXXX X0XX XXXX X1XX	XX XX	Normal charging Credit/Debit Card Charging
6: bit 4	XXXX 0XXX XXXX 1XXX	XX XX	Charging information available Charging information not available
6: bit 5	XXX0 XXXX XXX1 XXXX	XX XX	Currency amount Charged units or, charged units and price per unit
6: bits 6 and 7	X00X XXXX X01X XXXX X10X XXXX X11X XXXX	XX XX	Current call charge Accumulated charge (last call included) Extra charge (note) (for future use)
7	XXXX XXXX	XX	Cost (10 digits): Digit 1 (most significant digit) Or Units (5 digits): Digit 1 (most significant digit)
...	...	...	...

Octet Number	Binary coding	Hexadecimal coding	Content
11	XXXX XXXX	XX	Cost Or Units (5 digits) : Digit 5 (least significant digit)
12	XXXX XXXX	XX	Cost Or Price per unit (5 digits): Digit 1 (most significant digit)
...	...	...	...
16	XXXX XXXX	XX	Cost (10 digits) : Digit 10 (least significant digit) Or Price per unit (5 digits): Digit 5 (least significant digit)

NOTE: The purpose of the "Extra Charge" is to provide the cumulated charging information of all calls which have not been made directly on an access and have been terminated at the time when the transmission takes place, e.g. call forwarded calls.

Currency code according to:

international monetary 3-letter acronym Characters shall be coded according to CCITT Recommendation T.50 [3].

E.g. "ITL" is Italian Lira, where "I" is the first character.

Or three characters "-" (2/13, 2/13, 2/13), in the case that only the number of units is provided.

One of the octets in the "cost" or "price per unit" fields may be substituted by "," (comma) indicating a decimal comma.

Digits (0 to 9) and "," (comma) shall be coded according to CCITT Recommendation T.50 [3].

If the value for cost, units or price per unit does not use all of the available digits within the parameter, the leading digits shall be filled with the digit "0".

If units are provided without price per units, price per unit digits are replaced by the character "-" (2/13).

If charging information not available, Currency and Cost shall be replaced by the character "-" (2/13).

5.4.20   Duration of the Call parameter

The purpose of the Duration of the Call parameter is to indicate the chargeable duration of the call.

Table 26

Octet number	Binary coding	Hexadecimal coding	Content
1	0010 0011	23	Duration of the Call
2	0000 0110	06	Parameter length (6)
3	0011 XXXX	3X	Hour's most significant digit
4	0011 XXXX	3X	Hour's least significant digit
5	0011 XXXX	3X	Minute's most significant digit
6	0011 XXXX	3X	Minute's least significant digit
7	0011 XXXX	3X	Second's most significant digit
8	0011 XXXX	3X	Second's least significant digit

Hours shall range from 00 to 99. Minutes shall range from 00 to 59. Seconds shall range from 00 to 59.

Each digit shall be coded according to CCITT Recommendation T.50 [3].

5.4.21   Network Provider Identity parameter

The "Network Provider Identity" parameter (NPI) provides the TE (served user) with the identity of the current network provider.

Table 27

Octet number	Binary coding	Hexadecimal coding	Content
1	0011 0000	30	Network Provider Identity
2	000X XXXX	XX	Parameter length (max. 20)
3	XXXX XXXX	XX	Character 1
...	...	...	...
n+2	XXXX XXXX	XX	Character n

Characters shall be coded according to CCITT Recommendation T.50 [3].

5.4.22   Carrier Identity parameter

The purpose of the Carrier Identity parameter is to indicate the current network carrier identity.

Table 28

Octet number	Binary coding	Hexadecimal coding	Content
1	0011 0001	31	Carrier Identity
2	000X XXXX	XX	Parameter length (max. 20)
3	XXXX XXXX	XX	Character 1
...	...	...	...
n+2	XXXX XXXX	XX	Character n

Characters shall be coded according to CCITT Recommendation T.50 [3].

5.4.23   Selection of Terminal Function parameter

The purpose of the "Selection of Terminal Function" parameter is to provide information to select a specific terminal or a terminal with a specific function.

Table 29

Octet number	Binary coding	Hexadecimal coding	Content
1	0100 0000	40	Selection of Terminal Function
2	000X XXXX	XX	Parameter length (2 to 21)
3	0000 0001 0000 0010 0000 0011	01 02 03	Connection Type (CT) Multiple Subscriber Number (MSN) Subaddress (SUB)
4	XXXX XXXX	XX	Connection Type code Or MSN (max. 20 digits): Digit 1 Or SUB (max. 20 digits): Digit 1
…	…	…	…
n+3	XXXX XXXX	XX	MSN or SUB (max. 20 digits): digit n

Connection Type codes are defined in table 30.

MSN and SUB digits (0 to 9, * and #) shall be coded according to CCITT Recommendation T.50 [3]. The digits may be interspersed with characters "space" (2/0), "-" (2/13), "(" (2/8), or ")" (2/9).

Table 30

Binary coding	Hexadecimal coding	Connection Type codes
0000 0000	00H	Connection Type not identified / Default CT
0000 0001	01H	Voice Call
0000 0010	02H	Fax Call
0000 0011	03H	Data Call
0000 0100	04H	Video Call
0000 0101	05H	E-mail Call
0000 0110	06H	Telemetric Call
0000 0111	07H	Text Call

5.4.24 Display information parameter

The purpose of the Display information parameter is to transmit general text information.

Table 31

Octet number	Binary coding	Hexadecimal coding	Content
1	0101 0000	50	Display information
2	XXXX XXXX	XX	Parameter length (max. 253)
3: bits 1 to 7	X000 0000	X0	Unknown or other
	X000 0001	X1	Positive acknowledgement
	X000 0011	X3	Negative acknowledgement
	X000 0100	X4	Advertisement
	X000 0101	X5	Network Provider Information
	X000 0110	X6	Remote User Provided information
	X111 0000 to X111 1111	X0 to XF	reserved for network operator use
3: bit 8	0XXX XXXX	XX	No stored information
	1XXX XXXX	XX	Stored information
4	XXXX XXXX	XX	Character 1
…			
n+3	XXXX XXXX	XX	Character n

The characters shall be coded according to CCITT Recommendation T.50 [3].

5.4.25 Service Information parameter

This parameter indicates the network status "active" or "not active" of the relevant service.

Table 32

Octet number	Binary coding	Hexadecimal coding	Contents
1	0101 0101	55	Service Information
2	0000 0001	01	Parameter length (1)
3	0000 0000	00	Service not active
	0000 0001	01	Service active
	1000 0000 to 1111 1111	80 to FF	reserved for network operator use

5.4.26 Extension for network operator use parameter

This parameter is used to qualify without ambiguity for the TE the private extension of the standard used by the network operator.

Table 33

Octet number	Binary coding	Hexadecimal coding	Contents
1	1110 000	E0	Extension for network operator use
2	0000 1010	0A	Parameter length (10)
3	XXXX XXXX	XX	First digit of Country code
4	XXXX XXXX	XX	Second digit of Country code or space (20H) if no second digit
5	XXXX XXXX	XX	Third digit of Country code or space (20H) if no third digit
6 to 9	XXXX XXXX	XX	Network Operator code
10 to 12	XXXX XXXX	XX	Version (operator coding)

Parameter octets shall be coded according to CCITT Recommendation T.50 [3]. Unused octets of Network Operator code and Version code shall be coded as "space" (2/0).

The Country code shall be coded in accordance with CCITT Recommendation Q.11 [2].

The Network Operator code is defined by an agreement between the different network operators of each country.

The Version is defined by the network operator.

Annex A (normative):
PSTN CLIP service parameter list

This annex describes how the protocol shall support the PSTN CLIP service as specified in ETS 300 648 [1]. As a service provider option, additional information can be provided to the served user by the optional parameters.

The LE shall use the Call Setup message in data transmission associated with ringing. The message shall contain the parameters as specified in table A.1.

Table A.1

Parameter name	Status
Date and Time	Optional
Calling Line Identity Or Reason for absence of Calling Line Identity	Mandatory
Called Line Identity	Optional
Calling Party Name Or Reason for absence of Calling Party Name	Optional
Complementary Calling Line Identity	Optional
Call type	Optional
First Called Line Identity (in case of forwarded call)	Optional
Type of Forwarded call (in case of forwarded call)	Optional
Type of Calling User	Optional
Redirecting Number (in case of forwarded call)	Optional
Network Provider Identity	Optional
Selection of Terminal Function	Optional
Display Information	Optional
Extension for network operator use	Optional
Network operator parameter	*Optional*

Annex B (normative):
Parameter list per service

A short service description for the services in table B.1, can be found in TR 101 292 [4].

Table B.1

			CLIP/CLIR	CNIP/CNIR	AOC-D,E	SMS	CCBS/CCNR	MWI (note)	MSN, SUB,CT	CALL RETURN	ALARM CALL	USER PROCEDURE NOTIFICATION	MONITORING SERVICE
DATA TRANSMISSION													
ON-HOOK STATE			A	A	A	A	A	A	A	-	A	A	A
OFF-HOOK STATE			A	A	A	A	-	A	A	A	A	A	A
MESSAGE TYPE													
CALL SETUP MESSAGE (80H)			A	A	-	-	A	-	A	A	A	-	A
MESSAGE WAITING INDICATOR (82H)			-	-	-	-	-	A	C	-	-	-	-
ADVICE OF CHARGE (86H)			-	-	A	-	-	-	C	-	-	-	-
SHORT MESSAGE SERVICE (89H)			-	-	-	A	-	-	C	-	-	A	-
PARAMETER TYPE													
DATE AND TIME (01H)			O	O	O	O	O	O	O	O	O	O	O
CALLING LINE IDENTITY (02H)			M/	C/	O/	O/	O	O/	C/	M/	-	-	C/
CALLED LINE IDENTITY (03H)			O	C	O	-	O	-	C	-	-	-	O
REASON FOR ABSENCE OF CALLING LINE IDENTITY (04H)			M/	C/	O/	O/	-	O/	C/	M/	-	-	C/
	4FH	Unavailable	M/	C/	O/	O/	-	O/	C/	M/	-	-	C/
	50H	Private	M/	C/	O/	O/	-	O/	C/	M/	-	-	C/
CALLING PARTY NAME (07H)			C/	M/	-	O/	-	O/	C/	O/	-	-	C/
REASON FOR ABSENCE OF CALLING PARTY NAME (08H)			C/	M/	-	O/	-	O/	C/	O/	-	-	C/
	4FH	Unavailable	C/	M/	-	O/	-	O/	C/	O/	-	-	C/
	50H	Private	C/	M/	-	O/	-	O/	C/	O/	-	-	C/
VISUAL INDICATOR (0BH)			-	-	-	-	-	M	C	-	-	-	-
	00H	Indicator off	-	-	-	-	-	M/	C/	-	-	-	-
	FFH	Indicator on	-	-	-	-	-	M/	C/	-	-	-	-
MESSAGE IDENTIFICATION (0DH)	(0 ... 65535)		-	-	-	O	-	O	C	-	-	-	-
LAST MESSAGE CLI (0EH)			-	-	-	-	-	O	C	-	-	-	-
COMPLEMENTARY DATE AND TIME (0FH)			-	-	-	-	-	O	-	-	-	-	-
COMPLEMENTARY CALLING LINE IDENTITY (10H)			O	C	O	O	-	O	C	O	-	-	O
CALLTYPE (11H)			O	O	-	-	M	-	C	M	M	-	M
	01H	Normal (voice) call	O/	O/	-	-	-	-	C/	-	-	-	-
	02H	CCBS or CCNR (ringback)	-	-	-	-	M	-	C/	-	-	-	-
	03H	Calling name delivery	-	O/	-	-	-	-	C/	-	-	-	-
	04H	Call Return	-	-	-	-	-	-	C/	M	-	-	-
	05H	Alarm call	-	-	-	-	-	-	C/	-	M	-	-
	06H	Download function	O/	O/	-	-	-	-	C/	-	-	-	-

			CLIP/CLIR	CNIP/CNIR	AOC-D,E	SMS	CCBS/CCNR	MWI (note)	MSN, SUB,CT	CALL RETURN	ALARM CALL	USER PROCEDURE NOTIFICATION	MONITORING SERVICE
	07H	Reverse charging Call	O/	O/	-	-	-	-	C/	-	-	-	-
	10H	External call (VPN)	O/	O/	-	-	-	-	C/	-	-	-	-
	11H	Internal call (VPN)	O/	O/	-	-	-	-	C/	-	-	-	-
	50H	Monitoring call	-	-	-	-	-	-	C/	-	-	-	M/
	81H	Message waiting	-	-	-	-	-	-	C/	-	-	-	-
FIRST CALLED LINE IDENTITY (12H)			O	C	-	-	-	-	C	O	-	-	O
NUMBER OF MESSAGES (13H)			-	-	-	-	-	O	C	-	-	-	-
	00H	No messages	-	-	-	-	-	O/	C/	-	-	-	-
	01H	One or unspecified number of messages	-	-	-	-	-	O/	C/	-	-	-	-
	02H-FFH	Number of messages	-	-	-	-	-	O/	C/	-	-	-	-
TYPE OF FORWARDED CALL (15H)			O	C	-	-	-	-	C	O	-	O	O
	00H	Unavailable or unknown type	O/	C/	-	-	-	-	C/	O/	-	O/	O/
	01H	On busy	O/	C/	-	-	-	-	C/	O/	-	O/	O/
	02H	On no reply	O/	C/	-	-	-	-	C/	O/	-	O/	O/
	03H	Unconditional	O/	C/	-	-	-	-	C/	O/	-	O/	O/
	04H	Deflected call after alerting	O/	C/	-	-	-	-	C/	O/	-	O/	O/
	05H	Deflected call immediate	O/	C/	-	-	-	-	C/	O/	-	O/	O/
	06H	On inability to reach mobile subscriber	O/	C/	-	-	-	-	C/	O/	-	O/	O/
TYPE OF CALLING USER (16H)			O	O	-	O	-	O	C	O	-	-	O
	00H	Origin unknown or unavailable	O/	O/	-	O/	-	O/	C/	O/	-	-	O/
	01H	Voice call	O/	O/	-	O/	-	O/	C/	O/	-	-	O/
	02H	Text call	O/	O/	-	O/	-	O/	C/	O/	-	-	O/
	03H	VPN	O/	O/	-	O/	-	O/	C/	O/	-	-	O/
	04H	Mobile phone	O/	O/	-	O/	-	O/	C/	O/	-	-	O/
	05H	Mobile phone + VPN	O/	O/	-	O/	-	O/	C/	O/	-	-	O/
	06H	Fax call	O/	O/	-	O/	-	O/	C/	O/	-	-	O/
	07H	Video call	O/	O/	-	O/	-	O/	C/	O/	-	-	O/
	08H	E-mail call	O/	O/	-	O/	-	O/	C/	O/	-	-	O/

			CLIP/CLIR	CNIP/CNIR	AOC-D,E	SMS	CCBS/CCNR	MWI (note)	MSN, SUB,CT	CALL RETURN	ALARM CALL	USER PROCEDURE NOTIFICATION	MONITORING SERVICE
	09H	Operator call	O/	O/	-	O/	-	O/	C/	O/	-	-	O/
	0AH	Ordinary calling subscriber	O/	O/	-	O/	-	O/	C/	O/	-	-	O/
	0BH	Calling subscriber with priority	O/	O/	-	O/	-	O/	C/	O/	-	-	O/
	0CH	Data call	O/	O/	-	O/	-	O/	C/	O/	-	-	O/
	0DH	Test call	O/	O/	-	O/	-	O/	C/	O/	-	-	O/
	0EH	Telemetric call	O/	O/	-	O/	-	O/	C/	O/	-	-	O/
	0FH	Pay phone	O/	O/	-	O/	-	O/	C/	O/	-	-	O/
REDIRECTING NUMBER (1AH)			O	C	-	-	-	-	C	O	-	-	O
CHARGE (20H)			-	-	M	-	-	-	C	-	-	-	-
ADDITIONAL CHARGE (21H)			-	-	O	-	-	-	C	-	-	-	-
DURATION OF THE CALL (23H)			-	-	O	-	-	-	C	-	-	-	-
NETWORK PROVIDER IDENTITY (30H)			O	O	O	O	O	O	O	O	O	O	O
CARRIER IDENTITY (31H)			-	-	O	-	O	-	-	-	-	-	-
SELECTION OF TERMINAL FUNCTION(40H)			C	C	C	C	C	C	M	C	C	C	C
	01H	Connection type	C/	C/	C	C/	-	-	M/	C/	-	-	C/
	02H	MSN	C/	C/	C	C/	C	C	M/	C/	C	C	C/
	03H	SUB	C/	C/	-	C/	-	-	M/	C/	-	-	C/
DISPLAY INFORMATION (50H)			O	O	O	M	O	O	O	O	O	O	O
SERVICE INFORMATION (55H)			-	-	-	O	-	-	-	-	-	M	O
	00H	Service not active	-	-	-	O/	-	-	-	-	-	M/	O/
	01H	Service active	-	-	-	O/	-	-	-	-	-	M/	O/
EXTENSION FOR NETWORK OPERATOR USE (E0H)			O	O	O	O	O	O	O	O	O	O	O

REMARKS

A: Applicable

C: When different compatible services are invoked at the same time, their relevant information should be transmitted in a unique message.

M: Mandatory

-: Not applicable

O: Optional

/: Either of one or more options

NOTE: The LE should use the Message Waiting Indicator message type in data transmission not associated with ringing.

The same information can be transmitted to the TE using the Call Setup message in data transmission associated with ringing. In this context, the mandatory parameter is "Call Type" (parameter type: 11H) coded as "Message waiting call" (81H).
This message (Call Setup) can be completed by optional parameters.

Annex C (informative):
International reference alphabet - 7-bit basic code table

					b₇ 0	0	0	0	1	1	1	1
					b₆ 0	0	1	1	0	0	1	1
					b₅ 0	1	0	1	0	1	0	1
b₄	**b₃**	**b₂**	**b₁**		0	1	2	3	4	5	6	7
0	0	0	0	0			SP	0	③	P	④	p
0	0	0	1	1			!	1	A	Q	a	q
0	0	1	0	2			"	2	B	R	b	r
0	0	1	1	3			#/£	3	C	S	c	s
0	1	0	0	4			¤/$	4	D	T	d	t
0	1	0	1	5			%	5	E	U	e	u
0	1	1	0	6			&	6	F	V	f	v
0	1	1	1	7			'	7	G	W	g	w
1	0	0	0	8			(	8	H	X	h	x
1	0	0	1	9			)	9	I	Y	i	y
1	0	1	0	10			*	:	J	Z	j	z
1	0	1	1	11			+	;	K	②	k	②
1	1	0	0	12			,	<	L	②	l	②
1	1	0	1	13			-	=	M	②	m	②
1	1	1	0	14			.	>	N	②	n	②
1	1	1	1	15			/	?	O	_	o	DEL

NOTE: b_8, the most significant bit, is always 0.

②: These codes can be used for national characters.

③: This code should be used for "@" within an email-address.

④: This code should be used for the Euro-Sign "€".

Annex D (informative):
Examples for charge parameter use

D.1   Example: Currency amount (23,45 FRF)

Octet number	Binary coding	Hexadecimal coding	Content
1	0010 0000	20H	Charge
2	0000 1110	0EH	Parameter length (14)
3	0100 0110	46H	Currency: Character 1 "F"
4	0101 0010	52H	Currency: Character 2 "R"
5	0100 0110	46H	Currency: Character 3 "F"
6	XXX0 0000	00H	bit 1= 0: Normal charging bit 2 = 0: Total (AOC-E) bit 3 = 0: Normal charging bit 4 = 0: Charging information available bit 5 = 0: Currency amount bits 6 and 7 = 00: Current Call charge
7	0011 0000	30H	Cost : Digit 1 "0" (most significant digit)
8	0011 0000	30H	Cost: Digit 2 "0"
9	0011 0000	30H	Cost: Digit 3 "0"
10	0011 0000	30H	Cost: Digit 4 "0"
11	0011 0000	30H	Cost: Digit 5 "0"
12	0011 0010	32H	Cost: Digit 6 "2"
13	0011 0011	33H	Cost: Digit 7 "3"
14	0010 1100	2CH	Cost: Digit 8 ","
15	0011 0100	34H	Cost: Digit 9 "4"
16	0011 0101	35H	Cost: Digit 10 "5" (least significant digit)

D.2   Example: only units (23) without price per unit

Octet number	Binary coding	Hexadecimal coding	Content
1	0010 0000	20H	Charge
2	0000 1110	0EH	Parameter length (14)
3	0010 1101	2DH	Currency: Character 1 "-"
4	0010 1101	2DH	Currency: Character 2 "-"
5	0010 1101	2DH	Currency: Character 3 "-"
6	XXX1 0000	10H	bit 1= 0: Normal charging bit 2 = 0: Total (AOC-E) bit 3 = 0: Normal charging bit 4 = 0: Charging information available bit 5 = 1: Charged units or, charged units and price per unit bits 6 and 7 = 00: Current Call charge
7	0011 0000	30H	Units: Digit 1 "0" (most significant digit)
8	0011 0000	30H	Units: Digit 2 "0"
9	0011 0000	30H	Units: Digit 3 "0"
10	0011 0000	30H	Units: Digit 4 "2"
11	0011 0010	32H	Units: Digit 5 "3" (least significant digit)
12	0010 1101	2DH	Price per units: Character 1 "-"
13	0010 1101	2DH	Price per units: Character 2 "-"
14	0010 1101	2DH	Price per units: Character 3 "-"
15	0010 1101	2DH	Price per units: Character 4 "-"
16	0010 1101	2DH	Price per units: Character 5 "-"

D.3 Example: units (78) with price per unit (0,12 DEM)

Octet number	Binary coding	Hexadecimal coding	Content
1	0010 0000	20H	Charge
2	0000 1110	0EH	Parameter length (14)
3	0100 0100	44H	Currency: Character 1 "D"
4	0100 0101	45H	Currency: Character 2 "E"
5	0100 1101	4DH	Currency: Character 3 "M"
6	XXX1 0000	10H	bit 1= 0: Normal charging bit 2 = 0: Total (AOC-E) bit 3 = 0: Normal charging bit 4 = 0: Charging information available bit 5 = 1: Charged units or, charged units and price per unit bits 6 and 7 = 00: Current Call charge
7	0011 0000	30H	Units: Digit 1 "0" (most significant digit)
8	0011 0000	30H	Units: Digit 2 "0"
9	0011 0000	30H	Units: Digit 3 "0"
10	0011 0111	37H	Units: Digit 4 "7"
11	0011 1000	38H	Units: Digit 5 "8" (least significant digit)
12	0011 0000	30H	Price per units: Digit 1 "0" (most significant digit)
13	0011 0000	30H	Price per units: Digit 2 "0"
14	0010 1100	2CH	Price per units: Digit 3 ","
15	0011 0001	31H	Price per units: Digit 4 "1"
16	0011 0010	32H	Price per units: Digit 5 "2" (least significant digit)

Bibliography

The following material, though not specifically referenced in the body of the present document (or not publicly available), gives supporting information.

Bellcore GR-30-Core (1994): "LSSGR: Voiceband Data Transmission Interface". Section 6.6.

History

Document history				
V1.2.1	December 1999 April 2000	One-step Approval Procedure Withdrawn from OAP	OAP 200017:	1999-12-29 to 2000-04-28
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