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Advice of Charge (AOC)

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0. DOCUMENT HISTORY

Every update of this document results in a complete new version with new version number and release date.

| Version | Date | Main or important changes since previous version |
|---------|-------------|---|
| 1.0 | 16 AUG 1999 | ... |
| 1.1 | 31 OCT 2000 | <ul style="list-style-type: none">• § 1 and 2. Introduction added• § 3. AOC in EURO• Latest version of PICS |
| 1.2 | 15 NOV 2001 | <ul style="list-style-type: none">• Removal of AOC in BEF |
| 1.3 | 24 JAN 2003 | <ul style="list-style-type: none">• § 1. Chapter added related to the 'Scope'• § 2. Chapter added related to the 'References'• § 3. Chapter added related to 'Symbols, definitions and abbreviations'• § 4. Change title 'general description' in 'service description'• § 4. Adapt description of AOC-S, -D & -E according to new behavior• § 4. Paragraph related to applicability removed• § 5. Small modification related to interaction with Terminal Portability• § 6. Clarification about precision according to time-based AOC• § 7. Amounts and coding adapted according to new 'time-based' behavior• § 8. Limitations described in a separate chapter• § 9. Chapter added related to influence on 16 kHz• ANNEX 1. New more detailed examples of DSS1 traces included |

1. SCOPE

This document specifies the stage three (the protocol procedures and switching functions implemented to support a telecommunications service) of the Advice Of Charge (AOC) supplementary service for the Integrated Services Digital Network (ISDN) as provided by Proximus at the T reference point or coincident S and T reference point (as defined in ITU Recommendation I.411) by means of the Digital Subscriber Signalling System No. one (DSS1).

The specification is valid for both ISDN Basic Access (BA) and ISDN Primary Rate Access (PRA) and it is applicable to the Siemens 'EWSD V16B' - and 'Alcatel S12 Pack 8' - switching systems.

Some parts of the technical implementation may be different in the two used switching systems. In this case, specific switch-dependent comments are added or tables are used explaining the technical implementation for both systems.

2. REFERENCES

| | |
|---------------|---|
| ETS 300 102-1 | ETSI-specification: Integrated Services Digital Network (ISDN); User-network interface layer 3 Specifications for basic call control |
| EN 300 403-1 | ETSI-specification: Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 1: Protocol specification |
| ITU-T I.411 | ITU-recommendation: ISDN user-network interfaces - Reference configurations |
| ETS 300 178 | ETSI-specification: Integrated Services Digital Network (ISDN); Advice Of Charge: charging information at call set-up time (AOC-S) supplementary service Service description |
| ETS 300 179 | ETSI-specification: Integrated Services Digital Network (ISDN); Advice Of Charge: charging information during the call (AOC-D) supplementary service Service description |
| ETS 300 180 | ETSI-specification: Integrated Services Digital Network (ISDN); Advice Of Charge: charging information at the end of the call (AOC-E) supplementary service Service description |
| ETS 300 181 | ETSI-specification: Integrated Services Digital Network (ISDN); Advice of Charge (AOC) supplementary service Functional capabilities and information flows |
| ETS 300 182-1 | ETSI-specification: Integrated Services Digital Network (ISDN); Advice of Charge (AOC) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification |
| ETS 300 182-2 | Integrated Services Digital Network (ISDN); Advice of Charge (AOC) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification |

3. SYMBOLS, DEFINITIONS AND ABBREVIATIONS

For the purpose of the present document, the following symbols, abbreviations and definitions applies:

3.1. Abbreviations

| | |
|------|---|
| AOC | Advice Of Charge |
| BA | Basic Access |
| DSS1 | Digital Subscriber Signalling System No. one |
| ETS | European Telecommunication Standard |
| EWSD | Proximus Switching System of Siemens |
| ISDN | Integrated Services Digital Network |
| IN | Intelligent Network |
| ITU | International Telecommunication Union |
| PICS | Protocol Implementation Conformance Statement |
| PRA | Primary Rate Access |
| S12 | Proximus Switching System of Alcatel |

3.2. Definitions

| | |
|-------|--|
| P | Tariff period |
| \$Np | Price with VAT of tariff per second |
| \$Ns | Price with VAT of the set-up charge |
| \$Nb | Price with VAT of the call attempt |
| \$Sub | Price with VAT of the call up to this moment ($\$Ns + \text{sum } \Np) |
| \$Tot | Total price with VAT of the call ($\$Ns + \text{sum } \Np) |

4. SERVICE DESCRIPTION

Advice Of Charge (AOC) is a group of supplementary services for ISDN accesses, allowing the served user to be informed of usage based charging information. The AOC group of supplementary services includes the following :

- AOC-S : Charging information at call set-up time;
- AOC-D : Charging information during the call; •
AOC-E : Charging information at the end of a call.

More specific :

- The AOC-S supplementary service enables a user to receive information about the charging rates at call set-up time and also to receive further information during the call if there is a change of charging rates.
- The AOC-D supplementary service enables a user to receive information on the recorded charges for a call during the active phase of the call.
- The AOC-E supplementary service enables a user to receive information on the recorded charges for a call when the call is terminated.

The procedures according to the "Generic Functional protocol for the support of supplementary services" (ETS 300 196) will be used to convey the AOC information towards the customers premises; in particular via facility, i.e. in the CONNECT-msg, the FACILITY-msg, the DISCONNECT-msg or the RELEASE-msg.

For ISDN Advice Of Charge, options and clarifications to ETSI standard ETS 300 182 are described in PICS documents (Protocol Implementation Conformance Statement) delivered by the switch vendors. Cf. annexes 2 and 3.

The following charging information will be conveyed on the User-Network-Interface :

AOC-S

- AOC-S is sent during the set-up phase of the call. This will be in the CONNECT-message on Siemens EWSD-switches and as early as possible (before or after the ALERT-message) on Alcatel S12-switches. It will give information about the charged items 'basicCommunication' (P and \$Np), 'callSetup' (\$Ns) and optionally also 'callAttempt' (\$Nb).
- It is also sent during the active phase of the call in case of tariff period modification, and gives information about the charged items 'basicCommunication' (P and \$Np).
- And it is also sent during the clearing phase of the call in case of unsuccessful call (call attempt), and gives information about the charged item 'callAttempt' (\$Nb).

AOC-D

- AOC-D is sent during the active phase of a call (\$Sub).

When a fixed connection cost (\$Ns) is defined, then an AOC-D message (containing this connection cost) is sent immediately after the CONNECT-message.

The transfer of the further AOC-D-messages is based on two threshold values:

A timer threshold value, which is set to 5 seconds

A cost threshold value, which is set to 0.05 €

Depending on the type of switching-system the sending of the next AOC-D messages can be different. These minor differences are clarified with the following examples:

Example 1:

Suppose a connection-cost (\$Ns) of 0,02 EURO and tariff is lower than 0,01 € /sec.

Alcatel - S12

The first AOC-D message (containing the connection-cost of 0,02 €) is send immediately after the CONNECT-msg.

The following AOC-D messages are send each time the total cost has been increased with 0,05 €. So, at the moment the cost is 0,07 €, 0,12 €, 0,17 €,

Siemens - EWSD

The first AOC-D message (containing the connection-cost of 0,02 €) is send immediately after the CONNECT-msg.

The next AOC-D messages are send each time the total cost is equal to a multiple of the cost threshold value of 0,05 €. So, at the moment the cost is 0,05 €, 0,10 €, 0,15 €,

Example 2:

Suppose a connection-cost (\$Ns) of 0,05 EURO and tariff is lower than 0,01 € /sec.

Alcatel - S12

The first AOC-D message (containing the connection-cost of 0,05 €) is send immediately after the CONNECT-msg.

The following AOC-D messages are send each time the total cost has been increased with 0,05 €. So, at the moment the cost is 0,10 €, 0,15 €, 0,20 €,

Siemens - EWSD

The first AOC-D message (containing the connection-cost of 0,05 €) is send immediately after the CONNECT-msg.

The next AOC-D messages are send each time the total cost is equal to a multiple of the cost threshold value of 0,05 €. So, at the moment the cost is 0,10 €, 0,15 €, 0,20 €,

AOC-E

- AOC-E is sent during the clearing phase of a call (\$Tot) in the DISCONNECT or RELEASE message. It always has priority on AOC-D. That means that, since both are active, only AOC-E is sent during the clearing phase.

5. INTERACTION WITH TERMINAL PORTABILITY

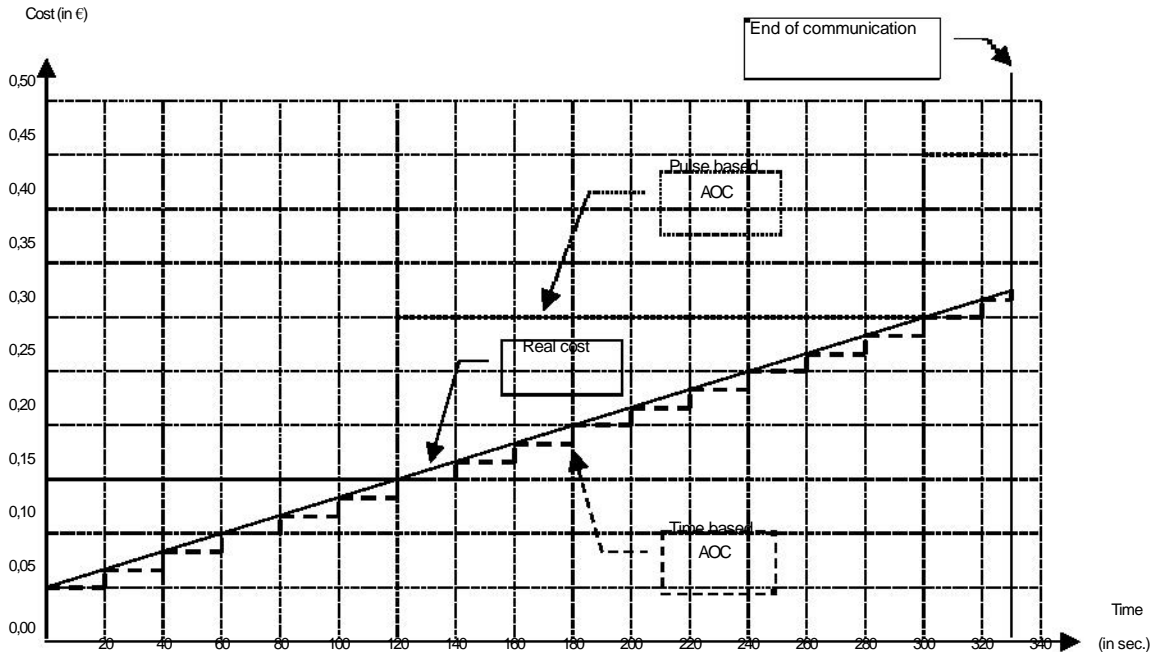
Siemens EWSD-switches: AOC-S information is sent in the SUSPEND-ACK msg, while AOC-D information will be sent in the RESUME-ACK msg. No AOC information is sent during the time the call is suspended.

Alcatel S12-switches: during the time the call is suspended by the calling party, no AOC information is sent. Just after resuming, AOC-D is sent, via a FACILITY-msg indicating the total amount of charge at this point in time.

Remark: This is only valid if the calling user suspended the call, not if the called user did suspend the call.

6. PRECISION OF THE CHARGING INFORMATION

The type of Advice Of Charge is no longer 'Pulse Based' but now it is '**Time Based**'. The difference between 'Pulse based AOC' and 'Time-based AOC' can be easily explained based on the next figure:



Pulse based AOC (previous type of AOC)

A value per pulse is defined (for instance 0,15 EURO)

A time period between the pulses is defined (for instance 180 sec.)

Time periods will be calculated in order to always be above the real cost at any time during the call (REASON: at the end of the call, no precise calculation was done. The latest amount sent during the call, was also considered as the total amount at the end of the call).

Time based AOC (current type of AOC)

A connection cost is defined (for instance 0,05 EURO)

A cost per second is defined (for instance 0,0008333 EURO per second)

During the call, an exact amount is sent whenever the communication cost (without call set-up) passes a certain amount (for example 0,05 EURO).

At the end of the call, the exact amount for the total communication cost is sent.

7. AMOUNTS AND CODING

AOC information is always expressed in EUR.

Currency String = "EUR"
Multiplier = One Hundredth

f.e. : 5,23 EUR => Currency String = "EUR"; currency amount = 523; Multiplier = One Hundredth.

The internal calculation of the tariff in the network is performed with at least 4 digits after the decimal point. But the value in the AOC is rounded to the higher or lower EUR cent.

f.e. : 5,2341 EUR => 5,23 EUR
 5,235 EUR => 5,24 EUR
 5,2361 EUR => 5,24 EUR

The information sent is the total amount (VAT incl.), so it is cumulative and not incremental. The information is derived directly from the Currency Tariffs, and is no longer based on the same tables as for analogue lines. The user will receive, if subscribed to the AOC-D supplementary service, consecutive AOC-D information containing a currency amount, which represents the real actual cost.

The tariff period P (length of time unit) in the AOC-S will be coded differently on both switching-system. On Alcatel S12-switches the value of period P will always be set to 1 with a scale of 'oneSecond' (P = 1 second). On Siemens EWSD-switches the value of period P will always be set to 6000 with a scale of 'oneHundredthSecond' (P = 60 seconds). The multiplier for the currency amount is equal for both switching-systems and is always set to 1/100.

Because a multiplier of 1/100 is used for the currency amount and the value of period P on the Alcatel S12-switches is set to one second it could be that on these switches in the AOC-S a currency value "00" will be included. This will not occur on EWSD-switches because on EWSD the value of period P is set to 60 seconds and so the cost per minute i.s.o. the cost per second is included in the AOC-S.

The ChargingType in the AOC-S will be 'continuous charging'.

In annex 1, you will find a few examples of DSS1 protocol traces for different types of calls.

8. LIMITATIONS

The AOC information sent is the best possible estimation for the basic call tariffs applied by Proximus. At any time of the call, the information will be normally not higher than the real charges.

Special cases

In addition to the basic call tariffs, an increasing number of discounts and special tariffs are offered by Proximus, on volume or subscription basis. These are not covered by any of the charging information services, i.e. the AOC information does not take these discounts and special tariffs into account.

Calls set-up from Proximus telephone lines but handled by another carrier will not be charged by Proximus. This includes 0800 calling card services, and carriers access via a carrier selection code (15xx or 16xx) or via carrier pre-selection.

For calls routed to a carrier via carrier selection or pre-selection, the "no charge info available" indication is given by the AOC service.

Additionally, more and more IN-based services will be developed with dynamic charging. This dynamic charging is also not covered.

9. INFLUENCE OF TIME-BASED AOC ON 16kHz-FEATURE USED ON ANALOG LINES

The feature 16 kHz used on analogue lines, will not be influenced by the ISDN Time-Based AOC.

The timing when pulses are sent on an analogue line, and the timing when AOC messages are sent on an ISDN line are completely independent.

10. ANNEX 1 SOME EXAMPLES OF DSS1 PROTOCOL TRACES

Important remark : The mentioned information in this ANNEX must explicitly be seen as examples. The contents may vary, depending on the used tariffs, supplementary service usage, etc. This means that other values or other items can also be sent.

10.1. Normal charged, successful call

10.1.1. Normal charged, successful call (on ALCATEL S12 switch)

```
Frame: 706 -----
Date: 1/ 3/2003      13:50:49.767.232 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----
29: 00 81 00 00 08 01 01 05 04 03 80 90 A3 70 0A 81
    30 32 37 39 38 36 32 30 33 7D 02 91 81
    ----- Layer 3 Info -----
    Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
   -0000001 Call Reference value          CR: 01
   0----- Message from CR-origination side
05 0000101 ===== SETUP =====
04 0000100 ----- BC : Bearer capability -----
03 00000011 Len= 3
80 10000000 octet 3 : 80
   ---00000 Information Transfer Capability: speech
   -00----- Coding Standard: CCITT standardized coding
   1----- Extension bit: no extension
90 10010000 octet 4 : 90
   ---10000 Information Transfer Rate: 64 kbit/s
   -00----- Transfer Mode : circuit mode
   1----- Extension bit: no extension
A3 10100011 octet 5 : A3
   ---00011 User information layer 1 protocol: G.711 A-law
   -01----- Layer 1 identifier
   1----- Extension bit: no extension
70 01110000 ----- CDPN : Called party number -----
0A 00001010 Len= 10
81 10000001 octet 3 : 81
   -000----- Type of number: unknown
   ----0001 Numbering plan: ISDN / Telephony numbering plan
        Called Number: 027986203
7D 01111101 ----- HLC : High layer compatibility -----
02 00000010 Len= 2
91 10010001 octet 3 : 91
   -----01 Presentation method: high layer protocol profile
   ---100-- Interpretation: first high layer characteristics used
   -00----- Coding standard: CCITT standardized coding as described below
   1----- extension: no extension
81 10000001 octet 4 : 81
   -0000001 High layer char. ID: telephony
   1----- extension: no extension

Frame: 708 -----
Date: 1/ 3/2003      13:50:50.076.864 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
14: 02 81 00 02 08 01 81 02 18 01 89 27 01 E8
    ----- Layer 3 Info -----
    Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
   -0000001 Call Reference value          CR: 01
   1----- Message to CR-origination side
02 00000010 ===== CALL-PROC =====
18 00011000 ----- CHI : Channel identification -----
```

```

01 00000001 Len= 1
89 10001001 octet 3 : 89
1----- not extended
-0----- Interface Identifier present : interface implicitly identified
--0----- Interface type : basic interface
---0----- Spare
----1--- exclusive: only the indicated channel is acceptable
-----0-- D-channel indicator : the channel identified is not the D-channel
-----01 Interface : basic rate : B1 channel
27 00100111 ----- NOID : Notification indicator -----
01 00000001 Len= 1
E8 11101000 octet 3 : E8
-1101000 Notification description: diversion activated
1----- Extension:
         no extension

```

```

Frame: 710 -----
Date: 1/ 3/2003      13:50:52.801.728 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----

```

```

100: 02 81 02 02 08 01 81 62 1C 5A 91 A1 57 02 01 28
      02 01 1F 30 4F 30 25 0A 01 00 A1 20 81 03 45 55 52
      A2 06 81 01 00 82 01 01 83 01 00 A4 06 81 01 01 82
      01 02 A5 06 81 01 01 82 01 02 30 12 0A 01 01 A2 0D
      81 03 45 55 52 A2 06 81 01 02 82 01 01 30 12 0A 01
      02 A2 0D 81 03 45 55 52 A2 06 81 01
      05 82 01 01

```

```

----- Layer 3 Info -----
Direction: Network->User

```

```

08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value          CR: 01
1----- Message to CR-origination side
62 01100010 ===== FAC
1C 00011100 ----- FAC : Facility -----
5A 01011010 Len= 90
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
57 01010111 Length:
0----- Single octet length
-1010111 Len= 87
02 00000010 invoke identifier tag
01 00000001 Len= 1
      InvokeID= 28
02 00000010 operation tag
01 00000001 length of operation tag is = 1
1F 00011111 operation 31: AOCs Currency
30 00110000 Type: AOCs currency info list
4F 01001111 Length:
0----- - Single octet length
1001111 Len= 79
30 00110000 Type: AOCs currency info
25 00100101 Length:
0----- - Single octet length
0100101 Len= 37
0A 00001010 Type: charged item
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
00 00000000 Value: basic communication (0)
A1 10100001 Type: duration currency
20 00100000 Length:
0----- - Single octet length
0100000 Len= 32
81 10000001 Type: dCurrency
03 00000011 Length:
0----- - Single octet length
0000011 Len= 3
      Value: EUR
A2 10100010 Type: dAmount
06 00000110 Length:
0----- - Single octet length
0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:
0----- Single octet length

```

```

-0000001      Len= 1
                Value: 0
82 10000010   Type: multiplier
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
01 00000001   Value: one hundredth (1)
83 10000011   Type: dChargingType
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
00 00000000   Value: continuous charging (0)
A4 10100100   Type: dTime
06 00000110   Length:
0----- -   Single octet length
0000110      Len= 6
81 10000001   Type: length of time unit
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
01            Value: 1
82 10000010   Type: scale
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
02 00000010   Value: one second (2)
A5 10100101   Type: dGranularity
06 00000110   Length:
0----- -   Single octet length
0000110      Len= 6
81 10000001   Type: length of time unit
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
01            Value: 1
82 10000010   Type: scale
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
02 00000010   Value: one second (2)
30 00110000   Type: AOCs currency info
12 00010010   Length:
0----- -   Single octet length
0010010      Len= 18
0A 00001010   Type: charged item
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
01 00000001   Value: call attempt (1)
A2 10100010   Type: flat rate currency
0D 00001101   Length:
0----- -   Single octet length
0001101      Len= 13
81 10000001   Type: fRCurrency
03 00000011   Length:
0----- -   Single octet length
0000011      Len= 3
                Value: EUR
A2 10100010   Type: fRAmount
06 00000110   Length:
0----- -   Single octet length
0000110      Len= 6
81 10000001   Type: currency amount
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
                Value: 2
82 10000010   Type: multiplier
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
01 00000001   Value: one hundredth (1)
30 00110000   Type: AOCs currency info
12 00010010   Length:
0----- -   Single octet length
0010010      Len= 18
0A 00001010   Type: charged item
01 00000001   Length:

```

```

0-----      Single octet length
-0000001      Len= 1
02 0000010    Value: call setup (2)
A2 10100010   Type: flat rate currency
0D 00001101   Length:
0----- -    Single octet length
0001101      Len= 13
81 10000001   Type: fRCurrency
03 00000011   Length:
0----- -    Single octet length
0000011      Len= 3
Value: EUR
A2 10100010   Type: fRAmount
06 00000110   Length:
0----- -    Single octet length
0000110      Len= 6
81 10000001   Type: currency amount
01 00000001   Length:
0----- -    Single octet length
0000001      Len= 1
Value: 5
82 10000010   Type: multiplier
01 00000001   Length:
0----- -    Single octet length
0000001      Len= 1
Value: one hundredth (1)

```

```

Frame: 712 -----
Date: 1/ 3/2003      13:50:52.908.992 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----

```

```

12: 02 81 04 02 08 01 81 01 1E 02 82 88
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-0000001 Call Reference value          CR: 01
1----- Message to CR-origination side
01 00000001 ===== ALERT =====
1E 00011110 ----- PI : Progress indicator -----
02 00000010 Len= 2
82 10000010 octet 3 : 82
-00----- Coding standard: CCITT standardized coding as described below
-----0010 Location: public network serving the local user
88 10001000 octet 4 : 88
-0001000 Progress description: in-band info or appropriate pattern avail.

```

```

Frame: 714 -----
Date: 1/ 3/2003      13:50:53.139.904 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----

```

```

27: 02 81 06 02 08 01 81 07 29 05 03 01 03 0D 28 4C
   0A 21 83 32 37 39 38 36 32 30 33
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-0000001 Call Reference value          CR: 01
1----- Message to CR-origination side
07 00000111 ===== CONN =====
29 00101001 ----- DTE : Date -----
05 00000101 Len= 5
03 00000011 year: 3
01 00000001 month: 1
03 00000011 day: 3
0D 00001101 hour: 13
28 00101000 minute:40
4C 01001100 ----- CNI : Connected number -----
0A 00001010 Len= 10
21 00100001 octet 3 : 21
----0001 Numbering Plan : ISDN/Telephony (E.163/E.164)
-010---- Type of number : national
0----- extension bit = 0
83 10000011 octet 3a: 83
-00----- Presentation indicator : presentation allowed
-----11 Screening indicator : network provided

```

Calling Number: 27986203

```
Frame: 716 -----
Date: 1/ 3/2003      13:50:53.210.432 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
42: 02 81 08 02 08 01 81 62 1C 20 91 A1 1D 02 01 2A
    02 01 21 30 15 A1 0D 81 03 45 55 52 A2 06 81 01
    05 82 01 01 82 01 00 83 01 00
    ----- Layer 3 Info -----
    Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
   -00000001 Call Reference value          CR: 01
   1----- Message to CR-origination side
62 01100010 ===== FAC =====
1C 00011100 ----- FAC : Facility -----
20 00100000 Len= 32
91 10010001 octet 3 : 91
   ---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
1D 00011101 Length:
   0----- Single octet length
   -0011101 Len= 29
02 00000010 invoke identifier tag
01 00000001 Len= 1
   InvokeID= 2A
02 00000010 operation tag
01 00000001 length of operation tag is = 1
21 00100001 operation 33: A OCD Currency
30 00110000 Type: specific currency
15 00010101 Length:
   0----- - Single octet length
   0010101 Len= 21
A1 10100001 Type: recorded currency
0D 00001101 Length:
   0----- - Single octet length
   0001101 Len= 13
81 10000001 Type: currency
03 00000011 Length:
   0----- - Single octet length
   0000011 Len= 3
   Value: EUR
A2 10100010 Type: amount
06 00000110 Length:
   0----- - Single octet length
   0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:
   0----- - Single octet length
   0000001 Len= 1
   Value: 5
82 10000010 Type: multiplier
01 00000001 Length:
   0----- - Single octet length
   0000001 Len= 1
   Value: one hundredth (1)
82 10000010 Type: type of charging info
01 00000001 Length:
   0----- - Single octet length
   0000001 Len= 1
   Value: sub total (0)
83 10000011 Type: A OCD billing Id
01 00000001 Length:
   0----- - Single octet length
   0000001 Len= 1
00 00000000 Value: normal charging (0)
```

```
Frame: 730 -----
Date: 1/ 3/2003      13:51:53.190.336 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
```

```
42: 02 81 0A 02 08 01 81 62 1C 20 91 A1 1D 02 01 2C
    02 01 21 30 15 A1 0D 81 03 45 55 52 A2 06 81 01
    0A 82 01 01 82 01 00 83 01 00
    ----- Layer 3 Info -----
    Direction: Network->User
```



```

08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
   -00000001 Call Reference value          CR: 01
   1----- Message to CR-origination side
62 01100010 ===== FAC
1C 00011100 ----- FAC : Facility -----
20 00100000 Len= 32
91 10010001 octet 3 : 91
   ---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
1D 00011101 Length:
   0----- Single octet length
   -0011101 Len= 29
02 00000010 invoke identifier tag
01 00000001 Len= 1
   InvokeID= 2C
02 00000010 operation tag
01 00000001 length of operation tag is = 1
21 00100001 operation 33: AOCD Currency
30 00110000 Type: specific currency
15 00010101 Length:
   0----- - Single octet length
   0010101 Len= 21
A1 10100001 Type: recorded currency
0D 00001101 Length:
   0----- - Single octet length
   0001101 Len= 13
81 10000001 Type: currency
03 00000011 Length:
   0----- - Single octet length
   0000011 Len= 3
   Value: EUR
A2 10100010 Type: amount
06 00000110 Length:
   0----- - Single octet length
   0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:
   0----- - Single octet length
   0000001 Len= 1
   Value: 10
82 10000010 Type: multiplier
01 00000001 Length:
   0----- - Single octet length
   0000001 Len= 1
   Value: one hundredth (1)
82 10000010 Type: type of charging info
01 00000001 Length:
   0----- - Single octet length
   0000001 Len= 1
   Value: sub total (0)
83 10000011 Type: AOCD billing Id
01 00000001 Length:
   0----- - Single octet length
   0000001 Len= 1
   Value: normal charging (0)

```

```

Frame: 746 -----
Date: 1/ 3/2003      13:52:53.229.056 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----

```

```

42: 02 81 0C 02 08 01 81 62 1C 20 91 A1 1D 02 01 2E
    02 01 21 30 15 A1 0D 81 03 45 55 52 A2 06 81 01
    0F 82 01 01 82 01 00 83 01 00

```

```

----- Layer 3 Info -----
Direction: Network->User

```

```

08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
   -00000001 Call Reference value          CR: 01
   1----- Message to CR-origination side
62 01100010 ===== FAC
1C 00011100 ----- FAC : Facility -----
20 00100000 Len= 32
91 10010001 octet 3 : 91
   ---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke

```

```

1D 00011101 Length:
  0----- Single octet length
  -0011101 Len= 29
02 00000010 invoke identifier tag
01 00000001 Len= 1
      InvokeID= 2E
02 00000010 operation tag
01 00000001 length of operation tag is = 1
21 00100001 operation 33: AOCD Currency
30 00110000 Type: specific currency
15 00010101 Length:
  0----- - Single octet length
  0010101 Len= 21
A1 10100001 Type: recorded currency
0D 00001101 Length:
  0----- - Single octet length
  0001101 Len= 13
81 10000001 Type: currency
03 00000011 Length:
  0----- - Single octet length
  0000011 Len= 3
      Value: EUR
A2 10100010 Type: amount
06 00000110 Length:
  0----- - Single octet length
  0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:
  0----- - Single octet length
  0000001 Len= 1
      Value: 15
82 10000010 Type: multiplier
01 00000001 Length:
  0----- - Single octet length
  0000001 Len= 1
      Value: one hundredth (1)
82 10000010 Type: type of charging info
01 00000001 Length:
  0----- - Single octet length
  0000001 Len= 1
      Value: sub total (0)
83 10000011 Type: AOCD billing Id
01 00000001 Length:
  0----- - Single octet length
  0000001 Len= 1
      Value: normal charging (0)

```

```

Frame: 750 -----
Date: 1/ 3/2003      13:53:09.828.032 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----

```

```

12: 00 81 02 0E 08 01 01 45 08 02 80 90
----- Layer 3 Info -----
      Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
  -0000001 Call Reference value          CR: 01
  0----- Message from CR-origination side
45 01000101 ===== DISC =====
08 00001000 ----- CAU : Cause -----
02 00000010 Len= 2
80 10000000 octet 3 : 80
  ----0000 Location: user
  -00----- Coding standard: CCITT standardized coding
  1----- Extension bit: no extension
90 10010000 octet 4 : 90
  -0010000 Cause #16 : normal call clearing

```

```

Frame: 752 -----
Date: 1/ 3/2003      13:53:10.188.032 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----

```

```

41: 02 81 0E 04 08 01 81 4D 1C 1F 91 A1 1C 02 01 30
    02 01 23 30 14 30 12 A1 0D 81 03 45 55 52 A2 06
    81 01 10 82 01 01 82 01 00
----- Layer 3 Info -----
      Direction: Network->User

```

```

08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
   -00000001 Call Reference value          CR: 01
   1----- Message to CR-origination side
4D 01001101 ===== REL
1C 00011100 ----- FAC : Facility -----
1F 00011111 Len= 31
91 10010001 octet 3 : 91
   ---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
1C 00011100 Length:
   0----- Single octet length
   -0011100 Len= 28
02 00000010 invoke identifier tag
01 00000001 Len= 1
   InvokeID= 30
02 00000010 operation tag
01 00000001 length of operation tag is = 1
23 00100011 operation 35: AOCE Currency
30 00110000 Type: AOCE currency info
14 00010100 Length:
   0----- - Single octet length
   0010100 Len= 20
30 00110000 Type: specific currency
12 00010010 Length:
   0----- - Single octet length
   0010010 Len= 18
A1 10100001 Type: recorded currency
0D 00001101 Length:
   0----- - Single octet length
   0001101 Len= 13
81 10000001 Type: currency
03 00000011 Length:
   0----- - Single octet length
   0000011 Len= 3
   Value: EUR
A2 10100010 Type: amount
06 00000110 Length:
   0----- - Single octet length
   0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:
   0----- - Single octet length
   0000001 Len= 1
   Value: 16
82 10000010 Type: multiplier
01 00000001 Length:
   0----- - Single octet length
   0000001 Len= 1
   Value: one hundredth (1)
82 10000010 Type: AOCE billing Id
01 00000001 Length:
   0----- - Single octet length
   0000001 Len= 1
00 00000000 Value: normal charging (0)

```

```

Frame: 754 -----
Date: 1/ 3/2003      13:53:10.258.112 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----

```

```

8: 00 81 04 10 08 01 01 5A
   ----- Layer 3 Info -----
   Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
   -00000001 Call Reference value          CR: 01
   0----- Message from CR-origination side
5A 01011010 ===== REL-COM

```

10.1.2. Normal charged, successful call (on SIEMENS EWSD switch)

```
Frame: 562 -----
Date: 1/ 3/2003      13:42:02.221.760 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----
29: 00 81 00 00 08 01 01 05 04 03 80 90 A3 70 0A 81
    30 32 37 39 38 36 32 30 33 7D 02 91 81
    ----- Layer 3 Info -----
        Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
   -0000001 Call Reference value          CR: 01
   0----- Message from CR-origination side
05 00000101 ===== SETUP =====
04 00000100 ----- BC : Bearer capability -----
03 00000011 Len= 3
80 10000000 octet 3 : 80
   ---00000 Information Transfer Capability: speech
   -00----- Coding Standard: CCITT standardized coding
   1----- Extension bit: no extension
90 10010000 octet 4 : 90
   ---10000 Information Transfer Rate: 64 kbit/s
   -00----- Transfer Mode : circuit mode
   1----- Extension bit: no extension
A3 10100011 octet 5 : A3
   ---00011 User information layer 1 protocol: G.711 A-law
   -01----- Layer 1 identifier
   1----- Extension bit: no extension
70 01110000 ----- CDPN : Called party number -----
0A 00001010 Len= 10
81 10000001 octet 3 : 81
   -000---- Type of number: unknown
   ----0001 Numbering plan: ISDN / Telephony numbering plan
         Called Number: 027986203
7D 01111101 ----- HLC : High layer compatibility -----
02 00000010 Len= 2
91 10010001 octet 3 : 91
   -----01 Presentation method: high layer protocol profile
   ---100-- Interpretation: first high layer characteristics used
   -00----- Coding standard: CCITT standardized coding as described below
   1----- extension: no extension
81 10000001 octet 4 : 81
   -0000001 High layer char. ID: telephony
   1----- extension: no extension

Frame: 564 -----
Date: 1/ 3/2003      13:42:02.442.688 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
14: 02 81 00 02 08 01 81 0D 18 01 89 27 01 E8
    ----- Layer 3 Info -----
        Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
   -0000001 Call Reference value          CR: 01
   1----- Message to CR-origination side
0D 00001101 ===== SETUP-ACK =====
18 00011000 ----- CHI : Channel identification -----
01 00000001 Len= 1
89 10001001 octet 3 : 89
   1----- not extended
   -0----- Interface Identifier present : interface implicitly identified
   --0----- Interface type : basic interface
   ---0----- Spare
   ----1--- exclusive: only the indicated channel is acceptable
   -----0-- D-channel indicator : the channel identified is not the D-channel
   -----01 Interface : basic rate : B1 channel
27 00100111 ----- NOID : Notification indicator -----
01 00000001 Len= 1
E8 11101000 octet 3 : E8
   -1101000 Notification description: diversion activated
   1----- Extension:
```

no extension

Frame: 566 -----
Date: 1/ 3/2003 13:42:02.765.824 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK

12: 02 81 02 02 08 01 81 01 1E 02 84 88
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value CR: 01
1----- Message to CR-origination side
01 00000001 ===== ALERT =====
1E 00011110 ----- PI : Progress indicator -----
02 00000010 Len= 2
84 10000100 octet 3 : 84
-00----- Coding standard: CCITT standardized coding as described below
----0100 Location: public network serving the remote user
88 10001000 octet 4 : 88
-00010000 Progress description: in-band info or appropriate pattern avail.

Frame: 568 -----
Date: 1/ 3/2003 13:43:59.190.176 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK

120: 02 81 04 02 08 01 81 07 1C 5B 91 A1 58 02 01 0F
02 01 1F 30 50 30 26 0A 01 00 A1 21 81 03 45 55 52
A2 06 81 01 05 82 01 01 83 01 00 A4 07 81 02 17 70
82 01 00 A5 06 81 01 01 82 01 02 30 12 0A 01 02 A2
0D 81 03 45 55 52 A2 06 81 01 05 82 01 01 30 12 0A
01 04 A2 0D 81 03 45 55 52 A2 06 81 01 00 82 01 01
29 05 03 01 03 0D 21 4C 0A 21 83
32 37 39 38 36 32 30 33
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value CR: 01
1----- Message to CR-origination side
07 00000111 ===== CONN =====
1C 00011100 ----- FAC : Facility -----
5B 01011011 Len= 91
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
58 01011000 Length:
0----- Single octet length
-1011000 Len= 88
02 00000010 invoke identifier tag
01 00000001 Len= 1
InvokeID= 0F
02 00000010 operation tag
01 00000001 length of operation tag is = 1
1F 00011111 operation 31: AOCs Currency
30 00110000 Type: AOCs currency info list
50 01010000 Length:
0----- - Single octet length
1010000 Len= 80
30 00110000 Type: AOCs currency info
26 00100110 Length:
0----- - Single octet length
0100110 Len= 38
0A 00001010 Type: charged item
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
00 00000000 Value: basic communication (0)
A1 10100001 Type: duration currency
21 00100001 Length:
0----- - Single octet length
0100001 Len= 33
81 10000001 Type: dCurrency
03 00000011 Length:
0----- - Single octet length
0000011 Len= 3

```

Value: EUR
A2 10100010 Type: dAmount
06 00000110 Length:
0----- - Single octet length
0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: 5
82 10000010 Type: multiplier
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: one hundredth (1)
83 10000011 Type: dChargingType
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: continuous charging (0)
A4 10100100 Type: dTime
07 00000111 Length:
0----- - Single octet length
0000111 Len= 7
81 10000001 Type: length of time unit
02 00000010 Length:
0----- - Single octet length
0000010 Len= 2
Value: 6000
82 10000010 Type: scale
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: one hundredth second (0)
A5 10100101 Type: dGranularity
06 00000110 Length:
0----- - Single octet length
0000110 Len= 6
81 10000001 Type: length of time unit
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: 1
82 10000010 Type: scale
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: one second (2)
30 00110000 Type: AOCs currency info
12 00010010 Length:
0----- - Single octet length
0010010 Len= 18
0A 00001010 Type: charged item
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: call setup (2)
A2 10100010 Type: flat rate currency
0D 00001101 Length:
0----- - Single octet length
0001101 Len= 13
81 10000001 Type: fRCurrency
03 00000011 Length:
0----- - Single octet length
0000011 Len= 3
Value: EUR
A2 10100010 Type: fRAmount
06 00000110 Length:
0----- - Single octet length
0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: 5
82 10000010 Type: multiplier
01 00000001 Length:
0----- - Single octet length

```

```

-0000001          Len= 1
01 0000001          Value: one hundredth (1)
30 00110000        Type: AOC currency info
12 00010010        Length:
0----- -          Single octet length
0010010          Len= 18
0A 00001010        Type: charged item
01 00000001        Length:
0----- -          Single octet length
0000001          Len= 1
04 00000100        Value: operation of supplementary serv (4)
A2 10100010        Type: flat rate currency
0D 00001101        Length:
0----- -          Single octet length
0001101          Len= 13
81 10000001        Type: fRCurrency
03 00000011        Length:
0----- -          Single octet length
0000011          Len= 3
Value: EUR
A2 10100010        Type: fRAmount
06 00000110        Length:
0----- -          Single octet length
0000110          Len= 6
81 10000001        Type: currency amount
01 00000001        Length:
0----- -          Single octet length
0000001          Len= 1
Value: 0
82 10000010        Type: multiplier
01 00000001        Length:
0----- -          Single octet length
0000001          Len= 1
Value: one hundredth (1)
29 00101001        ----- DTE : Date -----
05 00000101        Len= 5
03 00000011        year: 3
01 00000001        month: 1
03 00000011        day: 3
0D 00001101        hour: 13
21 00100001        minute:33
4C 01001100        ----- CNI : Connected number -----
0A 00001010        Len= 10
21 00100001        octet 3 : 21
----0001 - Numbering Plan : ISDN/Telephony (E.163/E.164)
010---- 0- Type of number : national
-----
extension bit = 0
83 10000011        octet 3a: 83
-00----- - Presentation indicator : presentation allowed
-----11
Screening indicator : network provided
Calling Number: 27986203

Frame: 570 -----
Date: 1/ 3/2003      13:43:59.221.760 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
39: 02 81 06 02 08 01 81 62 1C 1D 91 A1 1A 02 01 10
    02 01 21 30 12 A1 0D 81 03 45 55 52 A2 06 81 01
    05 82 01 01 82 01 00
    ----- Layer 3 Info -----
    Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-0000001 Call Reference value          CR: 01
1----- Message to CR-origination side
62 01100010 ===== FAC =====
1C 00011100 ----- FAC : Facility -----
1D 00011101 Len= 29
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
1A 00011010 Length:
0----- -          Single octet length
-0011010          Len= 26
02 00000010 invoke identifier tag
01 00000001 Len= 1
InvokeID= 10

```

```

02 00000010 operation tag
01 00000001 length of operation tag is = 1
21 00100001 operation 33: A OCD Currency
30 00110000 Type: specific currency
12 00010010 Length:
0----- - Single octet length
0010010 Len= 18
A1 10100001 Type: recorded currency
0D 00001101 Length:
0----- - Single octet length
0001101 Len= 13
81 10000001 Type: currency
03 00000011 Length:
0----- - Single octet length
0000011 Len= 3
Value: EUR
A2 10100010 Type: amount
06 00000110 Length:
0----- - Single octet length
0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: 5
82 10000010 Type: multiplier
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: one hundredth (1)
82 10000010 Type: type of charging info
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: sub total (0)

```

```

Frame: 586 -----
Date: 1/ 3/2003 13:44:59.221.568 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----

```

```

39: 02 81 08 02 08 01 81 62 1C 1D 91 A1 1A 02 01 11
    02 01 21 30 12 A1 0D 81 03 45 55 52 A2 06 81 01
    0A 82 01 01 82 01 00
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-0000001 Call Reference value CR: 01
1----- Message to CR-origination side
62 01100010 ===== FAC
1C 00011100 ----- FAC : Facility -----
1D 00011101 Len= 29
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
1A 00011101 Length:
0----- - Single octet length
-0011010 Len= 26
02 00000010 invoke identifier tag
01 00000001 Len= 1
InvokeID= 11
02 00000010 operation tag
01 00000001 length of operation tag is = 1
21 00100001 operation 33: A OCD Currency
30 00110000 Type: specific currency
12 00010010 Length:
0----- - Single octet length
0010010 Len= 18
A1 10100001 Type: recorded currency
0D 00001101 Length:
0----- - Single octet length
0001101 Len= 13
81 10000001 Type: currency
03 00000011 Length:
0----- - Single octet length
0000011 Len= 3
Value: EUR

```



```

A2 10100010      Type: amount
06 00000110      Length:
0----- -      Single octet length
0000110         Len= 6
81 10000001      Type: currency amount
01 00000001      Length:
0----- -      Single octet length
0000001         Len= 1
                 Value: 10
82 10000010      Type: multiplier
01 00000001      Length:
0----- -      Single octet length
0000001         Len= 1
                 Value: one hundredth (1)
82 10000010      Type: type of charging info
01 00000001      Length:
0----- -      Single octet length
0000001         Len= 1
00 00000000      Value: sub total (0)

Frame: 602 -----
Date: 1/ 3/2003      13:45:59.244.864 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
39: 02 81 0A 02 08 01 81 62 1C 1D 91 A1 1A 02 01 12
    02 01 21 30 12 A1 0D 81 03 45 55 52 A2 06 81 01
    0F 82 01 01 82 01 00
    ----- Layer 3 Info -----
    Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-0000001 Call Reference value          CR: 01
1----- Message to CR-origination side
62 01100010 ===== FAC
1C 00011100 ----- FAC : Facility -----
1D 00011101 Len= 29
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
1A 00011010 Length:
0----- -      Single octet length
-0011010       Len= 26
02 00000010 invoke identifier tag
01 00000001 Len= 1
                 InvokeID= 12
02 00000010 operation tag
01 00000001 length of operation tag is = 1
21 00100001 operation 33: A OCD Currency
30 00110000 Type: specific currency
12 00010010 Length:
0----- -      Single octet length
0010010       Len= 18
A1 10100001 Type: recorded currency
0D 00001101 Length:
0----- -      Single octet length
0001101       Len= 13
81 10000001 Type: currency
03 00000011 Length:
0----- -      Single octet length
0000011       Len= 3
                 Value: EUR
A2 10100010      Type: amount
06 00000110      Length:
0----- -      Single octet length
0000110         Len= 6
81 10000001      Type: currency amount
01 00000001      Length:
0----- -      Single octet length
0000001         Len= 1
                 Value: 15
82 10000010      Type: multiplier
01 00000001      Length:
0----- -      Single octet length
0000001         Len= 1
                 Value: one hundredth (1)
82 10000010      Type: type of charging info
01 00000001      Length:

```

0----- Single octet length
-0000001 Len= 1
00 00000000 Value: sub total (0)

Frame: 610 -----
Date: 1/ 3/2003 13:46:21.439.552 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK

12: 00 81 02 0C 08 01 01 45 08 02 80 90
----- Layer 3 Info -----
Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
-0000001 Call Reference value CR: 01
0----- Message from CR-origination side
45 01000101 ===== DISC =====
08 00001000 ----- CAU : Cause -----
02 00000010 Len= 2
80 10000000 octet 3 : 80
----0000 Location: user
-00----- Coding standard: CCITT standardized coding
1----- Extension bit: no extension
90 10010000 octet 4 : 90
-0010000 Cause #16 : normal call clearing

Frame: 612 -----
Date: 1/ 3/2003 13:46:21.579.840 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK

38: 02 81 0C 04 08 01 81 4D 1C 1C 91 A1 19 02 01 13
02 01 23 30 11 30 0F A1 0D 81 03 45 55 52 A2 06
81 01 10 82 01 01
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-0000001 Call Reference value CR: 01
1----- Message to CR-origination side
4D 01001101 ===== REL =====
1C 00011100 ----- FAC : Facility -----
1C 00011100 Len= 28
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
19 00011001 Length:
0----- Single octet length
-0011001 Len= 25
02 00000010 invoke identifier tag
01 00000001 Len= 1
InvokeID= 13
02 00000010 operation tag
01 00000001 length of operation tag is = 1
23 00100011 operation 35: AOCE Currency
30 00110000 Type: AOCE currency info
11 00010001 Length:
0----- - Single octet length
0010001 Len= 17
30 00110000 Type: specific currency
0F 00001111 Length:
0----- - Single octet length
0001111 Len= 15
A1 10100001 Type: recorded currency
0D 00001101 Length:
0----- - Single octet length
0001101 Len= 13
81 10000001 Type: currency
03 00000011 Length:
0----- - Single octet length
0000011 Len= 3
Value: EUR
A2 10100010 Type: amount
06 00000110 Length:
0----- - Single octet length
0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:

```

0-----          Single octet length
-0000001          Len= 1
                   Value: 16
82 10000010      Type: multiplier
01 00000001      Length:
0----- -          Single octet length
0000001          Len= 1
01 00000001      Value: one hundredth (1)

Frame: 614 -----
Date: 1/ 3/2003      13:46:21.649.216 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----
8: 00 81 04 0E 08 01 01 5A
   ----- Layer 3 Info -----
   Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
   -0000001 Call Reference value          CR: 01
   0----- Message from CR-origination side
5A 01011010 ===== REL-COM          =====

```

10.2. Charged 'call attempt'

This case occurs, for instance, when the calling side calls a called party who does not answer the call.

10.2.1. Charged 'call attempt' (on ALCATEL S12 switch)

```
Frame: 49 -----
Date: 1/ 3/2003      10:56:51.505.280 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----
29: 00 81 00 00 08 01 01 05 04 03 80 90 A3 70 0A 81
    30 32 37 39 37 32 35 38 31 7D 02 91 81
        ----- Layer 3 Info -----
            Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
    -0000001 Call Reference value          CR: 01
    0----- Message from CR-origination side
05 00000101 ===== SETUP =====
04 00000100 ----- BC : Bearer capability -----
03 00000011 Len= 3
80 10000000 octet 3 : 80
    ---00000 Information Transfer Capability: speech
    -00----- Coding Standard: CCITT standardized coding
    1----- Extension bit: no extension
90 10010000 octet 4 : 90
    ---10000 Information Transfer Rate: 64 kbit/s
    -00----- Transfer Mode : circuit mode
    1----- Extension bit: no extension
A3 10100011 octet 5 : A3
    ---00011 User information layer 1 protocol: G.711 A-law
    -01----- Layer 1 identifier
    1----- Extension bit: no extension
70 01110000 ----- CDPN : Called party number -----
0A 00001010 Len= 10
81 10000001 octet 3 : 81
    -000---- Type of number: unknown
    ----0001 Numbering plan: ISDN / Telephony numbering plan
            Called Number: 027972581
7D 01111101 ----- HLC : High layer compatibility -----
02 00000010 Len= 2
91 10010001 octet 3 : 91
    -----01 Presentation method: high layer protocol profile
    ---100-- Interpretation: first high layer characteristics used
    -00----- Coding standard: CCITT standardized coding as described below
    1----- extension: no extension
81 10000001 octet 4 : 81
    -0000001 High layer char. ID: telephony
    1----- extension: no extension

Frame: 51 -----
Date: 1/ 3/2003      10:56:51.808.960 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
14: 02 81 00 02 08 01 81 02 18 01 89 27 01 E8
        ----- Layer 3 Info -----
            Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
    -0000001 Call Reference value          CR: 01
    1----- Message to CR-origination side
02 00000010 ===== CALL-PROC =====
18 00011000 ----- CHI : Channel identification -----
01 00000001 Len= 1
89 10001001 octet 3 : 89
    1----- not extended
    -0----- Interface Identifier present : interface implicitly identified
    --0----- Interface type : basic interface
    ---0----- Spare
    ----1--- exclusive: only the indicated channel is acceptable
    -----0-- D-channel indicator : the channel identified is not the D-channel
    -----01 Interface : basic rate : B1 channel
```

27 00100111 ----- NOID : Notification indicator -----
01 00000001 Len= 1
E8 11101000 octet 3 : E8
-1101000 Notification description: diversion activated
1----- Extension:
no extension

Frame: 58 -----
Date: 1/ 3/2003 10:56:52.768.448 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK

100: 02 81 02 02 08 01 81 62 1C 5A 91 A1 57 02 01 02
02 01 1F 30 4F 30 25 0A 01 00 A1 20 81 03 45 55 52
A2 06 81 01 00 82 01 01 83 01 00 A4 06 81 01 01 82
01 02 A5 06 81 01 01 82 01 02 30 12 0A 01 01 A2 0D
81 03 45 55 52 A2 06 81 01 02 82 01 01 30 12 0A 01
02 A2 0D 81 03 45 55 52 A2 06 81 01
05 82 01 01

----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-0000001 Call Reference value CR: 01
1----- Message to CR-origination side
62 01100010 ===== FAC =====
1C 00011100 ----- FAC : Facility -----
5A 01011010 Len= 90
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
57 01010111 Length:
0----- Single octet length
-1010111 Len= 87
02 00000010 invoke identifier tag
01 00000001 Len= 1
InvokeID= 02
02 00000010 operation tag
01 00000001 length of operation tag is = 1
1F 00011111 operation 31: AOCs Currency
30 00110000 Type: AOCs currency info list
4F 01001111 Length:
0----- - Single octet length
1001111 Len= 79
30 00110000 Type: AOCs currency info
25 00100101 Length:
0----- - Single octet length
0100101 Len= 37
0A 00001010 Type: charged item
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
00 00000000 Value: basic communication (0)
A1 10100001 Type: duration currency
20 00100000 Length:
0----- - Single octet length
0100000 Len= 32
81 10000001 Type: dCurrency
03 00000011 Length:
0----- - Single octet length
0000011 Len= 3
Value: EUR
A2 10100010 Type: dAmount
06 00000110 Length:
0----- - Single octet length
0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: 0
82 10000010 Type: multiplier
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: one hundredth (1)
83 10000011 Type: dChargingType
01 00000001 Length:

```

0-----      Single octet length
-0000001      Len= 1
00 00000000   Value: continuous charging (0)
A4 10100100   Type: dTime
06 00000110   Length:
0----- -   Single octet length
0000110      Len= 6
81 10000001   Type: length of time unit
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
01           Value: 1
82 10000010   Type: scale
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
02 00000010   Value: one second (2)
A5 10100101   Type: dGranularity
06 00000110   Length:
0----- -   Single octet length
0000110      Len= 6
81 10000001   Type: length of time unit
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
01           Value: 1
82 10000010   Type: scale
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
02 00000010   Value: one second (2)
30 00110000   Type: AOCs currency info
12 00010010   Length:
0----- -   Single octet length
0010010      Len= 18
0A 00001010   Type: charged item
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
01 00000001   Value: call attempt (1)
A2 10100010   Type: flat rate currency
0D 00001101   Length:
0----- -   Single octet length
0001101      Len= 13
81 10000001   Type: fRCurrency
03 00000011   Length:
0----- -   Single octet length
0000011      Len= 3
           Value: EUR
A2 10100010   Type: fRAmount
06 00000110   Length:
0----- -   Single octet length
0000110      Len= 6
81 10000001   Type: currency amount
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
           Value: 2
82 10000010   Type: multiplier
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
           Value: one hundredth (1)
30 00110000   Type: AOCs currency info
12 00010010   Length:
0----- -   Single octet length
0010010      Len= 18
0A 00001010   Type: charged item
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
02 00000010   Value: call setup (2)
A2 10100010   Type: flat rate currency
0D 00001101   Length:
0----- -   Single octet length
0001101      Len= 13
81 10000001   Type: fRCurrency
03 00000011   Length:

```

```

0-----          Single octet length
-0000011         Len= 3
                  Value: EUR
A2 10100010      Type: fRAmount
06 00000110      Length:
0----- -       Single octet length
0000110         Len= 6
81 10000001      Type: currency amount
01 00000001      Length:
0----- -       Single octet length
0000001         Len= 1
                  Value: 5
82 10000010      Type: multiplier
01 00000001      Length:
0----- -       Single octet length
0000001         Len= 1
01 00000001      Value: one hundredth (1)

```

```

Frame: 60 -----
Date: 1/ 3/2003      10:56:52.875.200 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----

```

```

12: 02 81 04 02 08 01 81 01 1E 02 82 88
      ----- Layer 3 Info -----
      Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-0000001 Call Reference value          CR: 01
1----- Message to CR-origination side
01 00000001 ===== ALERT =====
1E 00011110 ----- PI : Progress indicator -----
02 00000010 Len= 2
82 10000010 octet 3 : 82
-00----- Coding standard: CCITT standardized coding as described below
----0010 Location: public network serving the local user
88 10001000 octet 4 : 88
-0001000 Progress description: in-band info or appropriate pattern avail.

```

```

Frame: 62 -----
Date: 1/ 3/2003      10:56:59.160.960 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----

```

```

12: 00 81 02 06 08 01 01 45 08 02 80 90
      ----- Layer 3 Info -----
      Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
-0000001 Call Reference value          CR: 01
0----- Message from CR-origination side
45 01000101 ===== DISC =====
08 00001000 ----- CAU : Cause -----
02 00000010 Len= 2
80 10000000 octet 3 : 80
----0000 Location: user
-00----- Coding standard: CCITT standardized coding
1----- Extension bit: no extension
90 10010000 octet 4 : 90
-0010000 Cause #16 : normal call clearing

```

```

Frame: 66 -----
Date: 1/ 3/2003      10:56:59.563.776 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----

```

```

41: 02 81 06 04 08 01 81 4D 1C 1F 91 A1 1C 02 01 04
    02 01 23 30 14 30 12 A1 0D 81 03 45 55 52 A2 06
    81 01 02 82 01 01 82 01 00
      ----- Layer 3 Info -----
      Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-0000001 Call Reference value          CR: 01
1----- Message to CR-origination side
4D 01001101 ===== REL =====
1C 00011100 ----- FAC : Facility -----
1F 00011111 Len= 31

```

```

91 10010001  octet 3 : 91
   ---10001  Service discriminator: supplementary service applications
A1 10100001  type: invoke
1C 00011100  Length:
   0----- -   Single octet length
   0011100   Len= 28
02 00000010  invoke identifier tag
01 00000001  Len= 1
   InvokeID= 04
02 00000010  operation tag
01 00000001  length of operation tag is = 1
23 00100011  operation 35: AOCE Currency
30 00110000  Type: AOCE currency info
14 00010100  Length:
   0----- -   Single octet length
   0010100   Len= 20
30 00110000  Type: specific currency
12 00010010  Length:
   0----- -   Single octet length
   0010010   Len= 18
A1 10100001  Type: recorded currency
0D 00001101  Length:
   0----- -   Single octet length
   0001101   Len= 13
81 10000001  Type: currency
03 00000011  Length:
   0----- -   Single octet length
   0000011   Len= 3
   Value: EUR
A2 10100010  Type: amount
06 00000110  Length:
   0----- -   Single octet length
   0000110   Len= 6
81 10000001  Type: currency amount
01 00000001  Length:
   0----- -   Single octet length
   0000001   Len= 1
   Value: 2
82 10000010  Type: multiplier
01 00000001  Length:
   0----- -   Single octet length
   0000001   Len= 1
   Value: one hundredth (1)
82 10000010  Type: AOCE billing Id
01 00000001  Length:
   0----- -   Single octet length
   0000001   Len= 1
00 00000000  Value: normal charging (0)

```

```

Frame: 70 -----
Date: 1/ 3/2003      10:56:59.634.368 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----

```

```

8: 00 81 04 08 08 01 01 5A
   ----- Layer 3 Info -----
   Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
   -0000001 Call Reference value      CR: 01
   0----- Message from CR-origination side
5A 01011010 ===== REL-COM =====

```


10.2.2. Charged 'call attempt' (on SIEMENS EWSD switch)

```

Frame: 542 -----
Date: 1/ 3/2003      13:40:51.909.632 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----
29: 00 81 00 00 08 01 01 05 04 03 80 90 A3 70 0A 81
    30 32 37 39 38 36 32 30 33 7D 02 91 81
    ----- Layer 3 Info -----
        Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
    -0000001 Call Reference value          CR: 01
    0----- Message from CR-origination side
05 00000101 ===== SETUP =====
04 00000100 ----- BC : Bearer capability -----
03 00000011 Len= 3
80 10000000 octet 3 : 80
    ---00000 Information Transfer Capability: speech
    -00----- Coding Standard: CCITT standardized coding
    1----- Extension bit: no extension
90 10010000 octet 4 : 90
    ---10000 Information Transfer Rate: 64 kbit/s
    -00----- Transfer Mode : circuit mode
    1----- Extension bit: no extension
A3 10100011 octet 5 : A3
    ---00011 User information layer 1 protocol: G.711 A-law
    -01----- Layer 1 identifier
    1----- Extension bit: no extension
70 01110000 ----- CDPN : Called party number -----
0A 00001010 Len= 10
81 10000001 octet 3 : 81
    -000---- Type of number: unknown
    ----0001 Numbering plan: ISDN / Telephony numbering plan
        Called Number: 027986203
7D 01111101 ----- HLC : High layer compatibility -----
02 00000010 Len= 2
91 10010001 octet 3 : 91
    -----01 Presentation method: high layer protocol profile
    ---100-- Interpretation: first high layer characteristics used
    -00----- Coding standard: CCITT standardized coding as described below
    1----- extension: no extension
81 10000001 octet 4 : 81
    -0000001 High layer char. ID: telephony
    1----- extension: no extension

Frame: 544 -----
Date: 1/ 3/2003      13:40:52.218.688 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
14: 02 81 00 02 08 01 81 0D 18 01 89 27 01 E8
    ----- Layer 3 Info -----
        Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
    -0000001 Call Reference value          CR: 01
    1----- Message to CR-origination side
0D 00001101 ===== SETUP-ACK =====
18 00011000 ----- CHI : Channel identification -----
01 00000001 Len= 1
89 10001001 octet 3 : 89
    1----- not extended
    -0----- Interface Identifier present : interface implicitly identified
    --0----- Interface type : basic interface
    ---0----- Spare
    ----1---- exclusive: only the indicated channel is acceptable
    -----0-- D-channel indicator : the channel identified is not the D-channel
    -----01 Interface : basic rate : B1 channel
27 00100111 ----- NOID : Notification indicator -----
01 00000001 Len= 1
E8 11101000 octet 3 : E8
    -1101000 Notification description: diversion activated

```

1----- Extension:
no extension

Frame: 546 -----
Date: 1/ 3/2003 13:40:52.467.584 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK

12: 02 81 02 02 08 01 81 01 1E 02 84 88
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value CR: 01
1----- Message to CR-origination side
01 00000001 ===== ALERT =====
1E 00011110 ----- PI : Progress indicator -----
02 00000010 Len= 2
84 10000100 octet 3 : 84
-00----- Coding standard: CCITT standardized coding as described below
----0100 Location: public network serving the remote user
88 10001000 octet 4 : 88
-0001000 Progress description: in-band info or appropriate pattern avail.

Frame: 548 -----
Date: 1/ 3/2003 13:40:57.584.512 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK

12: 00 81 02 04 08 01 01 45 08 02 80 90
----- Layer 3 Info -----
Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
-00000001 Call Reference value CR: 01
0----- Message from CR-origination side
45 01000101 ===== DISC =====
08 00001000 ----- CAU : Cause -----
02 00000010 Len= 2
80 10000000 octet 3 : 80
----0000 Location: user
-00----- Coding standard: CCITT standardized coding
1----- Extension bit: no extension
90 10010000 octet 4 : 90
-0010000 Cause #16 : normal call clearing

Frame: 550 -----
Date: 1/ 3/2003 13:40:57.712.192 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK

61: 02 81 04 04 08 01 81 4D 1C 33 91 A1 30 02 01 0E
02 01 1F 30 28 30 12 0A 01 01 A2 0D 81 03 45 55 52
A2 06 81 01 02 82 01 01 30 12 0A 01 04 A2 0D
81 03 45 55 52 A2 06 81 01 00 82 01 01
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value CR: 01
1----- Message to CR-origination side
4D 01001101 ===== REL =====
1C 00011100 ----- FAC : Facility -----
33 00110011 Len= 51
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
30 00110000 Length:
0----- Single octet length
-0110000 Len= 48
02 00000010 invoke identifier tag
01 00000001 Len= 1
InvokeID= 0E
02 00000010 operation tag
01 00000001 length of operation tag is = 1

```

1F 00011111 operation 31: AOCs Currency
30 00110000 Type: AOCs currency info list
28 00101000 Length:
0----- - Single octet length
0101000 Len= 40
30 00110000 Type: AOCs currency info
12 00010010 Length:
0----- - Single octet length
0010010 Len= 18
0A 00001010 Type: charged item
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
01 00000001 Value: call attempt (1)
A2 10100010 Type: flat rate currency
0D 00001101 Length:
0----- - Single octet length
0001101 Len= 13
81 10000001 Type: fRCurrency
03 00000011 Length:
0----- - Single octet length
0000011 Len= 3
Value: EUR
A2 10100010 Type: fRAmount
06 00000110 Length:
0----- - Single octet length
0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: 2
82 10000010 Type: multiplier
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: one hundredth (1)
30 00110000 Type: AOCs currency info
12 00010010 Length:
0----- - Single octet length
0010010 Len= 18
0A 00001010 Type: charged item
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: operation of supplementary serv (4)
A2 10100010 Type: flat rate currency
0D 00001101 Length:
0----- - Single octet length
0001101 Len= 13
81 10000001 Type: fRCurrency
03 00000011 Length:
0----- - Single octet length
0000011 Len= 3
Value: EUR
A2 10100010 Type: fRAmount
06 00000110 Length:
0----- - Single octet length
0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: 0
82 10000010 Type: multiplier
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: one hundredth (1)
01 00000001 Value: one hundredth (1)

Frame: 552 -----
Date: 1/ 3/2003 13:40:57.769.664 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----
8: 00 81 04 06 08 01 01 5A
----- Layer 3 Info -----
Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931

```

01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
-00000001 Call Reference value CR: 01
0----- Message from CR-origination side
5A 01011010 ===== REL-COM =====

10.3. Call 'free of charge'

This case occurs when calling a charge-free destination, e.g. a 0800 number.

10.3.1. Call 'free of charge' (on ALCATEL S12 switch)

```
Frame: 92 -----
Date: 1/ 3/2003      11:15:27.844.416 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----
29: 00 81 00 00 08 01 01 05 04 03 80 90 A3 70 0A 81
    30 38 30 30 35 31 30 32 37 7D 02 91 81
        ----- Layer 3 Info -----
            Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
    -0000001 Call Reference value          CR: 01
    0----- Message from CR-origination side
05 00000101 ===== SETUP =====
04 00000100 ----- BC : Bearer capability -----
03 00000011 Len= 3
80 10000000 octet 3 : 80
    ---00000 Information Transfer Capability: speech
    -00----- Coding Standard: CCITT standardized coding
    1----- Extension bit: no extension
90 10010000 octet 4 : 90
    ---10000 Information Transfer Rate: 64 kbit/s
    -00----- Transfer Mode : circuit mode
    1----- Extension bit: no extension
A3 10100011 octet 5 : A3
    ---00011 User information layer 1 protocol: G.711 A-law
    -01----- Layer 1 identifier
    1----- Extension bit: no extension
70 01110000 ----- CDPN : Called party number -----
0A 00001010 Len= 10
81 10000001 octet 3 : 81
    -000---- Type of number: unknown
    ----0001 Numbering plan: ISDN / Telephony numbering plan
            Called Number: 080051027
7D 01111101 ----- HLC : High layer compatibility -----
02 00000010 Len= 2
91 10010001 octet 3 : 91
    -----01 Presentation method: high layer protocol profile
    ---100-- Interpretation: first high layer characteristics used
    -00----- Coding standard: CCITT standardized coding as described below
    1----- extension: no extension
81 10000001 octet 4 : 81
    -0000001 High layer char. ID: telephony
    1----- extension: no extension

Frame: 94 -----
Date: 1/ 3/2003      11:15:28.771.520 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
14: 02 81 00 02 08 01 81 02 18 01 89 27 01 E8
        ----- Layer 3 Info -----
            Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
    -0000001 Call Reference value          CR: 01
    1----- Message to CR-origination side
02 00000010 ===== CALL-PROC =====
18 00011000 ----- CHI : Channel identification -----
01 00000001 Len= 1
89 10001001 octet 3 : 89
    1----- not extended
    -0----- Interface Identifier present : interface implicitly identified
    --0----- Interface type : basic interface
    ---0----- Spare
    ----1--- exclusive: only the indicated channel is acceptable
    -----0-- D-channel indicator : the channel identified is not the D-channel
    -----01 Interface : basic rate : B1 channel
```

```

27 00100111 ----- NOID : Notification indicator -----
01 00000001 Len= 1
E8 11101000 octet 3 : E8
   -1101000 Notification description: diversion activated
   1----- Extension:
       no extension

Frame: 96 -----
Date: 1/ 3/2003      11:15:33.162.432 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----

42: 02 81 02 02 08 01 81 62 1C 20 91 A1 1D 02 01 06
    02 01 1F 30 15 30 05 0A 01 00 84 00 30 05 0A 01
    01 84 00 30 05 0A 01 02 84 00
    ----- Layer 3 Info -----
        Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
   -00000001 Call Reference value          CR: 01
   1----- Message to CR-origination side
62 01100010 ===== FAC
1C 00011100 ----- FAC : Facility -----
20 00100000 Len= 32
91 10010001 octet 3 : 91
   ---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
1D 00011101 Length:
   0----- Single octet length
   -0011101 Len= 29
02 00000010 invoke identifier tag
01 00000001 Len= 1
   InvokeID= 06
02 00000010 operation tag
01 00000001 length of operation tag is = 1
1F 00011111 operation 31: AOCs Currency
30 00110000 Type: AOCs currency info list
15 00010101 Length:
   0----- - Single octet length
   0010101 Len= 21
30 00110000 Type: AOCs currency info
05 00000101 Length:
   0----- - Single octet length
   0000101 Len= 5
0A 00001010 Type: charged item
01 00000001 Length:
   0----- - Single octet length
   0000001 Len= 1
00 00000000 Value: basic communication (0)
84 10000100 Type: free of charge
00 00000000 Length:
   0----- - Single octet length
   0000000 Len= 0
30 00110000 Type: AOCs currency info
05 00000101 Length:
   0----- - Single octet length
   0000101 Len= 5
0A 00001010 Type: charged item
01 00000001 Length:
   0----- - Single octet length
   0000001 Len= 1
01 00000001 Value: call attempt (1)
84 10000100 Type: free of charge
00 00000000 Length:
   0----- - Single octet length
   0000000 Len= 0
30 00110000 Type: AOCs currency info
05 00000101 Length:
   0----- - Single octet length
   0000101 Len= 5
0A 00001010 Type: charged item
01 00000001 Length:
   0----- - Single octet length
   0000001 Len= 1
02 00000010 Value: call setup (2)
84 10000100 Type: free of charge
00 00000000 Length:
   0----- Single octet length

```

```

-0000000      Len= 0

Frame: 98 -----
Date: 1/ 3/2003      11:15:33.317.760 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
16: 02 81 04 02 08 01 81 01 1E 02 82 82 1E 02 82 88
----- Layer 3 Info -----
      Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
   -0000001 Call Reference value          CR: 01
   1----- Message to CR-origination side
01 00000001 ===== ALERT =====
1E 00011110 ----- PI : Progress indicator -----
02 00000010 Len= 2
82 10000010 octet 3 : 82
   -00----- Coding standard: CCITT standardized coding as described below
   ----0010 Location: public network serving the local user
82 10000010 octet 4 : 82
   -0000010 Progress description: destination address is non-ISDN
1E 00011110 ----- PI : Progress indicator -----
02 00000010 Len= 2
82 10000010 octet 3 : 82
   -00----- Coding standard: CCITT standardized coding as described below
   ----0010 Location: public network serving the local user
88 10001000 octet 4 : 88
   -0001000 Progress description: in-band info or appropriate pattern avail.

Frame: 100 -----
Date: 1/ 3/2003      11:15:37.293.696 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
23: 02 81 06 02 08 01 81 07 1E 02 82 82 29 05 03 01
   03 0B 05 4C 02 00 A3
----- Layer 3 Info -----
      Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
   -0000001 Call Reference value          CR: 01
   1----- Message to CR-origination side
07 00000111 ===== CONN =====
1E 00011110 ----- PI : Progress indicator -----
02 00000010 Len= 2
82 10000010 octet 3 : 82
   -00----- Coding standard: CCITT standardized coding as described below
   ----0010 Location: public network serving the local user
82 10000010 octet 4 : 82
   -0000010 Progress description: destination address is non-ISDN
29 00101001 ----- DTE : Date -----
05 00000101 Len= 5
03 00000011 year: 3
01 00000001 month: 1
03 00000011 day: 3
0B 00001011 hour: 11
05 00000101 minute: 5
4C 01001100 ----- CNI : Connected number -----
02 00000010 Len= 2
00 00000000 octet 3 : 00
   ----0000 Numbering Plan : unknown -
   000---- Type of number : unknown
   0----- extension bit = 0
A3 10100011 octet 3a: A3
   -01----- Presentation indicator : presentation restricted
   -----11 Screening indicator : network provided
      Calling Number:

Frame: 102 -----
Date: 1/ 3/2003      11:15:37.339.648 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
21: 02 81 08 02 08 01 81 62 1C 0B 91 A1 08 02 01 08
   02 01 21 81 00
----- Layer 3 Info -----
      Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931

```

```

01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value          CR: 01
1----- Message to CR-origination side
62 01100010 ===== FAC
1C 00011100 ----- FAC : Facility -----
0B 00001011 Len= 11
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
08 00001000 Length:
0----- Single octet length
-0001000 Len= 8
02 00000010 invoke identifier tag
01 00000001 Len= 1
InvokeID= 08
02 00000010 operation tag
01 00000001 length of operation tag is = 1
21 00100001 operation 33: AOCD Currency
81 10000001 Type: free of charge
00 00000000 Length:
0----- Single octet length -
00000000 Len= 0

```

```

Frame: 104 -----
Date: 1/ 3/2003      11:15:46.870.336 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----

```

```

12: 00 81 02 0A 08 01 01 45 08 02 80 90
----- Layer 3 Info -----
Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
-00000001 Call Reference value          CR: 01
0----- Message from CR-origination side
45 01000101 ===== DISC
08 00001000 ----- CAU : Cause -----
02 00000010 Len= 2
80 10000000 octet 3 : 80
----0000 Location: user
-00----- Coding standard: CCITT standardized coding
1----- Extension bit: no extension
90 10010000 octet 4 : 90
-0010000 Cause #16 : normal call clearing

```

```

Frame: 106 -----
Date: 1/ 3/2003      11:15:47.191.808 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----

```

```

23: 02 81 0A 04 08 01 81 4D 1C 0D 91 A1 0A 02 01 0A
02 01 23 30 02 81 00
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value          CR: 01
1----- Message to CR-origination side
4D 01001101 ===== REL
1C 00011100 ----- FAC : Facility -----
0D 00001101 Len= 13
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
0A 00001010 Length:
0----- Single octet length
-0001010 Len= 10
02 00000010 invoke identifier tag
01 00000001 Len= 1
InvokeID= 0A
02 00000010 operation tag
01 00000001 length of operation tag is = 1
23 00100011 operation 35: AOCE Currency
30 00110000 Type: AOCE currency info
02 00000010 Length:
0----- Single octet length -
0000010 Len= 2

```



```

81 10000001      Type: free of charge
00 00000000      Length:
   0-----      Single octet length
  -0000000      Len= 0

Frame: 108 -----
Date: 1/ 3/2003      11:15:47.254.784 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----
8: 00 81 04 0C 08 01 01 5A
      ----- Layer 3 Info -----
      Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
   -0000001 Call Reference value          CR: 01
   0----- Message from CR-origination side
5A 01011010 ===== REL-COM          =====

```

10.3.2. Call 'free of charge' (on SIEMENS EWSD switch)

```
Frame: 514 -----
Date: 1/ 3/2003      13:39:49.913.728 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----
29: 00 81 00 00 08 01 01 05 04 03 80 90 A3 70 0A 81
    30 38 30 30 35 31 30 32 37 7D 02 91 81
        ----- Layer 3 Info -----
            Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
    -0000001 Call Reference value          CR: 01
    0----- Message from CR-origination side
05 00000101 ===== SETUP =====
04 00000100 ----- BC : Bearer capability -----
03 00000011 Len= 3
80 10000000 octet 3 : 80
    ---00000 Information Transfer Capability: speech
    -00----- Coding Standard: CCITT standardized coding
    1----- Extension bit: no extension
90 10010000 octet 4 : 90
    ---10000 Information Transfer Rate: 64 kbit/s
    -00----- Transfer Mode : circuit mode
    1----- Extension bit: no extension
A3 10100011 octet 5 : A3
    ---00011 User information layer 1 protocol: G.711 A-law
    -01----- Layer 1 identifier
    1----- Extension bit: no extension
70 01110000 ----- CDPN : Called party number -----
0A 00001010 Len= 10
81 10000001 octet 3 : 81
    -000---- Type of number: unknown
    ----0001 Numbering plan: ISDN / Telephony numbering plan
            Called Number: 080051027
7D 01111101 ----- HLC : High layer compatibility -----
02 00000010 Len= 2
91 10010001 octet 3 : 91
    -----01 Presentation method: high layer protocol profile
    ---100-- Interpretation: first high layer characteristics used
    -00----- Coding standard: CCITT standardized coding as described below
    1----- extension: no extension
81 10000001 octet 4 : 81
    -0000001 High layer char. ID: telephony
    1----- extension: no extension

Frame: 516 -----
Date: 1/ 3/2003      13:39:50.117.120 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
14: 02 81 00 02 08 01 81 0D 18 01 89 27 01 E8
    ----- Layer 3 Info -----
            Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
    -0000001 Call Reference value          CR: 01
    1----- Message to CR-origination side
0D 00001101 ===== SETUP-ACK =====
18 00011000 ----- CHI : Channel identification -----
01 00000001 Len= 1
89 10001001 octet 3 : 89
    1----- not extended
    -0----- Interface Identifier present : interface implicitly identified
    --0----- Interface type : basic interface
    ---0----- Spare
    ----1---- exclusive: only the indicated channel is acceptable
    -----0-- D-channel indicator : the channel identified is not the D-channel
    -----01 Interface : basic rate : B1 channel
27 00100111 ----- NOID : Notification indicator -----
01 00000001 Len= 1
E8 11101000 octet 3 : E8
    -1101000 Notification description: diversion activated
    1----- Extension:
            no extension
```

Frame: 518 -----
Date: 1/ 3/2003 13:39:50.575.168 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK

8: 02 81 02 02 08 01 81 02
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value CR: 01
1----- Message to CR-origination side
02 00000010 ===== CALL-PROC =====

Frame: 520 -----
Date: 1/ 3/2003 13:39:51.852.224 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK

12: 02 81 04 02 08 01 81 01 1E 02 82 82
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value CR: 01
1----- Message to CR-origination side
01 00000001 ===== ALERT =====
1E 00011110 ----- PI : Progress indicator -----
02 00000010 Len= 2
82 10000010 octet 3 : 82
-00----- Coding standard: CCITT standardized coding as described below
----0010 Location: public network serving the local user
82 10000010 octet 4 : 82
-00000010 Progress description: destination address is non-ISDN

Frame: 522 -----
Date: 1/ 3/2003 13:39:57.334.272 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK

66: 02 81 06 02 08 01 81 07 1C 2D 91 A1 2A 02 01 0B
02 01 1F 30 22 30 05 0A 01 00 84 00 30 05 0A 01 02
84 00 30 12 0A 01 04 A2 0D 81 03 45 55 52 A2 06 81
01 00 82 01 01 29 05 03 01 03 0D 1D 4C 02
00 A3
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value CR: 01
1----- Message to CR-origination side
07 00000111 ===== CONN =====
1C 00011100 ----- FAC : Facility -----
2D 00101101 Len= 45
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
2A 00101010 Length:
0----- Single octet length
-0101010 Len= 42
02 00000010 invoke identifier tag
01 00000001 Len= 1
InvokeID= 0B
02 00000010 operation tag
01 00000001 length of operation tag is = 1
1F 00011111 operation 31: AOCs Currency
30 00110000 Type: AOCs currency info list
22 00100010 Length:
0----- - Single octet length
0100010 Len= 34
30 00110000 Type: AOCs currency info
05 00000101 Length:
0----- - Single octet length
0000101 Len= 5
0A 00001010 Type: charged item
01 00000001 Length:
0----- Single octet length

```

-0000001      Len= 1
00 00000000   Value: basic communication (0)
84 10000100   Type: free of charge
00 00000000   Length:
0----- -   Single octet length
0000000      Len= 0
30 00110000   Type: AOCs currency info
05 00000101   Length:
0----- -   Single octet length
0000101      Len= 5
0A 00001010   Type: charged item
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
02 00000010   Value: call setup (2)
84 10000100   Type: free of charge
00 00000000   Length:
0----- -   Single octet length
0000000      Len= 0
30 00110000   Type: AOCs currency info
12 00010010   Length:
0----- -   Single octet length
0010010      Len= 18
0A 00001010   Type: charged item
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
04 00000100   Value: operation of supplementary serv (4)
A2 10100010   Type: flat rate currency
0D 00001101   Length:
0----- -   Single octet length
0001101      Len= 13
81 10000001   Type: fRCurrency
03 00000011   Length:
0----- -   Single octet length
0000011      Len= 3
Value: EUR
A2 10100010   Type: fRAmount
06 00000110   Length:
0----- -   Single octet length
0000110      Len= 6
81 10000001   Type: currency amount
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
Value: 0
82 10000010   Type: multiplier
01 00000001   Length:
0----- -   Single octet length
0000001      Len= 1
Value: one hundredth (1)
29 00101001   ----- DTE : Date -----
05 00000101   Len= 5
03 00000011   year: 3
01 00000001   month: 1
03 00000011   day: 3
0D 00001101   hour: 13
1D 00011101   minute:29
4C 01001100   ----- CNI : Connected number -----
02 00000010   Len= 2
00 00000000   octet 3 : 00
----0000 - Numbering Plan : unknown
000---- 0- Type of number : unknown
-----   extension bit = 0
A3 10100011   octet 3a: A3
-01----- - Presentation indicator : presentation restricted
-----11   Screening indicator : network provided
Calling Number:

Frame: 524 -----
Date: 1/ 3/2003      13:39:57.375.872 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
21: 02 81 08 02 08 01 81 62 1C 0B 91 A1 08 02 01 0C
    02 01 21 81 00
    ----- Layer 3 Info -----
    Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931

```

```

01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value          CR: 01
1----- Message to CR-origination side
62 01100010 ===== FAC
1C 00011100 ----- FAC : Facility -----
0B 00001011 Len= 11
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
08 00001000 Length:
0----- Single octet length
-0001000 Len= 8
02 00000010 invoke identifier tag
01 00000001 Len= 1
InvokeID= 0C
02 00000010 operation tag
01 00000001 length of operation tag is = 1
21 00100001 operation 33: AOCD Currency
81 10000001 Type: free of charge
00 00000000 Length:
0----- Single octet length -
00000000 Len= 0

```

```

Frame: 528 -----
Date: 1/ 3/2003      13:40:14.551.360 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----

```

```

12: 00 81 02 0A 08 01 01 45 08 02 80 90
----- Layer 3 Info -----
Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
-00000001 Call Reference value          CR: 01
0----- Message from CR-origination side
45 01000101 ===== DISC
08 00001000 ----- CAU : Cause -----
02 00000010 Len= 2
80 10000000 octet 3 : 80
----0000 Location: user
-00----- Coding standard: CCITT standardized coding
1----- Extension bit: no extension
90 10010000 octet 4 : 90
-0010000 Cause #16 : normal call clearing

```

```

Frame: 530 -----
Date: 1/ 3/2003      13:40:14.707.328 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----

```

```

23: 02 81 0A 04 08 01 81 4D 1C 0D 91 A1 0A 02 01 0D
02 01 23 30 02 81 00
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value          CR: 01
1----- Message to CR-origination side
4D 01001101 ===== REL
1C 00011100 ----- FAC : Facility -----
0D 00001101 Len= 13
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
0A 00001010 Length:
0----- Single octet length
-0001010 Len= 10
02 00000010 invoke identifier tag
01 00000001 Len= 1
InvokeID= 0D
02 00000010 operation tag
01 00000001 length of operation tag is = 1
23 00100011 operation 35: AOCE Currency
30 00110000 Type: AOCE currency info
02 00000010 Length:
0----- Single octet length -
00000010 Len= 2

```

```

81 10000001      Type: free of charge
00 00000000      Length:
   0-----      Single octet length
  -0000000      Len= 0

Frame: 532 -----
Date: 1/ 3/2003      13:40:14.769.728 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----
8: 00 81 04 0C 08 01 01 5A
      ----- Layer 3 Info -----
      Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
   -0000001 Call Reference value          CR: 01
   0----- Message from CR-origination side
5A 01011010 ===== REL-COM          =====

```

10.4. Call for which no charge info is available

This case occurs when a call is e.g. routed to another carrier via carrier selection or pre-selection.

10.4.1. Call for which no charge info is available (on ALCATEL S12 switch)

```
Frame: 264 -----
Date: 1/ 3/2003      11:35:24.315.264 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----
33: 00 81 00 00 08 01 01 05 04 03 80 90 A3 70 0E 81
    31 36 39 30 30 32 37 39 38 36 32 30 33 7D 02 91
    81
        ----- Layer 3 Info -----
        Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
   -0000001 Call Reference value          CR: 01
   0----- Message from CR-origination side
05 00000101 ===== SETUP =====
04 00000100 ----- BC : Bearer capability -----
03 00000011 Len= 3
80 10000000 octet 3 : 80
   ---00000 Information Transfer Capability: speech
   -00----- Coding Standard: CCITT standardized coding
   1----- Extension bit: no extension
90 10010000 octet 4 : 90
   ---10000 Information Transfer Rate: 64 kbit/s
   -00----- Transfer Mode : circuit mode
   1----- Extension bit: no extension
A3 10100011 octet 5 : A3
   ---00011 User information layer 1 protocol: G.711 A-law
   -01----- Layer 1 identifier
   1----- Extension bit: no extension
70 01110000 ----- CDPN : Called party number -----
0E 00001110 Len= 14
81 10000001 octet 3 : 81
   -000---- Type of number: unknown
   ----0001 Numbering plan: ISDN / Telephony numbering plan
         Called Number: 1690027986203
7D 01111101 ----- HLC : High layer compatibility -----
02 00000010 Len= 2
91 10010001 octet 3 : 91
   -----01 Presentation method: high layer protocol profile
   ---100-- Interpretation: first high layer characteristics used
   -00----- Coding standard: CCITT standardized coding as described below
   1----- extension: no extension
81 10000001 octet 4 : 81
   -0000001 High layer char. ID: telephony
   1----- extension: no extension
```

```
Frame: 266 -----
Date: 1/ 3/2003      11:35:24.621.888 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
14: 02 81 00 02 08 01 81 02 18 01 89 27 01 E8
        ----- Layer 3 Info -----
        Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
   -0000001 Call Reference value          CR: 01
   1----- Message to CR-origination side
02 00000010 ===== CALL-PROC =====
18 00011000 ----- CHI : Channel identification -----
01 00000001 Len= 1
89 10001001 octet 3 : 89
   1----- not extended
   -0----- Interface Identifier present : interface implicitly identified
   --0----- Interface type : basic interface
   ---0---- Spare
```

```

----1--- exclusive: only the indicated channel is acceptable
-----0-- - D-channel indicator : the channel identified is not the D-channel
-----01 Interface : basic rate : B1 channel
27 00100111 ----- NOID : Notification indicator -----
01 00000001 Len= 1
E8 11101000 octet 3 : E8
-1101000 Notification description: diversion activated
1----- Extension:
no extension

```

```

Frame: 268 -----
Date: 1/ 3/2003      11:35:27.681.216 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----

```

```

42: 02 81 02 02 08 01 81 62 1C 20 91 A1 1D 02 01 0C
    02 01 1F 30 15 30 05 0A 01 00 85 00 30 05 0A 01
    01 85 00 30 05 0A 01 02 85 00
    ----- Layer 3 Info -----
    Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value          CR: 01
1----- Message to CR-origination side
62 01100010 ===== FAC =====
1C 00011100 ----- FAC : Facility -----
20 00100000 Len= 32
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
1D 00011101 Length:
0----- Single octet length
-0011101 Len= 29
02 00000010 invoke identifier tag
01 00000001 Len= 1
InvokeID= 0C
02 00000010 operation tag
01 00000001 length of operation tag is = 1
1F 00011111 operation 31: AOCs Currency
30 00110000 Type: AOCs currency info list
15 00010101 Length:
0----- Single octet length
0010101 Len= 21
30 00110000 Type: AOCs currency info
05 00000101 Length:
0----- Single octet length
0000101 Len= 5
0A 00001010 Type: charged item
01 00000001 Length:
0----- Single octet length
0000001 Len= 1
00 00000000 Value: basic communication (0)
85 10000101 Type: currency info not available
00 00000000 Length:
0----- Single octet length
0000000 Len= 0
30 00110000 Type: AOCs currency info
05 00000101 Length:
0----- Single octet length
0000101 Len= 5
0A 00001010 Type: charged item
01 00000001 Length:
0----- Single octet length
0000001 Len= 1
01 00000001 Value: call attempt (1)
85 10000101 Type: currency info not available
00 00000000 Length:
0----- Single octet length
0000000 Len= 0
30 00110000 Type: AOCs currency info
05 00000101 Length:
0----- Single octet length
0000101 Len= 5
0A 00001010 Type: charged item
01 00000001 Length:
0----- Single octet length
0000001 Len= 1

```


02 00000010 Value: call setup (2)
85 10000101 Type: currency info not available
00 00000000 Length:
0----- - Single octet length
0000000 Len= 0

Frame: 270 -----
Date: 1/ 3/2003 11:35:27.841.600 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK

12: 02 81 04 02 08 01 81 01 1E 02 82 88
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value CR: 01
1----- Message to CR-origination side
01 00000001 ===== ALERT =====
1E 00011110 ----- PI : Progress indicator -----
02 00000010 Len= 2
82 10000010 octet 3 : 82
-00----- Coding standard: CCITT standardized coding as described below
----0010 Location: public network serving the local user
88 10001000 octet 4 : 88
-0001000 Progress description: in-band info or appropriate pattern avail.

Frame: 272 -----
Date: 1/ 3/2003 11:35:33.565.952 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK

27: 02 81 06 02 08 01 81 07 29 05 03 01 03 0B 19 4C
0A 21 83 32 37 39 38 36 32 30 33
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value CR: 01
1----- Message to CR-origination side
07 00000111 ===== CONN =====
29 00101001 ----- DTE : Date -----
05 00000101 Len= 5
03 00000011 year: 3
01 00000001 month: 1
03 00000011 day: 3
0B 00001011 hour: 11
19 00011001 minute:25
4C 01001100 ----- CNI : Connected number -----
0A 00001010 Len= 10
21 00100001 octet 3 : 21
----0001 Numbering Plan : ISDN/Telephony (E.163/E.164)
-010---- Type of number : national
0----- extension bit = 0
83 10000011 octet 3a: 83
-00----- Presentation indicator : presentation allowed
-----11 Screening indicator : network provided
Calling Number: 27986203

Frame: 274 -----
Date: 1/ 3/2003 11:35:33.611.776 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK

21: 02 81 08 02 08 01 81 62 1C 0B 91 A1 08 02 01 0E
02 01 21 05 00
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value CR: 01
1----- Message to CR-origination side
62 01100010 ===== FAC =====
1C 00011100 ----- FAC : Facility -----
0B 00001011 Len= 11

```

91 10010001  octet 3 : 91
   ---10001  Service discriminator: supplementary service applications
A1 10100001  type: invoke
08 00001000  Length:
   0----- -   Single octet length
   0001000   Len= 8
02 00000010  invoke identifier tag
01 00000001  Len= 1
   InvokeID= 0E
02 00000010  operation tag
01 00000001  length of operation tag is = 1
21 00100001  operation 33: AOCD Currency
05 00000101  Type: charge not available
00 00000000  Length:
   0----- -   Single octet length
   0000000   Len= 0

```

```

Frame: 286 -----
Date: 1/ 3/2003      11:36:14.188.288 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----

```

```

12: 00 81 02 0A 08 01 01 45 08 02 80 90
   ----- Layer 3 Info -----
   Direction: User->Network
08 00001000  PD for E-DSS.1/CCITT Q.931
01 00000001  Callref length: 1 type: one octet
01 00000001  Call Reference octet
   -0000001  Call Reference value          CR: 01
   0-----  Message from CR-origination side
45 01000101  ===== DISC =====
08 00001000  ----- CAU : Cause -----
02 00000010  Len= 2
80 10000000  octet 3 : 80
   ----0000  Location: user
   -00----- Coding standard: CCITT standardized coding
   1-----  Extension bit: no extension
90 10010000  octet 4 : 90
   -0010000  Cause #16 : normal call clearing

```

```

Frame: 288 -----
Date: 1/ 3/2003      11:36:14.527.040 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----

```

```

21: 02 81 0A 04 08 01 81 4D 1C 0B 91 A1 08 02 01 10
   02 01 23 05 00
   ----- Layer 3 Info -----
   Direction: Network->User
08 00001000  PD for E-DSS.1/CCITT Q.931
01 00000001  Callref length: 1 type: one octet
81 10000001  Call Reference octet
   -0000001  Call Reference value          CR: 01
   1-----  Message to CR-origination side
4D 01001101  ===== REL =====
1C 00011100  ----- FAC : Facility -----
0B 00001011  Len= 11
91 10010001  octet 3 : 91
   ---10001  Service discriminator: supplementary service applications
A1 10100001  type: invoke
08 00001000  Length:
   0----- -   Single octet length
   -0001000   Len= 8
02 00000010  invoke identifier tag
01 00000001  Len= 1
   InvokeID= 10
02 00000010  operation tag
01 00000001  length of operation tag is = 1
23 00100011  operation 35: AOCE Currency 05
00000101  Type: charge not available
00 00000000  Length:
   0----- -   Single octet length -
   0000000   Len= 0

```

```

Frame: 290 -----
Date: 1/ 3/2003      11:36:14.585.856 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK

```

```
-----  
8: 00 81 04 0C 08 01 01 5A  
      ----- Layer 3 Info -----  
      Direction: User->Network  
08 00001000 PD for E-DSS.1/CCITT Q.931  
01 00000001 Callref length: 1 type: one octet  
01 00000001 Call Reference octet  
      -0000001 Call Reference value          CR: 01  
      0----- Message from CR-origination side  
5A 01011010 ===== REL-COM          =====
```

10.4.2. Call for which no charge info is available (on SIEMENS EWSD switch)

```
Frame: 486 -----
Date: 1/ 3/2003      13:38:21.153.728 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----
33: 00 81 00 00 08 01 01 05 04 03 80 90 A3 70 0E 81
    31 36 39 30 30 32 37 39 38 36 32 30 33 7D 02 91
    81
        ----- Layer 3 Info -----
        Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
   -0000001 Call Reference value          CR: 01
   0----- Message from CR-origination side
05 00000101 ===== SETUP =====
04 00000100 ----- BC : Bearer capability -----
03 00000011 Len= 3
80 10000000 octet 3 : 80
   --00000 Information Transfer Capability: speech
   -00----- Coding Standard: CCITT standardized coding
   1----- Extension bit: no extension
90 10010000 octet 4 : 90
   --10000 Information Transfer Rate: 64 kbit/s
   -00----- Transfer Mode : circuit mode
   1----- Extension bit: no extension
A3 10100011 octet 5 : A3
   ---00011 User information layer 1 protocol: G.711 A-law
   -01----- Layer 1 identifier
   1----- Extension bit: no extension
70 01110000 ----- CDPN : Called party number -----
0E 00001110 Len= 14
81 10000001 octet 3 : 81
   -000---- Type of number: unknown
   ----0001 Numbering plan: ISDN / Telephony numbering plan
           Called Number: 1690027986203
7D 01111101 ----- HLC : High layer compatibility -----
02 00000010 Len= 2
91 10010001 octet 3 : 91
   -----01 Presentation method: high layer protocol profile
   ---100-- Interpretation: first high layer characteristics used
   -00----- Coding standard: CCITT standardized coding as described below
   1----- extension: no extension
81 10000001 octet 4 : 81
   -0000001 High layer char. ID: telephony
   1----- extension: no extension

Frame: 488 -----
Date: 1/ 3/2003      13:38:21.420.480 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
14: 02 81 00 02 08 01 81 0D 18 01 89 27 01 E8
        ----- Layer 3 Info -----
        Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
   -0000001 Call Reference value          CR: 01
   1----- Message to CR-origination side
0D 00001101 ===== SETUP-ACK =====
18 00011000 ----- CHI : Channel identification -----
01 00000001 Len= 1
89 10001001 octet 3 : 89
   1----- not extended
   -0----- Interface Identifier present : interface implicitly identified
   --0----- Interface type : basic interface
   ---0----- Spare
   ----1---- exclusive: only the indicated channel is acceptable
   -----0-- D-channel indicator : the channel identified is not the D-channel
   -----01 Interface : basic rate : B1 channel
27 00100111 ----- NOID : Notification indicator -----
01 00000001 Len= 1
E8 11101000 octet 3 : E8
   -1101000 Notification description: diversion activated
   1----- Extension:
```

no extension

Frame: 490 -----
Date: 1/ 3/2003 13:38:22.319.296 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK

12: 02 81 02 02 08 01 81 01 1E 02 84 88
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value CR: 01
1----- Message to CR-origination side
01 00000001 ===== ALERT =====
1E 00011110 ----- PI : Progress indicator -----
02 00000010 Len= 2
84 10000100 octet 3 : 84
-00----- Coding standard: CCITT standardized coding as described below
----0100 Location: public network serving the remote user
88 10001000 octet 4 : 88
-00010000 Progress description: in-band info or appropriate pattern avail.

Frame: 494 -----
Date: 1/ 3/2003 13:38:33.450.880 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK

61: 02 81 04 02 08 01 81 07 1C 20 91 A1 1D 02 01 33
02 01 1F 30 15 30 05 0A 01 00 85 00 30 05 0A 01 02
85 00 30 05 0A 01 04 85 00 29 05 03 01 03 0D
1C 4C 0A 21 83 32 37 39 38 36 32 30 33
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value CR: 01
1----- Message to CR-origination side
07 00000111 ===== CONN =====
1C 00011100 ----- FAC : Facility -----
20 00100000 Len= 32
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
1D 00011101 Length:
0----- Single octet length
-0011101 Len= 29
02 00000010 invoke identifier tag
01 00000001 Len= 1
InvokeID= 33
02 00000010 operation tag
01 00000001 length of operation tag is = 1
1F 00011111 operation 31: AOCs Currency
30 00110000 Type: AOCs currency info list
15 00010101 Length:
0----- - Single octet length
0010101 Len= 21
30 00110000 Type: AOCs currency info
05 00000101 Length:
0----- - Single octet length
0000101 Len= 5
0A 00001010 Type: charged item
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
00 00000000 Value: basic communication (0)
85 10000101 Type: currency info not available
00 00000000 Length:
0----- - Single octet length
0000000 Len= 0
30 00110000 Type: AOCs currency info
05 00000101 Length:
0----- - Single octet length
0000101 Len= 5
0A 00001010 Type: charged item
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1

```

02 00000010      Value: call setup (2)
85 10000101      Type: currency info not available
00 00000000      Length:
0----- -      Single octet length
00000000      Len= 0
30 00110000      Type: AOCs currency info
05 00000101      Length:
0----- -      Single octet length
0000101      Len= 5
0A 00001010      Type: charged item
01 00000001      Length:
0----- -      Single octet length
00000001      Len= 1
04 00000100      Value: operation of supplementary serv (4)
85 10000101      Type: currency info not available
00 00000000      Length:
0----- -      Single octet length
00000000      Len= 0
29 00101001      ----- DTE : Date -----
05 00000101      Len= 5
03 00000011      year: 3
01 00000001      month: 1
03 00000011      day: 3
0D 00001101      hour: 13
1C 00011100      minute:28
4C 01001100      ----- CNI : Connected number -----
0A 00001010      Len= 10
21 00100001      octet 3 : 21
----0001 - Numbering Plan : ISDN/Telephony (E.163/E.164)
010---- 0- Type of number : national
----- extension bit = 0
83 10000011      octet 3a: 83
-00----- - Presentation indicator : presentation allowed
-----11 Screening indicator : network provided
Calling Number: 27986203

Frame: 496 -----
Date: 1/ 3/2003      13:38:33.492.736 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
21: 02 81 06 02 08 01 81 62 1C 0B 91 A1 08 02 01 34
02 01 21 05 00
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value      CR: 01
1----- Message to CR-origination side
62 01100010 ===== FAC =====
1C 00011100 ----- FAC : Facility -----
0B 00001011 Len= 11
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
08 00001000 Length:
0----- Single octet length
-0001000 Len= 8
02 00000010 invoke identifier tag
01 00000001 Len= 1
InvokeID= 34
02 00000010 operation tag
01 00000001 length of operation tag is = 1
21 00100001 operation 33: AOCd Currency 05
00000101 Type: charge not available
00 00000000      Length:
0----- Single octet length -
00000000      Len= 0

```

```

Frame: 500 -----
Date: 1/ 3/2003      13:38:49.230.592 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----
12: 00 81 02 08 08 01 01 45 08 02 80 90
----- Layer 3 Info -----
Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet

```

```

01 00000001 Call Reference octet
   -00000001 Call Reference value          CR: 01
   0----- Message from CR-origination side
45 01000101 ===== DISC =====
08 00001000 ----- CAU : Cause -----
02 00000010 Len= 2
80 10000000 octet 3 : 80
   ---0000 - Location: user
   00----- 1- Coding standard: CCITT standardized coding
   ----- Extension bit: no extension
90 10010000 octet 4 : 90
   -0010000 Cause #16 : normal call clearing

Frame: 502 -----
Date: 1/ 3/2003      13:38:49.387.008 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
21: 02 81 08 04 08 01 81 4D 1C 0B 91 A1 08 02 01 35
   02 01 23 05 00
   ----- Layer 3 Info -----
   Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
   -00000001 Call Reference value          CR: 01
   1----- Message to CR-origination side
4D 01001101 ===== REL =====
1C 00011100 ----- FAC : Facility -----
0B 00001011 Len= 11
91 10010001 octet 3 : 91
   ---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
08 00001000 Length:
   0----- Single octet length
   -0001000 Len= 8
02 00000010 invoke identifier tag
01 00000001 Len= 1
   InvokeID= 35
02 00000010 operation tag
01 00000001 length of operation tag is = 1
23 00100011 operation 35: AOCE Currency 05
00000101 Type: charge not available
00 00000000 Length:
   0----- Single octet length -
   0000000 Len= 0

```

```

Frame: 504 -----
Date: 1/ 3/2003      13:38:49.446.400 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----
8: 00 81 04 0A 08 01 01 5A
   ----- Layer 3 Info -----
   Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
   -00000001 Call Reference value          CR: 01
   0----- Message from CR-origination side
5A 01011010 ===== REL-COM =====

```

10.5. Call for which 'flat fee' charging is applicable

This case occurs when a call is set up to e.g. a pager.

10.5.1. Call for which 'flat fee' charging is applicable (on ALCATEL S12 switch)

```
Frame: 1002 -----
Date: 1/ 3/2003      16:16:41.035.008 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----
30: 00 81 00 00 08 01 01 05 04 03 80 90 A3 70 0B 81
    30 34 35 38 33 32 34 37 36 31 7D 02 91 81
    ----- Layer 3 Info -----
        Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
    -0000001 Call Reference value          CR: 01
    0----- Message from CR-origination side
05 00000101 ===== SETUP =====
04 00000100 ----- BC : Bearer capability -----
03 00000011 Len= 3
80 10000000 octet 3 : 80
    ---00000 Information Transfer Capability: speech
    -00----- Coding Standard: CCITT standardized coding
    1----- Extension bit: no extension
90 10010000 octet 4 : 90
    ---10000 Information Transfer Rate: 64 kbit/s
    -00----- Transfer Mode : circuit mode
    1----- Extension bit: no extension
A3 10100011 octet 5 : A3
    ---00011 User information layer 1 protocol: G.711 A-law
    -01----- Layer 1 identifier
    1----- Extension bit: no extension
70 01110000 ----- CDPN : Called party number -----
0B 00001011 Len= 11
81 10000001 octet 3 : 81
    -000---- Type of number: unknown
    ----0001 Numbering plan: ISDN / Telephony numbering plan
        Called Number: 0458324761
7D 01111101 ----- HLC : High layer compatibility -----
02 00000010 Len= 2
91 10010001 octet 3 : 91
    -----01 Presentation method: high layer protocol profile
    ---100-- Interpretation: first high layer characteristics used
    -00----- Coding standard: CCITT standardized coding as described below
    1----- extension: no extension
81 10000001 octet 4 : 81
    -0000001 High layer char. ID: telephony
    1----- extension: no extension

Frame: 1004 -----
Date: 1/ 3/2003      16:16:41.344.064 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
14: 02 81 00 02 08 01 81 02 18 01 89 27 01 E8
    ----- Layer 3 Info -----
        Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
    -0000001 Call Reference value          CR: 01
    1----- Message to CR-origination side
02 00000010 ===== CALL-PROC =====
18 00011000 ----- CHI : Channel identification -----
01 00000001 Len= 1
89 10001001 octet 3 : 89
    1----- not extended
    -0----- Interface Identifier present : interface implicitly identified
    --0----- Interface type : basic interface
    ---0---- Spare
    ----1--- exclusive: only the indicated channel is acceptable
    ----0-- D-channel indicator : the channel identified is not the D-channel
```



```

-----01 Interface : basic rate : B1 channel
27 00100111 ----- NOID : Notification indicator -----
01 00000001 Len= 1
E8 11101000 octet 3 : E8
-1101000 Notification description: diversion activated
1----- Extension:
      no extension

Frame: 1006 -----
Date: 1/ 3/2003      16:16:47.323.328 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
100: 02 81 02 02 08 01 81 62 1C 5A 91 A1 57 02 01 32
      02 01 1F 30 4F 30 25 0A 01 00 A1 20 81 03 45 55 52
      A2 06 81 01 00 82 01 01 83 01 00 A4 06 81 01 01 82
      01 02 A5 06 81 01 01 82 01 02 30 12 0A 01 01 A2 0D
      81 03 45 55 52 A2 06 81 01 02 82 01 01 30 12 0A 01
      02 A2 0D 81 03 45 55 52 A2 06 81 01
      32 82 01 01
      ----- Layer 3 Info -----
      Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value          CR: 01
1----- Message to CR-origination side
62 01100010 ===== FAC
1C 00011100 ----- FAC : Facility -----
5A 01011010 Len= 90
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
57 01010111 Length:
0----- Single octet length
-1010111 Len= 87
02 00000010 invoke identifier tag
01 00000001 Len= 1
      InvokeID= 32
02 00000010 operation tag
01 00000001 length of operation tag is = 1
1F 00011111 operation 31: AOCs Currency
30 00110000 Type: AOCs currency info list
4F 01001111 Length:
0----- - Single octet length
1001111 Len= 79
30 00110000 Type: AOCs currency info
25 00100101 Length:
0----- - Single octet length
0100101 Len= 37
0A 00001010 Type: charged item
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
00 00000000 Value: basic communication (0)
A1 10100001 Type: duration currency
20 00100000 Length:
0----- - Single octet length
0100000 Len= 32
81 10000001 Type: dCurrency
03 00000011 Length:
0----- - Single octet length
0000011 Len= 3
      Value: EUR
A2 10100010 Type: dAmount
06 00000110 Length:
0----- - Single octet length
0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
      Value: 0
82 10000010 Type: multiplier
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
01 00000001 Value: one hundredth (1)
83 10000011 Type: dChargingType

```

```

01 00000001      Length:
0----- -      Single octet length
00000001        Len= 1
00 00000000      Value: continuous charging (0)
A4 10100100      Type: dTime
06 00000110      Length:
0----- -      Single octet length
0000110         Len= 6
81 10000001      Type: length of time unit
01 00000001      Length:
0----- -      Single octet length
00000001        Len= 1
01              Value: 1
82 10000010      Type: scale
01 00000001      Length:
0----- -      Single octet length
00000001        Len= 1
02 00000010      Value: one second (2)
A5 10100101      Type: dGranularity
06 00000110      Length:
0----- -      Single octet length
0000110         Len= 6
81 10000001      Type: length of time unit
01 00000001      Length:
0----- -      Single octet length
00000001        Len= 1
01              Value: 1
82 10000010      Type: scale
01 00000001      Length:
0----- -      Single octet length
00000001        Len= 1
02 00000010      Value: one second (2)
30 00110000      Type: AOCs currency info
12 00010010      Length:
0----- -      Single octet length
0010010         Len= 18
0A 00001010      Type: charged item
01 00000001      Length:
0----- -      Single octet length
00000001        Len= 1
01 00000001      Value: call attempt (1)
A2 10100010      Type: flat rate currency
0D 00001101      Length:
0----- -      Single octet length
0001101         Len= 13
81 10000001      Type: fRCurrency
03 00000011      Length:
0----- -      Single octet length
0000011         Len= 3
01              Value: EUR
A2 10100010      Type: fRAmount
06 00000110      Length:
0----- -      Single octet length
0000110         Len= 6
81 10000001      Type: currency amount
01 00000001      Length:
0----- -      Single octet length
00000001        Len= 1
01              Value: 2
82 10000010      Type: multiplier
01 00000001      Length:
0----- -      Single octet length
00000001        Len= 1
01 00000001      Value: one hundredth (1)
30 00110000      Type: AOCs currency info
12 00010010      Length:
0----- -      Single octet length
0010010         Len= 18
0A 00001010      Type: charged item
01 00000001      Length:
0----- -      Single octet length
00000001        Len= 1
02 00000010      Value: call setup (2)
A2 10100010      Type: flat rate currency
0D 00001101      Length:
0----- -      Single octet length
0001101         Len= 13
81 10000001      Type: fRCurrency

```

```

03 00000011      Length:
    0----- -   Single octet length
    0000011      Len= 3
                  Value: EUR
A2 10100010      Type: fRAmount
06 00000110      Length:
    0----- -   Single octet length
    0000110      Len= 6
81 10000001      Type: currency amount
01 00000001      Length:
    0----- -   Single octet length
    0000001      Len= 1
                  Value: 50
82 10000010      Type: multiplier
01 00000001      Length:
    0----- -   Single octet length
    0000001      Len= 1
01 00000001      Value: one hundredth (1)

```

```

Frame: 1008 -----
Date: 1/ 3/2003      16:16:47.420.288 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----

```

```

16: 02 81 04 02 08 01 81 01 1E 02 8A 81 1E 02 8A 88
----- Layer 3 Info -----
      Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-0000001 Call Reference value          CR: 01
1----- Message to CR-origination side
01 00000001 ===== ALERT =====
1E 00011110 ----- PI : Progress indicator -----
02 00000010 Len= 2
8A 10001010 octet 3 : 8A
-00----- Coding standard: CCITT standardized coding as described below
----1010 Location: network beyond interworking point
81 10000001 octet 4 : 81
-0000001 Progress description: call is not end-to-end ISDN
1E 00011110 ----- PI : Progress indicator -----
02 00000010 Len= 2
8A 10001010 octet 3 : 8A
-00----- Coding standard: CCITT standardized coding as described below
----1010 Location: network beyond interworking point
88 10001000 octet 4 : 88
-0001000 Progress description: in-band info or appropriate pattern avail.

```

```

Frame: 1010 -----
Date: 1/ 3/2003      16:16:53.005.056 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----

```

```

23: 02 81 06 02 08 01 81 07 1E 02 8A 81 29 05 03 01
    03 10 06 4C 02 00 C3
----- Layer 3 Info -----
      Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-0000001 Call Reference value          CR: 01
1----- Message to CR-origination side
07 00000111 ===== CONN =====
1E 00011110 ----- PI : Progress indicator -----
02 00000010 Len= 2
8A 10001010 octet 3 : 8A
-00----- Coding standard: CCITT standardized coding as described below
----1010 Location: network beyond interworking point
81 10000001 octet 4 : 81
-0000001 Progress description: call is not end-to-end ISDN
29 00101001 ----- DTE : Date -----
05 00000101 Len= 5
03 00000011 year: 3
01 00000001 month: 1
03 00000011 day: 3
10 00010000 hour: 16
06 00000110 minute: 6
4C 01001100 ----- CNI : Connected number -----
02 00000010 Len= 2
00 00000000 octet 3 : 00

```

----0000 Numbering Plan : unknown
-000---- Type of number : unknown
0----- extension bit = 0
C3 11000011 octet 3a: C3
-10----- - Presentation indicator : number not available due to interworking
-----11 Screening indicator : network provided
 Calling Number:

Frame: 1012 -----
Date: 1/ 3/2003 16:16:53.076.160 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK

42: 02 81 08 02 08 01 81 62 1C 20 91 A1 1D 02 01 34
 02 01 21 30 15 A1 0D 81 03 45 55 52 A2 06 81 01
 32 82 01 01 82 01 00 83 01 00
 ----- Layer 3 Info -----
 Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
 -0000001 Call Reference value CR: 01
 1----- Message to CR-origination side
62 01100010 ===== FAC
1C 00011100 ----- FAC : Facility -----
20 00100000 Len= 32
91 10010001 octet 3 : 91
 ---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
1D 00011101 Length:
 0----- Single octet length
 -0011101 Len= 29
02 00000010 invoke identifier tag
01 00000001 Len= 1
 InvokeID= 34
02 00000010 operation tag
01 00000001 length of operation tag is = 1
21 00100001 operation 33: A OCD Currency
30 00110000 Type: specific currency
15 00010101 Length:
 0----- - Single octet length
 0010101 Len= 21
A1 10100001 Type: recorded currency
0D 00001101 Length:
 0----- - Single octet length
 0001101 Len= 13
81 10000001 Type: currency
03 00000011 Length:
 0----- - Single octet length
 0000011 Len= 3
 Value: EUR
A2 10100010 Type: amount
06 00000110 Length:
 0----- - Single octet length
 0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:
 0----- - Single octet length
 0000001 Len= 1
 Value: 50
82 10000010 Type: multiplier
01 00000001 Length:
 0----- - Single octet length
 0000001 Len= 1
 Value: one hundredth (1)
82 10000010 Type: type of charging info
01 00000001 Length:
 0----- - Single octet length
 0000001 Len= 1
 Value: sub total (0)
83 10000011 Type: A OCD billing Id
01 00000001 Length:
 0----- - Single octet length
 0000001 Len= 1
 Value: normal charging (0)

Frame: 1018 -----
Date: 1/ 3/2003 16:17:15.374.080 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK

```

-----
12: 00 81 02 0A 08 01 01 45 08 02 80 90
----- Layer 3 Info -----
      Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
   -00000001 Call Reference value          CR: 01
0----- Message from CR-origination side
45 01000101 ===== DISC =====
08 00001000 ----- CAU : Cause -----
02 00000010 Len= 2
80 10000000 octet 3 : 80
   ----0000 Location: user
   -00----- Coding standard: CCITT standardized coding
   1----- Extension bit: no extension
90 10010000 octet 4 : 90
   -0010000 Cause #16 : normal call clearing

Frame: 1020 -----
Date: 1/ 3/2003      16:17:15.728.896 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
41: 02 81 0A 04 08 01 81 4D 1C 1F 91 A1 1C 02 01 36
   02 01 23 30 14 30 12 A1 0D 81 03 45 55 52 A2 06
   81 01 32 82 01 01 82 01 00
----- Layer 3 Info -----
      Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
   -00000001 Call Reference value          CR: 01
1----- Message to CR-origination side
4D 01001101 ===== REL =====
1C 00011100 ----- FAC : Facility -----
1F 00011111 Len= 31
91 10010001 octet 3 : 91
   ---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
1C 00011100 Length:
   0----- Single octet length
   -0011100 Len= 28
02 00000010 invoke identifier tag
01 00000001 Len= 1
   InvokeID= 36
02 00000010 operation tag
01 00000001 length of operation tag is = 1
23 00100011 operation 35: AOCE Currency
30 00110000 Type: AOCE currency info
14 00010100 Length:
   0----- - Single octet length
   0010100 Len= 20
30 00110000 Type: specific currency
12 00010010 Length:
   0----- - Single octet length
   0010010 Len= 18
A1 10100001 Type: recorded currency
0D 00001101 Length:
   0----- - Single octet length
   0001101 Len= 13
81 10000001 Type: currency
03 00000011 Length:
   0----- - Single octet length
   0000011 Len= 3
   Value: EUR
A2 10100010 Type: amount
06 00000110 Length:
   0----- - Single octet length
   0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:
   0----- - Single octet length
   0000001 Len= 1
   Value: 50
82 10000010 Type: multiplier
01 00000001 Length:
   0----- - Single octet length
   0000001 Len= 1

```

```

01 00000001      Value: one hundredth (1)
82 10000010      Type: AOCE billing Id
01 00000001      Length:
  0----- -      Single octet length
  00000001        Len= 1
00 00000000      Value: normal charging (0)

Frame: 1022 -----
Date: 1/ 3/2003      16:17:15.800.064 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----

8: 00 81 04 0C 08 01 01 5A
      ----- Layer 3 Info -----
      Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
  -00000001 Call Reference value          CR: 01
  0----- Message from CR-origination side
5A 01011010 ===== REL-COM          =====

```

10.5.2. Call for which 'flat fee' charging is applicable (on SIEMENS EWSD switch)

```
Frame: 444 -----
Date: 1/ 3/2003      13:34:12.533.952 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----
30: 00 81 00 00 08 01 01 05 04 03 80 90 A3 70 0B 81
    30 34 35 38 33 32 34 37 36 31 7D 02 91 81
        ----- Layer 3 Info -----
            Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
    -0000001 Call Reference value          CR: 01
    0----- Message from CR-origination side
05 00000101 ===== SETUP =====
04 00000100 ----- BC : Bearer capability -----
03 00000011 Len= 3
80 10000000 octet 3 : 80
    ---00000 Information Transfer Capability: speech
    -00----- Coding Standard: CCITT standardized coding
    1----- Extension bit: no extension
90 10010000 octet 4 : 90
    ---10000 Information Transfer Rate: 64 kbit/s
    -00----- Transfer Mode : circuit mode
    1----- Extension bit: no extension
A3 10100011 octet 5 : A3
    ---00011 User information layer 1 protocol: G.711 A-law
    -01----- Layer 1 identifier
    1----- Extension bit: no extension
70 01110000 ----- CDPN : Called party number -----
0B 00001011 Len= 11
81 10000001 octet 3 : 81
    -000---- Type of number: unknown
    ----0001 Numbering plan: ISDN / Telephony numbering plan
            Called Number: 0458324761
7D 01111101 ----- HLC : High layer compatibility -----
02 00000010 Len= 2
91 10010001 octet 3 : 91
    -----01 Presentation method: high layer protocol profile
    ---100-- Interpretation: first high layer characteristics used
    -00----- Coding standard: CCITT standardized coding as described below
    1----- extension: no extension
81 10000001 octet 4 : 81
    -0000001 High layer char. ID: telephony
    1----- extension: no extension

Frame: 446 -----
Date: 1/ 3/2003      13:34:12.801.536 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----
14: 02 81 00 02 08 01 81 0D 18 01 89 27 01 E8
    ----- Layer 3 Info -----
            Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
    -0000001 Call Reference value          CR: 01
    1----- Message to CR-origination side
0D 00001101 ===== SETUP-ACK =====
18 00011000 ----- CHI : Channel identification -----
01 00000001 Len= 1
89 10001001 octet 3 : 89
    1----- not extended
    -0----- Interface Identifier present : interface implicitly identified
    --0----- Interface type : basic interface
    ---0----- Spare
    ----1---- exclusive: only the indicated channel is acceptable
    -----0-- D-channel indicator : the channel identified is not the D-channel
    -----01 Interface : basic rate : B1 channel
27 00100111 ----- NOID : Notification indicator -----
01 00000001 Len= 1
E8 11101000 octet 3 : E8
    -1101000 Notification description: diversion activated
    1----- Extension:
            no extension
```

Frame: 448 -----
Date: 1/ 3/2003 13:34:17.185.920 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK

12: 02 81 02 02 08 01 81 01 1E 02 8A 81
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value CR: 01
1----- Message to CR-origination side
01 00000001 ===== ALERT =====
1E 00011110 ----- PI : Progress indicator -----
02 00000010 Len= 2
8A 10001010 octet 3 : 8A
-00----- Coding standard: CCITT standardized coding as described below
----1010 Location: network beyond interworking point
81 10000001 octet 4 : 81
-00000001 Progress description: call is not end-to-end ISDN

Frame: 450 -----
Date: 1/ 3/2003 13:34:23.795.008 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK

92: 02 81 04 02 08 01 81 07 1C 47 91 A1 44 02 01 08
02 01 1F 30 3C 30 12 0A 01 00 A2 0D 81 03 45 55 52
A2 06 81 01 00 82 01 01 30 12 0A 01 02 A2 0D 81 03
45 55 52 A2 06 81 01 32 82 01 01 30 12 0A 01 04 A2
0D 81 03 45 55 52 A2 06 81 01 00 82 01
01 29 05 03 01 03 0D 17 4C 02 00 C3
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value CR: 01
1----- Message to CR-origination side
07 00000111 ===== CONN =====
1C 00011100 ----- FAC : Facility -----
47 01000111 Len= 71
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
44 01000100 Length:
0----- Single octet length
-1000100 Len= 68
02 00000010 invoke identifier tag
01 00000001 Len= 1
InvokeID= 08
02 00000010 operation tag
01 00000001 length of operation tag is = 1
1F 00011111 operation 31: AOCs Currency
30 00110000 Type: AOCs currency info list
3C 00111100 Length:
0----- - Single octet length
0111100 Len= 60
30 00110000 Type: AOCs currency info
12 00010010 Length:
0----- - Single octet length
0010010 Len= 18
0A 00001010 Type: charged item
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
00 00000000 Value: basic communication (0)
A2 10100010 Type: flat rate currency
0D 00001101 Length:
0----- - Single octet length
0001101 Len= 13
81 10000001 Type: fRCurrency
03 00000011 Length:
0----- - Single octet length
0000011 Len= 3
Value: EUR
A2 10100010 Type: fRAmount
06 00000110 Length:


```

0----- Single octet length
-0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: 0
82 10000010 Type: multiplier
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: one hundredth (1)
30 00110000 Type: AOCs currency info
12 00010010 Length:
0----- - Single octet length
0010010 Len= 18
0A 00001010 Type: charged item
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: call setup (2)
A2 10100010 Type: flat rate currency
0D 00001101 Length:
0----- - Single octet length
0001101 Len= 13
81 10000001 Type: fRCurrency
03 00000011 Length:
0----- - Single octet length
0000011 Len= 3
Value: EUR
A2 10100010 Type: fRAmount
06 00000110 Length:
0----- - Single octet length
0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: 50
82 10000010 Type: multiplier
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: one hundredth (1)
30 00110000 Type: AOCs currency info
12 00010010 Length:
0----- - Single octet length
0010010 Len= 18
0A 00001010 Type: charged item
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: operation of supplementary serv (4)
A2 10100010 Type: flat rate currency
0D 00001101 Length:
0----- - Single octet length
0001101 Len= 13
81 10000001 Type: fRCurrency
03 00000011 Length:
0----- - Single octet length
0000011 Len= 3
Value: EUR
A2 10100010 Type: fRAmount
06 00000110 Length:
0----- - Single octet length
0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: 0
82 10000010 Type: multiplier
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: one hundredth (1)
29 00101001 ----- DTE : Date -----
05 00000101 Len= 5

```

```

03 00000011 year: 3
01 00000001 month: 1
03 00000011 day: 3
0D 00001101 hour: 13
17 00010111 minute:23
4C 01001100 ----- CNI : Connected number -----
02 00000010 Len= 2
00 00000000 - octet 3 : 00
---0000 - Numbering Plan : unknown
000---- 0- Type of number : unknown
-----
extension bit = 0
C3 11000011 octet 3a: C3
-10----- Presentation indicator : number not available due to interworking
-----11 Screening indicator : network provided
Calling Number:

```

```

Frame: 452 -----
Date: 1/ 3/2003      13:34:23.846.272 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK
-----

```

```

39: 02 81 06 02 08 01 81 62 1C 1D 91 A1 1A 02 01 09
    02 01 21 30 12 A1 0D 81 03 45 55 52 A2 06 81 01
    32 82 01 01 82 01 00
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value          CR: 01
1----- Message to CR-origination side
62 01100010 ===== FAC
1C 00011100 ----- FAC : Facility -----
1D 00011101 Len= 29
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
1A 00011010 Length:
0----- Single octet length
-0011010 Len= 26
02 00000010 invoke identifier tag
01 00000001 Len= 1
InvokeID= 09
02 00000010 operation tag
01 00000001 length of operation tag is = 1
21 00100001 operation 33: AOCD Currency
30 00110000 Type: specific currency
12 00010010 Length:
0----- - Single octet length
0010010 Len= 18
A1 10100001 Type: recorded currency
0D 00001101 Length:
0----- - Single octet length
0001101 Len= 13
81 10000001 Type: currency
03 00000011 Length:
0----- - Single octet length
0000011 Len= 3
Value: EUR
A2 10100010 Type: amount
06 00000110 Length:
0----- - Single octet length
0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: 50
82 10000010 Type: multiplier
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: one hundredth (1)
82 10000010 Type: type of charging info
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
00 00000000 Value: sub total (0)

```

Frame: 472 -----
Date: 1/ 3/2003 13:36:00.226.176 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK

12: 00 81 02 08 08 01 01 45 08 02 80 90
----- Layer 3 Info -----
Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
-00000001 Call Reference value CR: 01
0----- Message from CR-origination side
45 01000101 ===== DISC
08 00001000 ----- CAU : Cause -----
02 00000010 Len= 2
80 10000000 octet 3 : 80
----0000 Location: user
-00----- Coding standard: CCITT standardized coding
1----- Extension bit: no extension
90 10010000 octet 4 : 90
-0010000 Cause #16 : normal call clearing

Frame: 474 -----
Date: 1/ 3/2003 13:36:00.369.856 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Netw Status: OK

38: 02 81 08 04 08 01 81 4D 1C 1C 91 A1 19 02 01 0A
02 01 23 30 11 30 0F A1 0D 81 03 45 55 52 A2 06
81 01 32 82 01 01
----- Layer 3 Info -----
Direction: Network->User
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
81 10000001 Call Reference octet
-00000001 Call Reference value CR: 01
1----- Message to CR-origination side
4D 01001101 ===== REL
1C 00011100 ----- FAC : Facility -----
1C 00011100 Len= 28
91 10010001 octet 3 : 91
---10001 Service discriminator: supplementary service applications
A1 10100001 type: invoke
19 00011001 Length:
0----- Single octet length
-0011001 Len= 25
02 00000010 invoke identifier tag
01 00000001 Len= 1
InvokeID= 0A
02 00000010 operation tag
01 00000001 length of operation tag is = 1
23 00100011 operation 35: AOCE Currency
30 00110000 Type: AOCE currency info
11 00010001 Length:
0----- - Single octet length
0010001 Len= 17
30 00110000 Type: specific currency
0F 00001111 Length:
0----- - Single octet length
0001111 Len= 15
A1 10100001 Type: recorded currency
0D 00001101 Length:
0----- - Single octet length
0001101 Len= 13
81 10000001 Type: currency
03 00000011 Length:
0----- - Single octet length
0000011 Len= 3
Value: EUR
A2 10100010 Type: amount
06 00000110 Length:
0----- - Single octet length
0000110 Len= 6
81 10000001 Type: currency amount
01 00000001 Length:
0----- - Single octet length
0000001 Len= 1
Value: 50
82 10000010 Type: multiplier

```

01 00000001      Length:
   0-----      Single octet length -
   00000001      Len= 1
01 00000001      Value: one hundredth (1)

Frame: 476 -----
Date: 1/ 3/2003      13:36:00.439.680 Diff: 000:00:00.000.000
from: SLOT3/BRI-S0/Term Status: OK
-----
8: 00 81 04 0A 08 01 01 5A
      ----- Layer 3 Info -----
      Direction: User->Network
08 00001000 PD for E-DSS.1/CCITT Q.931
01 00000001 Callref length: 1 type: one octet
01 00000001 Call Reference octet
   -00000001 Call Reference value      CR: 01
   0----- Message from CR-origination side
5A 01011010 ===== REL-COM      =====

```

Paragraph names and numbers of the ETSI reference document EN 300 182-1 are kept in next part.

Annex A (normative): PICS proforma

A.1.4 Symbols, abbreviations and terms

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.

The reference column contained in the tables gives reference to the appropriate part(s) of EN 300 182-1 describing the particular item. Note, however, that a reference merely indicates the place where the core of a description of an item can be found. Any additional information contained in EN 300 182-1 has to be taken into account when making a statement about the conformance of that particular item.

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

| | |
|-------------|---|
| M | mandatory |
| O | optional |
| N/A | not applicable |
| O.<integer> | for mutually exclusive or selectable options from a set |

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

| | |
|---|-----------------------------------|
| Y | for supported/implemented |
| N | for not supported/not implemented |

A.4 Identification of the protocol

This PICS proforma applies to the following standard:

EN 300 182-1 (V1.2): "Integrated Services Digital Network (ISDN); Advice of Charge (AOC) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

A.5 Global statement of conformance

The implementation described in this PICS meets all the mandatory requirements of the referenced standard?

Yes

No

NOTE: Answering "No" to this question indicates non-conformance to the protocol specification. Non-supported mandatory capabilities are to be identified in the PICS, with an explanation of why the implementation is non-conforming. Explanations may be entered in the comments field at the bottom of each table or on attached pages.

A.6 Roles

Table A.1: Roles

| Item | Major role: Does the implementation... | Conditions for status | Status | Reference | Support |
|---|---|--------------------------|--------|-----------|--------------|
| | <u>Type of implementation</u> | | | | |
| R1 | not used | | | | |
| R 2.1 | support user requirements? | | O.1 | 9 | []Yes [x]No |
| R 2.2 | support network requirements? | | O.1 | 9 | [x]Yes []No |
| R3 | not used (note) | N/A | N/A | R 4.1 | support user |
| requirements at the interface of the []Yes []No | served user? | R 2.1 | M | 9 | [|
| R 4.2 | support user requirements at the interface of the remote user? | NOT R 2.1 | N/A | | [x]N/A |
| R 4.3 | support network requirements at the interface of the served user? | | N/A | | N/A |
| R 4.4 | support network requirements at the interface of the remote user? | R 2.2 | M | 9 | [x]Yes []No |
| | | NOT R 2.2 | N/A | | []N/A |
| | | | N/A | | N/A |
| O.1 | <u>Support of one and only one of these options is required.</u> | | | | |
| NOTE: | EN 300 182-1 provides identical requirements for the T reference point and for the coincident S and T reference point. <u>Therefore, this PICS proforma makes no distinction between the different reference points.</u> | | | | |
| Comments: | | | | | |

A.7 User

The tables provided in this clause need only to be completed for user implementation where item R 2.1 in table A.1 is supported.

A.7.1 Major capabilities

Table A.2: Major capabilities - user

| Item | Major capability: Does the implementation support... | Conditions for status | Status | Reference | Support |
|-----------|---|--|-----------------------------------|----------------------|---------------------------------|
| MC 1 | AOC-S? O2 O2 | O2 1 1 | 1 []Yes []No []Yes []No | MC 2 MC 3 MC 4 | AOC-D? AOC-E? the receipt |
| | of charging information in the call establishment phase (AOC-S)? | MC 1 NOT MC 1 | M N/A | 9.2.1 | []Yes []No []N/A |
| MC 5 | the receipt of charging information in the Active state of a call (AOC-S and AOC-D)? | MC 1 OR MC 2 NOT (MC 1 OR MC 2) | M N/A | 9.2.2 | []Yes []No []N/A |
| MC 6 | the receipt of charging information in the call clearing phase (AOC-S, AOC-E and AOC-D)? | MC 1 OR MC 2 OR MC 3 NOT (MC 1 OR MC 2 OR MC 3) | M N/A | 9.2.3 | []Yes []No []N/A |
| MC 7 | the receipt of charging information without a bearer establishment at the user-network interface (AOC-E)? | MC 3 NOT MC 3 | O N/A | 9.2.4 | []Yes []No []N/A |
| MC 8 | the receipt of charging information as currency and charging units? | MC 2 OR MC 3 NOT (MC 2 OR MC 3) | O N/A | 9.2 | []Yes []No []N/A |
| MC 9 | the receipt of charging information as currency and as special charging arrangement? | MC 1 NOT MC 1 | O N/A | 9.2 | []Yes []No []N/A |
| O2 | Support of at least of one of these options is required. | | | | |
| Comments: | | | | | |

A.7.2 Subsidiary capabilities

Table A.3: Subsidiary capabilities - user

| Item | Subsidiary capability: Does the implementation support... | Conditions for status | Status | Reference | Support |
|-----------|--|--------------------------|----------|-----------|------------------------|
| SC 1 | the AOC-S service on a per call basis? | MC 1 NOT MC 1 | O N/A | 9.1.1 | []Yes []No []N/A |
| SC 2 | the AOC-D service on a per call basis? | MC 2 NOT MC 2 | O N/A | 9.1.1 | []Yes []No []N/A |
| SC 3 | the AOC-E service on a per call basis? | MC 3 NOT MC 3 | O N/A | 9.1.1 | []Yes []No []N/A |
| Comments: | | | | | |

A.7.3 Protocol data units

No items requiring response.

A.7.4 Protocol data unit parameters

Table A.4: Facility information element components received - user

| Item | Facility information element components: Does the implementation support the interpretation of... | Conditions for status | Status | Reference | Support |
|-----------|---|--|----------|---------------------|------------------------|
| P1 | ChargingRequest | | | | |
| P 1.1 | ChargingRequest return result component? | SC 1 OR SC 2 OR SC 3 NOT (SC 1 OR SC 2 OR SC 3) | M N/A | 9.1, 9.2.1 | []Yes []No []N/A |
| P 1.2 | ChargingRequest return error component? | SC 1 OR SC 2 OR SC 3 NOT (SC 1 OR SC 2 OR SC 3) | M N/A | 9.2.1 | []Yes []No []N/A |
| P2 | AOCSCurrency invoke component? | MC 1 NOT MC 1 | M N/A | 9.2.1, 9.2.2, 9.2.3 | []Yes []No []N/A |
| P3 | AOCSSpecialArr invoke component? | MC 1 NOT MC 1 | M N/A | 9.2.1, 9.2.2, 9.2.3 | []Yes []No []N/A |
| P4 | AOCDCurrency invoke component? | MC 2 NOT MC 2 | M N/A | 9.2.2, 9.2.3 | []Yes []No []N/A |
| P5 | AOCDChargingUnit invoke component? | MC 2 NOT MC 2 | M N/A | 9.2.2, 9.2.3 | []Yes []No []N/A |
| P6 | AOCECurrency invoke component? | MC 3 NOT MC 3 | M N/A | 9.2.3, 9.2.4 | []Yes []No []N/A |
| P7 | AOCEChargingUnit invoke component? | MC 3 NOT MC 3 | M N/A | 9.2.3, 9.2.4 | []Yes []No []N/A |
| Comments: | | | | | |

Table A.5: Facility information element components transmitted - user

| Item | Facility information element components: Does the implementation support... | Conditions for status | Status | Reference | Support |
|-----------|--|--|--------|--------------|------------------------|
| P8 | the inclusion of the ChargingRequest invoke component? | SC 1 OR SC 2 OR M SC 3 NOT (SC 1 OR SC 2 OR SC 3) | N/A | 9.2.1, 9.2.2 | []Yes []No []N/A |
| Comments: | | | | | |

A.7.5 Timers

No items requiring response.

A.7.6 Call states

No items requiring response.

A.8 Network

The tables provided in this clause need only to be completed for network implementation where item R 2.2 in table A.1 is supported.

A.8.1 Major capabilities

Table A.6: Major capabilities - network

| Item | Major capability: Does the implementation... | Conditions for status | Status | Reference | Support |
|---|--|--|---|---|---|
| MC 10 | support AOC-S? | | O.3 | 1 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| MC 11 | support AOC-D? | O.3 | 1 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No MC 12 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| AOC-E? | O.3 | 1 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | MC 13 | support the |
| transfer of charging information in support the call establishment phase (AOC-S)? | | MC 10 NOT MC 10 | M N/A | 9.2 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |
| MC 14 | support the transfer of charging information in the Active state of a call (AOC-S and AOC-D)? | MC 10 OR MC 11 NOT (MC 10 OR MC 11) | M N/A | 9.2 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |
| MC 15 | support the transfer of charging information in the M call clearing phase (AOC-E and AOC-D)? | MC 11 OR MC 12 NOT (MC 11 OR MC 12) | M N/A | 9.2 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |
| MC 16 | support the transfer of charging information in the M call clearing phase (AOC-S)? | MC 10 NOT MC 10 | O N/A | 9.2 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |
| MC 17 | support the transfer of charging information without a bearer establishment at the user-network interface (AOC-E)? | MC 12 NOT MC 12 | O N/A | 9.2.4 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |
| MC 18 | provide charging information based on charging units... | | | | |
| MC 18.1 | AOC-S? | MC 10 NOT MC 10 | O N/A | 9.2 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |
| MC 18.1 | AOC-D? | MC 11 NOT MC 11 | O.4 N/A | 9.2 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |
| MC 18.1 | AOC-E? | MC 12 NOT MC 12 | O.5 N/A | 9.2 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |
| MC 19 | provide charging information based on currency units... | | | | |
| MC 19.1 | AOC-D? | MC 11 NOT MC 11 | O.4 N/A | 9.2 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |
| MC 19.1 | AOC-E? | MC 12 NOT MC 12 | O.5 N/A | 9.2 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |
| O.3 | Support of at least one of these options is required. | | | | |
| O.4 | Support of at least one of these options is required. | | | | |
| O.5 | Support of at least one of these options is required. | | | | |
| Comments: | | | | | |

A.8.2 Subsidiary capabilities

Table A.7: Subsidiary capabilities - network

| Item | Subsidiary capability: <u>Does the implementation...</u> | Conditions for <u>status</u> | Status | Reference | Support |
|-----------|---|---------------------------------|--------|-----------|---|
| SC 4 | retain the charging information for a suspended call as long as it retains the call identity? | | O | 6.2 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |
| Comments: | | | | | |

A.8.3 Protocol data units

No items requiring response.

A.8.4 Protocol data unit parameters

Table A.8: Facility information element components received - network

| Item | Facility information element components: <u>Does the implementation support...</u> | Conditions for <u>status</u> | Status | Reference | Support |
|-----------|---|---------------------------------|--------|--------------|---|
| P9 | the inclusion of the ChargingRequest invoke component? | | M | 9.2.1, 9.2.2 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Comments: | | | | | |

Table A.9: Facility information element components transmitted - network

| Item | Facility information element components: Does the implementation support the interpretation of... | Conditions for status | Status | Reference | Support |
|-----------|---|--------------------------|------------|---------------------|------------------------|
| P 10 | ChargingRequest | | | | |
| P 10.1 | ChargingRequest return result component? | M | 9.1, 9.2.1 | [x]Yes []No P.10.2 | |
| | ChargingRequest return error component? | M | 9.2.1 | [x]Yes []No P.11 | |
| | AOCSCurrency invoke component? | MC 10 NOT MC 10 | M N/A | 9.2.1, 9.2.2, 9.2.3 | [x]Yes []No []N/A |
| P 12 | AOCSSpecialArr invoke component? | MC 10 NOT MC 10 | O N/A | 9.2.1, 9.2.2, 9.2.3 | [x]Yes []No []N/A |
| P 13 | AOCDCurrency invoke component? | MC 11 NOT MC 11 | O.6 N/A | 9.2.2, 9.2.3 | [x]Yes []No []N/A |
| P 14 | AOCDChargingUnit invoke component? | MC 11 NOT MC 11 | O.6 N/A | 9.2..2, 9.2.3 | [x]Yes []No []N/A |
| P 15 | AOCECurrency invoke component? | MC 12 NOT MC 12 | O.7 N/A | 9.2.3, 9.2.4 | [x]Yes []No []N/A |
| P 16 | AOCEChargingUnit invoke component? | MC 12 NOT MC 12 | O.7 N/A | 9.2.3, 9.2.4 | [x]Yes []No []N/A |
| O.6 | Support of at least one of these options is required. | | | | |
| O.7 | Support of at least one of these options is required. | | | | |
| Comments: | | | | | |

A.8.5 Timers

No items requiring response.

A.8.6 Call states

No items requiring response.

12. ANNEX 3 PICS FOR SIEMENS EWSD EXCHANGES

Annex A (normative): PICS proforma

A.1.4 Symbols, abbreviations and terms

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.

The reference column contained in the tables gives reference to the appropriate part(s) of ETS 300 182-1 describing the particular item. Note, however, that a reference merely indicates the place where the core of a description of an item can be found. Any additional information contained in ETS 300 182-1 has to be taken into account when making a statement about the conformance of that particular item.

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

| | |
|-------------|---|
| M | mandatory |
| O | optional |
| N/A | not applicable |
| O.<integer> | for mutually exclusive or selectable options from a set |

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

| | |
|---|-----------------------------------|
| Y | for supported/implemented |
| N | for not supported/not implemented |

A4 Identification of the protocol

This PICS proforma applies to the following standard:

ETS 300 182-1 (1999): "Integrated Services Digital Network (ISDN); Advice of Charge (AOC) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

A5 Global statement of conformance

The implementation described in this PICS meets all the mandatory requirements of the referenced standard?

Yes

No

NOTE: Answering "No" to this question indicates non-conformance to the protocol specification. Non-supported mandatory capabilities are to be identified in the PICS, with an explanation of why the implementation is non-conforming. Explanations may be entered in the comments field at the bottom of each table or on attached pages.

A6 Roles

| Table A.1: Roles | | | | | |
|--------------------------------------|--|---------------------------------|-----------|--------------|--------------|
| Item | Major role: <u>Does the implementation...</u> | Conditions for <u>status</u> | Status | Reference | Support |
| | Type of implementation | | | | |
| R1 | not used | | | | |
| R 2.1 | support user requirements? | | O.1 | 9 | []Yes [x]No |
| R 2.2 | support network requirements? | | O.1 | 9 | [x]Yes []No |
| R3 | not used (note) | N/A | N/A R 4.1 | support user | |
| requirements at the interface of the | | R 2.1 | M | 9 | [] |
| []Yes []No | served user? | NOT R 2.1 | N/A | | [x]N/A |
| R 4.2 | support user requirements at the interface of the | | N/A | | N/A |
| | remote user? | | | | |
| R 4.3 | support network requirements at the interface of the served user? | R 2.2 | M | 9 | [x]Yes []No |
| R 4.4 | support network requirements at the interface of the remote user? | NOT R 2.2 | N/A | | []N/A |
| | | | N/A | | N/A |
| O.1 | Support of one and only one of these options is required. | | | | |
| NOTE: | ETS 300 182-1 provides identical requirements for the T reference point and for the coincident S and T reference point. Therefore, this PICS proforma makes no distinction between the different reference points. | | | | |
| Comments: | | | | | |

A.7 User

The tables provided in this clause need only to be completed for user implementation where item R 2.1 in table A.1 is supported.

A.7.1 Major capabilities

Table A.2: Major capabilities - user

| Item | Major capability: Does the implementation support... | Conditions for status | Status | Reference | Support |
|-----------|--|--|---|--|---|
| MC 1 | AOC-S? Q.2 Q.2 of charging information in the call establishment phase (AOC-S)? | Q.2 1 1 MC 1 NOT MC 1 | 1 []Yes []No []Yes []No M N/A | []Yes []No MC 2 MC 3 MC 4 9.2.1 | AOC-D? AOC-E? the receipt []Yes []No []N/A |
| MC 5 | the receipt of charging information in the Active state of a call (AOC-S and AOC-D)? | MC 1 OR MC 2 NOT (MC 1 OR MC 2) | M N/A | 9.2.2 | []Yes []No []N/A |
| MC 6 | the receipt of charging information in the call clearing phase (AOC-S, AOC-E and AOC-D)? | MC 1 OR MC 2 OR MC 3 NOT (MC 1 OR MC 2 OR MC 3) | M N/A | 9.2.3 | []Yes []No []N/A |
| MC 7 | the receipt of charging information without a bearer MC establishment at the user-network interface (AOC-E)? | MC 3 NOT MC 3 | O N/A | 9.2.4 | []Yes []No []N/A |
| MC 8 | the receipt of charging information as currency and MC charging units? | MC 2 OR MC 3 NOT (MC 2 OR MC 3) | O N/A | 9.2 | []Yes []No []N/A |
| MC 9 | the receipt of charging information as currency and MC as special charging arrangement? | NOT MC 1 | O N/A | 9.2 | []Yes []No []N/A |
| O.2 | Support of at least of one of these options is required. | | | | |
| Comments: | | | | | |

A.7.2 Subsidiary capabilities

| Table A.3: Subsidiary capabilities - user | | | | | |
|--|---|---------------------------------|----------|-----------|------------------------|
| Item | Subsidiary capability: Does the implementation support... | Conditions for status | Status | Reference | Support |
| SC 1 | the AOC-S service on a per call basis? | MC 1 NOT MC 1 | O N/A | 9.1.1 | []Yes []No []N/A |
| SC 2 | the AOC-D service on a per call basis? | MC 2 NOT MC 2 | O N/A | 9.1.1 | []Yes []No []N/A |
| SC 3 | the AOC-E service on a per call basis? | MC 3 NOT MC 3 | O N/A | 9.1.1 | []Yes []No []N/A |
| Comments: | | | | | |

A.7.3 Protocol data units

No items requiring response.

A.7.4 Protocol data unit parameters

Table A.4: Facility information element components received - user

| Item | Facility information element components: Does the implementation support the interpretation of... | Conditions for status | Status | Reference | Support |
|-----------|---|--|----------|---------------------|------------------------|
| P1 | ChargingRequest | | | | |
| P 1.1 | ChargingRequest return result component? | SC 1 OR SC 2 OR SC 3 NOT (SC 1 OR SC 2 OR SC 3) | M N/A | 9.1, 9.2.1 | []Yes []No []N/A |
| P 1.2 | ChargingRequest return error component? | SC 1 OR SC 2 OR SC 3 NOT (SC 1 OR SC 2 OR SC 3) | M N/A | 9.2.1 | []Yes []No []N/A |
| P2 | AOCSCurrency invoke component? | MC 1 NOT MC 1 | M N/A | 9.2.1, 9.2.2, 9.2.3 | []Yes []No []N/A |
| P3 | AOCSSpecialArr invoke component? | MC 1 NOT MC 1 | M N/A | 9.2.1, 9.2.2, 9.2.3 | []Yes []No []N/A |
| P4 | AOCDCurrency invoke component? | MC 2 NOT MC 2 | M N/A | 9.2.2, 9.2.3 | []Yes []No []N/A |
| P5 | AOCDChargingUnit invoke component? | MC 2 NOT MC 2 | M N/A | 9.2.2, 9.2.3 | []Yes []No []N/A |
| P6 | AOCECurrency invoke component? | MC 3 NOT MC 3 | M N/A | 9.2.3, 9.2.4 | []Yes []No []N/A |
| P7 | AOCEChargingUnit invoke component? | MC 3 NOT MC 3 | M N/A | 9.2.3, 9.2.4 | []Yes []No []N/A |
| Comments: | | | | | |

Table A.5: Facility information element components transmitted - user

| Item | Facility information element components: Does the implementation support... | Conditions for status | Status | Reference | Support |
|-----------|---|--|--------|--------------|------------------------|
| P8 | the inclusion of the ChargingRequest invoke component? | SC 1 OR SC 2 OR M SC 3 NOT (SC 1 OR SC 2 OR SC 3) | N/A | 9.2.1, 9.2.2 | []Yes []No []N/A |
| Comments: | | | | | |

A.7.5 Timers

No items requiring response.

A.7.6 Call states

No items requiring response.

A.8 Network

The tables provided in this clause need only to be completed for network implementation where item R 2.2 in table A.1 is supported.

A.8.1 Major capabilities

Table A.6: Major capabilities - network

| Item | Major capability: <u>Does the implementation...</u> | Conditions for status | Status | Reference | Support |
|---|---|--------------------------|--------------|--------------------|--------------|
| MC 10 | support AOC-S? | O.3 | 1 | [x]Yes []No MC 11 | support |
| AOC-D? | | 1 | [x]Yes []No | MC 12 | support |
| AOC-E? | | 1 | [x]Yes []No | MC 13 | support the |
| transfer of charging information in | | MC 10 | M | 9.2 | [x]Yes []No |
| support the call establishment phase (AOC-S)? | | NOT MC 10 | N/A | | []N/A |
| MC 14 | support the transfer of charging information in the Active state of a call (AOC-S and AOC-D)? | MC 10 OR MC 11 | M | 9.2 | [x]Yes []No |
| | | NOT (MC 10 OR MC 11) | N/A | | []N/A |
| MC 15 | support the transfer of charging information in the MC 1 call clearing phase (AOC-E and AOC-D)? | 1 OR MC 12 | M | 9.2 | [x]Yes []No |
| | | NOT (MC 11 OR MC 12) | N/A | | []N/A |
| MC 16 | support the transfer of charging information in the MC 10 call clearing phase (AOC-S)? | 10 | O | 9.2 | [x]Yes []No |
| | | NOT MC 10 | N/A | | []N/A |
| MC 17 | support the transfer of charging information without MC 1 a bearer establishment at the user-network interface (AOC-E)? | 12 | O | 9.2.4 | []Yes [x]No |
| | | NOT MC 12 | N/A | | []N/A |
| MC 18 | provide charging information based on charging units... | | | | |
| MC 18.1 | AOC-S? | MC 10 | O | 9.2 | [x]Yes []No |
| | | NOT MC 10 | N/A | | []N/A |
| MC 18.1 | AOC-D? | MC 11 | O.4 | 9.2 | [x]Yes []No |
| | | NOT MC 11 | N/A | | []N/A |
| MC 18.1 | AOC-E? | MC 12 | O.5 | 9.2 | [x]Yes []No |
| | | NOT MC 12 | N/A | | []N/A |
| MC 19 | provide charging information based on currency units... | | | | |
| MC 19.1 | AOC-D? | MC 11 | O.4 | 9.2 | [x]Yes []No |
| | | NOT MC 11 | N/A | | []N/A |
| MC 19.1 | AOC-E? | MC 12 | O.5 | 9.2 | [x]Yes []No |
| | | NOT MC 12 | N/A | | []N/A |
| O.3 | Support of at least one of these options is required. | | | | |
| O.4 | Support of at least one of these options is required. | | | | |
| O.5 | Support of at least one of these options is required. | | | | |
| Comments: | | | | | |
| MC18 : According CUST12073 the implementation is provided in currency units. However charging units are also supported. | | | | | |

A.8.2 Subsidiary capabilities

Table A.7: Subsidiary capabilities - network

| Item | Subsidiary capability: <u>Does the implementation...</u> | Conditions for status | Status | Reference | Support |
|-----------|---|--------------------------|--------|-----------|--------------|
| SC 4 | retain the charging information for a suspended call as long as it retains the call identity? | | O | 6.2 | [x]Yes []No |
| | | | | | []N/A |
| Comments: | | | | | |

A.8.3 Protocol data units

No items requiring response.

A.8.4 Protocol data unit parameters

Table A.8: Facility information element components received - network

| Item | Facility information element components: <u>Does the implementation support...</u> | Conditions for <u>status</u> | Status | Reference | Support |
|-----------|---|---------------------------------|--------|--------------|--------------|
| P9 | the inclusion of the ChargingRequest invoke component? | | M | 9.2.1, 9.2.2 | [x]Yes []No |
| Comments: | | | | | |

Table A.9: Facility information element components transmitted - network

| Item | Facility information element components: <u>Does the implementation support</u> <u>the interpretation of...</u> | Conditions for <u>status</u> | Status | Reference | Support |
|-----------|---|---------------------------------|------------|---------------------|------------------------|
| P 10 | ChargingRequest | | | | |
| P 10.1 | ChargingRequest return result component? | M | 9.1, 9.2.1 | [x]Yes []No P 10.2 | |
| | ChargingRequest return error component? | M | 9.2.1 | [x]Yes []No P 11 | |
| | AOCSCurrency invoke component? | MC 10 | M | 9.2.1, 9.2.2, 9.2.3 | [x]Yes []No []N/A |
| P 12 | AOCSSpecialArr invoke component? | NOT MC 10 | N/A | | |
| | | MC 10 | O | 9.2.1, 9.2.2, 9.2.3 | []Yes [x]No []N/A |
| P 13 | AOCDCurrency invoke component? | MC 11 | O.6 | 9.2.2, 9.2.3 | [x]Yes []No []N/A |
| | | NOT MC 11 | N/A | | |
| P 14 | AOCDChargingUnit invoke component? | MC 11 | O.6 | 9.2.2, 9.2.3 | [x]Yes []No []N/A |
| | | NOT MC 11 | N/A | | |
| P 15 | AOCECurrency invoke component? | MC 12 | O.7 | 9.2.3, 9.2.4 | [x]Yes []No []N/A |
| | | NOT MC 12 | N/A | | |
| P 16 | AOCEChargingUnit invoke component? | MC 12 | O.7 | 9.2.3, 9.2.4 | [x]Yes []No []N/A |
| | | NOT MC 12 | N/A | | |
| O.6 | Support of at least one of these options is required. | | | | |
| O.7 | Support of at least one of these options is required. | | | | |
| Comments: | | | | | |

A.8.5 Timers

No items requiring response.

A.8.6 Call states

No items requiring response.