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CCITT

THE INTERNATIONAL
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CONSULTATIVE COMMITTEE

I.256.2

(11/1988)

SERIES I: INTEGRATED SERVICES DIGITAL
NETWORK (ISDN)

Service capabilities – Supplementary services in ISDN

**CHARGING SUPPLEMENTARY SERVICES:
ADVICE OF CHARGE**

Reedition of CCITT Recommendation I.256.2 published in
the Blue Book, Fascicle III.7 (1988)

NOTES

1 CCITT Recommendation I.256.2 was published in Fascicle III.7 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

2 In this Recommendation, the expression “Administration” is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Recommendation I.256.2

CHARGING SUPPLEMENTARY SERVICES: ADVICE OF CHARGE

(Melbourne, 1988)

2 I.256.2 – Advice of Charge

Advice of Charge is a service allowing the user paying for a call to be informed of usage-based charging information. This service is not meant to replace the charge metering inside the network which is considered to be correct in all cases.

Advice of Charge may be of one or more of the following types:

- charging information at the end of the call (described in § 2.1)
- charging information during a call (described in § 2.2)
- charging information at call set-up time (described in § 2.3).

2.1 *Charging information at the end of the call*

2.1.1 *Definition*

The possibility for a user to receive charging information for a call when the call is released.

2.1.2 *Description*

2.1.2.1 *General description*

This type of Advice of Charge service provides a user with charging information for a call when the call is released. The charging information may consist of a number of elements such as:

- a) type of Advice of Charge
 - charging at the end of a call
- b) type of charging
 - free of charge
 - information on charged amount
 - number of charging units used
 - charge used
 - duration used
 - volume used
 - number of times used (Note)
Note – Number of times should be used, for example, to charge a certain number of invocations of a supplementary service.
 - information on charging rate
 - price per time unit and number of time units
 - price per volume unit and number of volume units
 - price per number of times unit and number of *number of times* units
 - duration per charging unit and number of charging units
 - volume per charging unit and number of charging units
 - *number of times* units per charging unit and number of charging units
- c) usage charging element
 - registration
 - call attempt

- invocation
 - duration
 - volume
 - network processing
- d) billing identification
- normal charging
 - reverse charging
 - credit card charging

The selection of these values is a national matter.

2.1.2.2 *Specific terminology*

None identified.

2.1.2.3 *Qualifications on the applicability to telecommunication services*

This supplementary service is applicable to all telecommunication services.

2.1.3 *Procedures*

2.1.3.1 *Provision/withdrawal*

Charging information at the end of a call can be provided on a subscription basis or be generally available. Withdrawal can be at subscriber request or for administrative reasons.

2.1.3.2 *Normal procedures*

2.1.3.2.1 *Activation/deactivation/registration*

The service is activated/deactivated by the network, and no user procedures for activation/deactivation is needed. When the service is activated, it stays active for calls.

2.1.3.2.2 *Invocation and operation*

The service may be requested on a per call basis or it may be active for all calls. The charging information is provided by the local exchange at call clearing time. The charging information is transferred to the user in the charge advice information element within a call control message clearing the call.

2.1.3.3 *Exceptional procedures*

2.1.3.3.1 *Activation/deactivation/registration*

Not applicable.

2.1.3.3.2 *Invocation and operation*

If the charging information related to a call is not available at call clearing, the reason should be indicated to the user.

2.1.3.4 *Alternative procedures*

None identified.

2.1.4 *Network capabilities for charging*

This Recommendation does not cover charging principles. Future Recommendations in the D-Series are expected to contain that information.

It shall be possible to charge the subscriber accurately for the service.

2.1.5 *Interworking requirements*

This service should be supported across the internetwork interface between ISDNs. Other interworking cases are left for further study.

2.1.6 *Interactions with other supplementary services*

2.1.6.1 *Call Waiting*

No impact i.e. neither supplementary service affects the operation of the other supplementary service.

2.1.6.2 *Call Transfer*

Original calling user: no impact.

Transferring user: when a call is transferred and the transferring user is charged for the transferred part of the call, the charging information may be sent to the transferring user when the call is cleared, if the transferring user has subscribed to Advice of Charge supplementary service.

2.1.6.3 *Connected Line Identification Presentation*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.1.6.4 *Connected Line Identification Restriction*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.1.6.5 *Calling Line Identification Presentation*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.1.6.6 *Calling Line Identification Restriction*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.1.6.7 *Closed User Group*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.1.6.8 *Conference Calling*

When the user has made a conference call, the overall charge for the conference call may be included in the charge advice information element.

Charges for the use of the conference bridge: this charging information may be sent to the conference controller. However, in some networks no charging information can be given in this case, e.g. due to off-line processing of the charges.

2.1.6.9 *Direct Dialling-In*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.1.6.10 *Call Diversion (Call Forwarding) services*

2.1.6.10.1 *Call Forwarding Busy*

Original calling user: no impact.

Forwarding user: when a call is forwarded and the forwarding user is charged for the forwarded part of the call, the charging information may be transferred to the forwarding user when the call is cleared if the forwarding user has subscribed to the Advice of Charge supplementary service.

2.1.6.10.2 *Call Forwarding No Reply*

Original calling user: no impact.

Forwarding user: when a call is forwarded and the forwarding user is charged for the forwarded part of the call, the charging information may be transferred to the forwarding user when the call is cleared, if the forwarding user has subscribed to the Advice of Charge supplementary service.

2.1.6.10.3 *Call Forwarding Unconditional*

Original calling user: no impact.

Forwarding user: when a call is forwarded and the forwarding user is charged for the forwarded part of the call, the charging information may be transferred to the forwarding user when the call is cleared, if the forwarding user has subscribed to the Advice of Charge supplementary service.

2.1.6.11 *Line Hunting*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.1.6.12 *Three-Party Service*

When the user has made an enquiry call or a three-party conference call, the overall charge for the call may be indicated in the charge advice information element.

Charges for the use of the three-party bridge: this charging information may be sent to the served user. However, in some networks no charging information can be given in this case, e.g. due to off-line processing of the charges.

2.1.6.13 *User-to-User Signalling*

No information concerning charges for user-to-user information will be given.

2.1.6.14 *Multiple Subscriber Number*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.1.6.15 *Call Hold*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.1.6.16 *Advice of Charge*

Not applicable.

2.1.7 *Dynamic description*

The dynamic description of this type of Advice of Charge service is shown in Figure 1/I.256.

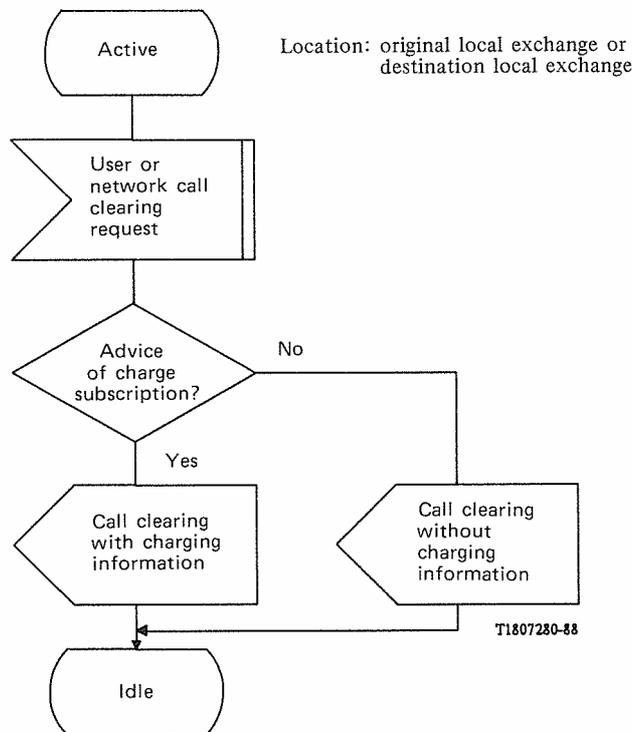


FIGURE 1/I.256

Charging information at the end of the call

2.2 *Charging information during a call*

2.2.1 *Definition*

The possibility for a user to receive charging information for a call during the active phase of the call.

2.2.2 *Description*

2.2.2.1 *General description*

This type of Advice of Charge provides the user with information that may be either incremental or cumulative and will be sent automatically or on request. The charging information may consist of a number of information elements such as:

- a) type of Advice of Charge
 - incremental charging during a call, or

- cumulative charging during a call
- b) type of charging
 - free of charge
 - information charged amount
 - number of charging units used
 - charge used
 - duration used
 - volume used
 - number of times used (Note)

Note – Number of times should be used, for example, to charge a certain number of invocations of a supplementary service.
 - information charging rate
 - price per time unit and number of time units
 - price per volume unit and number of volume units
 - price per number of times unit and number of *number of times* units
 - duration per charging unit and number of charging units
 - volume per charging unit and number of charging units
 - *number of times* units per charging unit and number of charging units
- c) usage charging element
 - registration
 - call attempt
 - invocation
 - duration
 - volume
 - network processing
- d) billing identification
 - normal charging
 - reverse charging
 - credit card charging

2.2.2.2 *Specific terminology*

Not applicable.

2.2.2.3 *Qualifications on the applicability to telecommunication services*

This supplementary service is applicable to all telecommunication services.

2.2.3 *Procedures*

2.2.3.1 *Provision/withdrawal*

Charging information during a call is provided on a subscription basis. Withdrawal can be at subscriber request or for administrative reasons.

2.2.3.2 *Normal procedures*

2.2.3.2.1 *Activation/deactivation/registration*

The service is activated/deactivated by the network, and no user procedures for activation/deactivation is needed. When the service is activated, it stays active for all calls.

2.2.3.2.2 *Invocation and operation*

The service may be requested on a per call basis or it may be active for all calls. The charging information is provided by the local exchange and is transferred to the user in an appropriate message each time N charging units have been added. N is a number between one and N_{\max} , where N is a number specific to the network. The number of charging information units sent to the user may be limited to X units per minute. The value of X is a number specific to the network. If the charging information is provided only on request, the user must send an appropriate request to the network, which will then transfer the information in the Advice of Charge information element.

When the call is released:

- the remaining number of charging units, since the last transfer of charging information, is sent to the user in one of the call control messages clearing the call (incremental); or
- the overall charge for the call is sent to the user in one of the call control messages clearing the call (cumulative).

2.2.3.3 *Exceptional procedures*

2.2.3.3.1 *Activation/deactivation/registration*

Not applicable.

2.2.3.3.2 *Invocation and operation*

If the charging information related to a call is not available during the call, the reason should be indicated to the user.

2.2.3.4 *Alternative procedures*

None identified.

2.2.4 *Network capabilities for charging*

This Recommendation does not cover charging principles. Future Recommendations in the D-Series are expected to contain that information.

It shall be possible to charge the subscriber accurately for the service.

2.2.5 *Interworking requirements*

This service should be supported across the internetwork interface between ISDNs. Other interworking cases are left for further study.

2.2.6 *Interactions with other supplementary services*

2.2.6.1 *Call Waiting*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.2.6.2 *Call Transfer*

Original calling user: no impact.

Transferring user: when a call is transferred and the transferring user is charged for the transferred part of the call, no charging information will be sent to the transferring user.

2.2.6.3 *Connected Line Identification Presentation*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.2.6.4 *Connected Line Identification Restriction*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.2.6.5 *Calling Line Identification Presentation*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.2.6.6 *Calling Line Identification Restriction*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.2.6.7 *Closed User Group*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.2.6.8 *Conference Calling*

Charges for the different connections to the conference bridge: no interaction.

Charges for the use of the conference bridge: this charging information may be sent to the conference controller. However, in some networks no charging information can be given in this case, e.g. due to off-line processing of the charges.

2.2.6.9 *Direct Dialling-In*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.2.6.10 *Call Diversion (Call Forwarding) services*

2.2.6.10.1 *Call Forwarding Busy*

Original calling user: no impact.

Forwarding user: when a call is forwarded and the forwarding user is charged for the forwarded part of the call, the charging information may be transferred to the forwarding user when the call is cleared, if the forwarding user has subscribed to the Advice of Charge supplementary service.

2.2.6.10.2 *Call Forwarding No Reply*

Original calling user: no impact.

Forwarding user: when a call is forwarded and the forwarding user is charged for the forwarded part of the call, the charging information may be transferred to the forwarding user when the call is cleared, if the forwarding user has subscribed to the Advice of Charge supplementary service.

2.2.6.10.3 *Call Forwarding Unconditional*

Original calling user: no impact.

Forwarding user: when a call is forwarded and the forwarding user is charged for the forwarded part of the call, the charging information may be transferred to the forwarding user when the call is cleared, if the forwarding user has subscribed to the Advice of Charge supplementary service.

2.2.6.11 *Line Hunting*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.2.6.12 *Three-Party Service*

Charges for the different connections within the service: no interaction.

Charges for the use of the three-party bridge: this charging information may be sent to the served user. However, in some networks no charging information can be given in this case, e.g. due to off-line processing of the charges.

2.2.6.13 *User-to-User Signalling*

No information concerning charges for user-to-user information will be given.

2.2.6.14 *Multiple Subscriber Number*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.2.6.15 *Call Hold*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.2.6.16 *Advice of Charge*

Not applicable.

2.2.7 *Dynamic description*

The dynamic description of this service is shown in Figure 2/I.256 to 6/I.256.

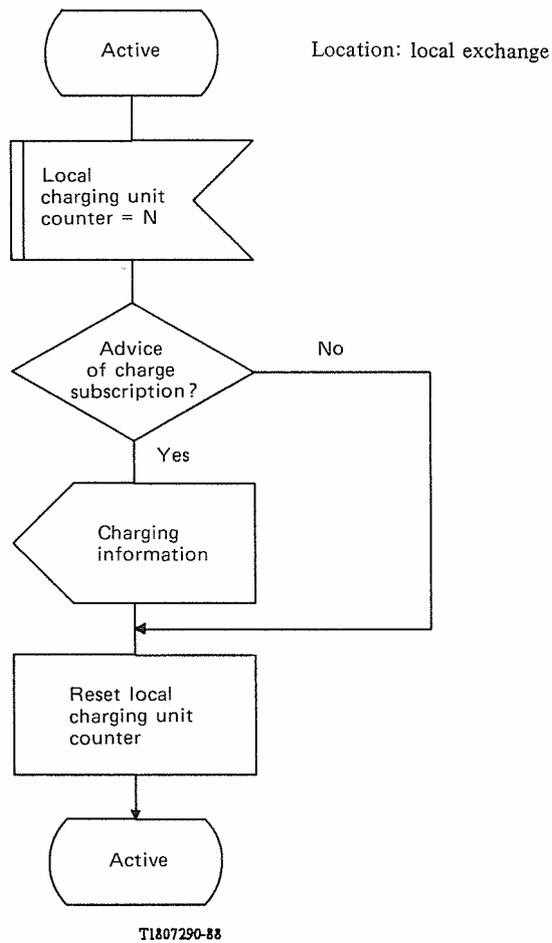


FIGURE 2/I.256
Charging information – incremental information during a call

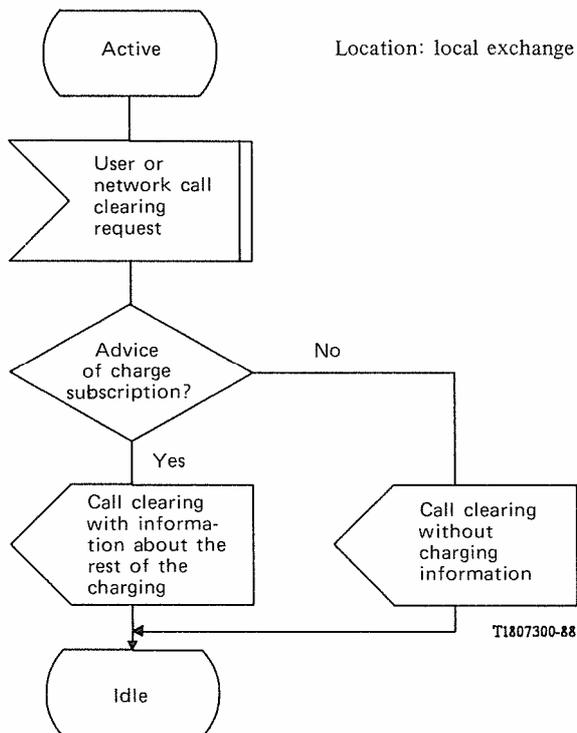


FIGURE 3/I.256
Charging information – incremental information at call clearing

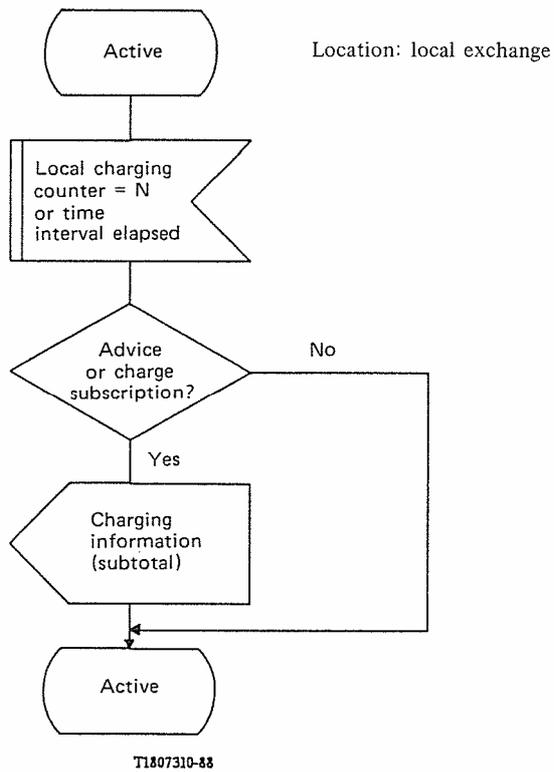


FIGURE 4/I.256

Charging information – cumulative information during a call

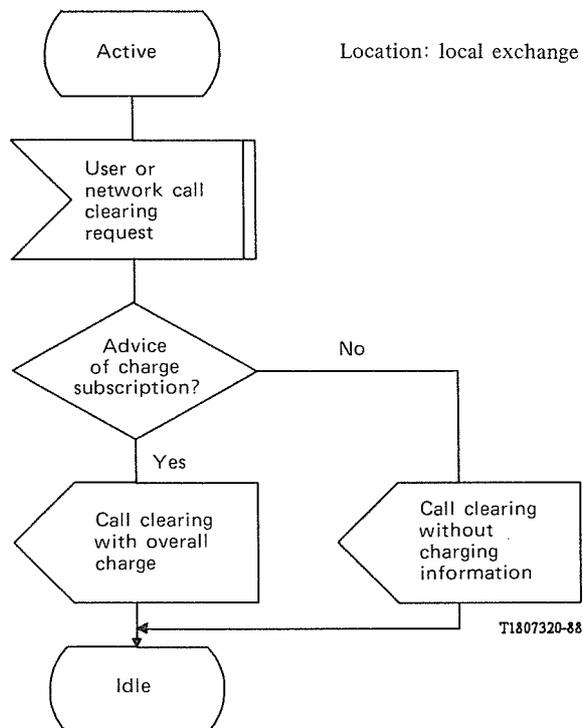


FIGURE 5/I.256

Charging information – cumulative information at call clearing

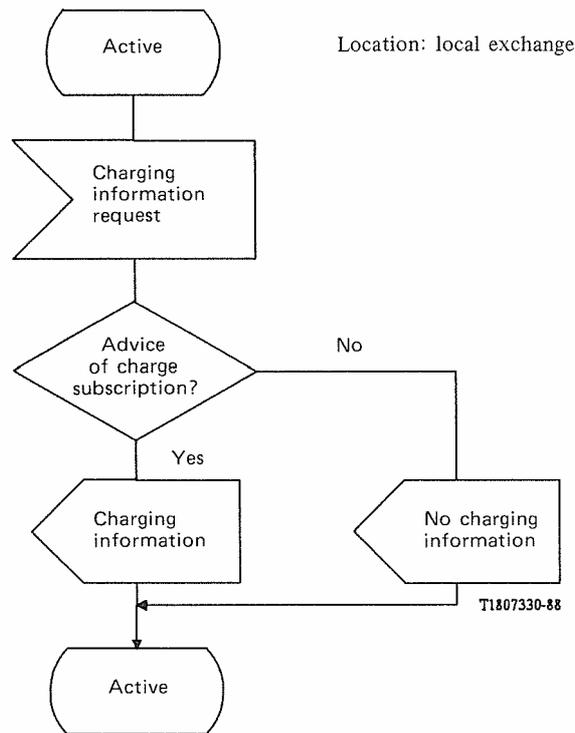


FIGURE 6/I.256

Charging information – request for charging information during a call

2.3 *Charging information at call set-up time*

2.3.1 *Definition*

The possibility for a user to receive information about the charging rates at call set-up time and possible change of charging rates during the call.

2.3.2 *Description*

2.3.2.1 *General description*

This type of Advice of Charge provides the user with the possibility to receive information about the charging rates at call establishment. In addition the user will be informed if a change in charging rates takes place during the call. The charging information may consist of a number of elements such as:

- a) type of Advice of Charge
 - charging rate information
- b) type of charging
 - free of charge
 - information on charging rate
 - price per time unit and number of time units
 - price per volume unit and number of volume units
 - price per number of times unit and number of *number of times* units
 - duration per charging unit and number of charging units
 - volume per charging unit and number of charging units
 - *number of times* units per charging unit and number of charging units

c) usage charging element

- registration
- call attempt
- invocation
- duration
- volume
- network processing

d) billing identification

- normal charging
- reverse charging
- credit card charging

2.3.2.2 *Specific terminology*

Not applicable.

2.3.2.3 *Qualifications on the applicability to telecommunication services*

This supplementary service is applicable to all telecommunication services.

2.3.3 *Procedures*

2.3.3.1 *Provision/withdrawal*

The possibility to receive information about the charging rates is provided on a subscription basis or may be generally available.

2.3.3.2 *Normal procedures*

2.3.3.2.1 *Activation/deactivation/registration*

The service is activated by the network, and no user procedures for activation/deactivation is needed. When the service is activated, it stays active for all calls.

2.3.3.2.2 *Invocation and operation*

The service may be requested on a per call basis or it may be active for all calls. The charging information is provided by the network during the call establishment phase or, at the latest, at call connection. The information is transferred to the user in the charge advice information element in the call control message.

When there is a change in the charging interval during the call, the network sends information about the new charging interval. This information is sent in the Advice of Charge information element.

2.3.3.3 *Exceptional procedures*

2.3.3.3.1 *Activation/deactivation/registration*

Not applicable.

2.3.3.3.2 *Invocation and operation*

If the charging information related to a call is not available, the reason should be indicated to the user.

2.3.3.4 *Alternative procedures*

None identified.

2.3.4 *Network capabilities for charging*

This Recommendation does not cover charging principles. Future Recommendations in the D-Series are expected to contain that information.

It shall be possible to charge the subscriber accurately for the service.

2.3.5 *Interworking requirements*

This service should be supported across the internetwork interface between ISDNs.

2.3.6 *Interaction with other supplementary services*

2.3.6.1 *Call Waiting*

No impact i.e. neither supplementary service affects the operation of the other supplementary service.

2.3.6.2 *Call Transfer*

Original calling user: no impact.

Transferring user: charging information may be sent to the transferring user at the time he establishes the call to the transferred-to party and when the resulting call is established. This is to inform the transferring user of the charges he will continue to be responsible for.

2.3.6.3 *Connected Line Identification Presentation*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.3.6.4 *Connected Line Identification Restriction*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.3.6.5 *Calling Line Identification Presentation*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.3.6.6 *Calling Line Identification Restriction*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.3.6.7 *Closed User Group*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.3.6.8 *Conference Calling*

The user should be informed about the charging rate for each leg of the conference call.

Charges for the user of the conference bridge: this charging information may be sent to the conference controller. However, in some networks no charging information can be given in this case.

2.3.6.9 *Direct Dialling-In*

No impact i.e. neither supplementary service affects the operation of the other supplementary service.

2.3.6.10 *Call Diversion (Call Forwarding) services*

2.3.6.10.1 *Call Forwarding Busy*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.3.6.10.2 *Call Forwarding No Reply*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.3.6.10.3 *Call Forwarding Unconditional*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.3.6.11 *Line Hunting*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.3.6.12 *Three-Party Service*

The user should be informed about the charging rate for each leg of the call.

Charges for the use of the three-party bridge: this charging information may be sent to the conference controller. However, in some networks no charging information can be given in this case.

2.3.6.13 *User-to-User Signalling*

No information concerning charges for user-to-user information will be given.

2.3.6.14 *Multiple Subscriber Number*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.3.6.15 *Call Hold*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.3.6.16 *Advice of Charge*

Not applicable.

2.3.7 *Dynamic description*

The dynamic description of this type of Advice of Charge is shown in Figures 7/I.256 and 8/I.256.

ITU-T RECOMMENDATIONS SERIES

Series A	Organization of the work of the ITU-T
Series B	Means of expression: definitions, symbols, classification
Series C	General telecommunication statistics
Series D	General tariff principles
Series E	Overall network operation, telephone service, service operation and human factors
Series F	Non-telephone telecommunication services
Series G	Transmission systems and media, digital systems and networks
Series H	Audiovisual and multimedia systems
Series I	Integrated services digital network
Series J	Transmission of television, sound programme and other multimedia signals
Series K	Protection against interference
Series L	Construction, installation and protection of cables and other elements of outside plant
Series M	TMN and network maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits
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Series O	Specifications of measuring equipment
Series P	Telephone transmission quality, telephone installations, local line networks
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