

ECMA

EUROPEAN COMPUTER MANUFACTURERS ASSOCIATION

STANDARD ECMA-148

IDENTIFICATION SUPPLEMENTARY SERVICES
IN PRIVATE TELECOMMUNICATION NETWORKS
- SPECIFICATION, FUNCTIONAL MODEL AND
INFORMATION FLOWS -

December 1990

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BRIEF HISTORY

This Standard is one of a series of ECMA Standards defining services and signalling protocols applicable to Private Telecommunication Networks incorporating one or more interconnected nodes. The series uses the ISDN concepts as developed by CCITT and is also within the framework of standards for open systems interconnection as defined by ISO. It has been produced under ITSTC work item M-IT-05 2.2.1, with the intention of submitting to CENELEC as a proposed ENV.

This particular Standard specifies the Calling Line Identification Presentation, Connected Line Identification Presentation and Calling/Connected Line Identification Restriction supplementary services.

The Standard is based upon the practical experience of ECMA member companies and the results of their active and continuous participation in the work of ISO, CCITT, ETSI and various national standardisation bodies in Europe and in the USA. It represents a pragmatic and widely based consensus.

The services specified are compatible with the equivalent services specified by CCITT and ETSI for public ISDNs. CCITT specifications of these services are to be found in Rec. I.251 (parts C, D, E and F) (Stage 1) and Rec. Q.81 (Stage 2). ETSI specifications are to be found in various ETSs listed in Appendix E. Appendix D describes the relationship between this Standard and the corresponding ETSS.

Adopted as Standard ECMA-148 by the General Assembly of December 1990.

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1. SCOPE AND FIELD OF APPLICATION

This ECMA Standard specifies the following Identification Supplementary Services: Calling Line Identification Presentation (SS-CLIP), Connected Line Identification Presentation (SS-COLP) and Calling/Connected Line Identification Restriction (SS-CLIR), which are applicable to various basic services supported by Private Telecommunication Networks (PTN). Basic services are specified in Standard ECMA-142.

Service specifications are produced in three Stages, according to the method described in ECMA-134. This Standard contains the Stage 1 and Stage 2 specifications of the Identification Supplementary Services. The Stage 1 specifications (clauses 5 to 13) specify the supplementary services as seen by users of PTNs. The Stage 2 specifications (clauses 14 to 28) identify the functional entities involved in the supplementary services and the information flows between them.

NOTE 1:

Stage 3, the definition of the access layer 3 signalling protocols to support the supplementary services, will be specified in a separate ECMA Standard.

The purpose of the Stage 1 and Stage 2 specifications is to guide and constrain the work on signalling protocols at Stage 3. A Stage 3 Standard shall be in conformance with this Standard if the signalling protocols and equipment behaviour specified in the Stage 3 Standard are capable of being used in a PTN which supports the supplementary services specified in this Standard.

A Stage 3 Standard for SS-CLIP shall be in conformance with this Standard if it is adequate for the support of those aspects of the normative clauses for Stage 1 and Stage 2 of SS-CLIP which are relevant to the interface or equipment to which the Stage 3 Standard applies. The normative clauses for Stage 1 and Stage 2 of SS-CLIP are 5, 6, 14, 15, 16, 18.1 and 18.3. Clauses 7, 17, 18.2 and 19 are informative.

A Stage 3 Standard for SS-COLP shall be in conformance with this Standard if it is adequate for the support of those aspects of the normative clauses for Stage 1 and Stage 2 of SS-COLP which are relevant to the interface or equipment to which the Stage 3 Standard applies. The normative clauses for Stage 1 and Stage 2 of SS-COLP are 8, 9, 20, 21, 22, 24.1 and 24.3. Clauses 10, 23, 24.2 and 25 are informative.

A Stage 3 Standard for SS-CLIR shall be in conformance with this Standard if it is adequate for the support of those aspects of the normative clauses for Stage 1 and Stage 2 of SS-CLIR which are relevant to the interface or equipment to which the Stage 3 Standard applies. The normative clauses for Stage 1 and Stage 2 of SS-CLIR are 11, 12, 26, 27, 28, 30.1 and 30.3. Clauses 13, 29, 30.2 and 31 are informative.

2. REFERENCES

ECMA-134 Method for the Specification of Basic and Supplementary Services of Private Telecommunications Networks

ECMA-142 Specification, Functional Model and Information Flows for Control Aspects of Circuit Mode Basic Services in Private Telecommunications Networks

ENV 41007 Definition of Terms in Private Telecommunication Networks

CCITT Rec. I.112 Vocabulary of Terms for ISDNs

3. DEFINITIONS

For the purpose of this Standard, the terminology defined in ENV 41007 and Rec. I.112 applies. If there is conflict, the definitions in ENV 41007 shall take precedence.

4. LIST OF ACRONYMS

CC	Call Control (functional entity)
CCA	Call Control Agent (functional entity)
CGLI	Calling Line Identification (functional entity)
CN	Connected Number
COLI	Connected Line Identification (functional entity)
CS	Connected Subaddress
FE	Functional Entity
ISDN	Integrated Services Digital Network
ON	Originating Number
OS	Originating Subaddress
PTN	Private Telecommunication Network
PTNX	Private Telecommunications Network Exchange
RI	Restriction Indicator
SS-CLIP	Supplementary Service Calling Line Identification Presentation
SS-CLIR	Supplementary Service Calling/Connected Line Identification Restriction
SS-COLP	Supplementary Service Connected Line Identification Presentation
TE	Terminal Equipment

5. SS-CLIP STAGE 1 - SERVICE WITHIN A PTN

A Stage 3 Standard for SS-CLIP shall be capable of supporting the service specified in this clause, including the various interactions with other supplementary services.

5.1 Definition

Calling Line Identification Presentation (SS-CLIP) is a supplementary service which is offered to the called party and which provides the calling party's PTN number, and possibly a subaddress, to the called party.

5.2 Description

5.2.1 General Description

The PTN provides the called party with the number of the calling party whenever an incoming call is presented. The number provided should be sufficient to enable the called party to return the call.

The calling party number may be accompanied by a subaddress.

5.2.2 Qualifications on Applicability to Telecommunication Services

This supplementary service is applicable to all basic telecommunication services.

5.3 Procedures

5.3.1 Provision/Withdrawal

SS-CLIP is available to all PTN users with the ability to receive this information. There is no need for service profile control.

Some PTN users may have a service profile which permits the override of calling line identification restriction.

5.3.2 Normal Procedures

5.3.2.1 Activation/Deactivation/Registration/Interrogation

SS-CLIP is permanently activated. No information needs to be registered with the PTN for this supplementary service.

5.3.2.2 Invocation and Operation

The PTN provides the called party with the calling party number at the same time as indicating an incoming call.

The number presented is accompanied by indications of the numbering plan and type of number, and should be sufficient to unambiguously identify the calling party.

Where the number presented has been wholly or partially provided by the calling party, it is marked "user provided, verified and passed". Otherwise it is marked "network-provided".

If the calling party has also provided a calling party subaddress, it is delivered to the called party along with the calling party number.

5.3.3 Exceptional Procedures

5.3.3.1 Activation/Deactivation/Registration/Interrogation

Not applicable.

5.3.3.2 Invocation and Operation

There are two exceptions when the calling party number is not presented to the called party:

- when calling line identification restriction has been invoked (see definition of Calling/Connected Line Identification Restriction), and
- when the calling party number is not available, e.g., due to interworking with the analogue telephone network (PSTN).

In such cases the called party receives an indication of the situation.

5.3.4 Alternative Procedures

5.3.4.1 Activation/Deactivation/Registration/Interrogation

Not applicable.

5.3.4.2 Invocation and Operation

In some cases where calling line identification restriction has been invoked, there may be certain categories of called party that have the service profile to override this restriction and have the calling party number presented, e.g., emergency stations, PTN operators. In these circumstances, presentation includes an indication that restriction has been invoked.

5.4 Interaction with Other Supplementary Services

Interactions with other supplementary services for which PTN Standards were available at the time of publication of this Standard are described below. Appendix A anticipates interactions with future supplementary services.

5.4.1 Connected Line Identification Presentation

No interactions.

5.4.2 Calling/Connected Line Identification Restriction

The calling party number is not presented if calling line identification restriction has been invoked at the calling party, unless the called party has the service profile to override this restriction.

6. SS-CLIP STAGE 1 - INTERWORKING CONSIDERATIONS

A Stage 3 Standard for SS-CLIP shall be adequate for supporting the interworking considerations specified in this clause.

6.1 Incoming Calls

On calls incoming from another network, the calling party number, and subaddress if available, are obtained from the other network. In some circumstances the number may be marked "user provided, unscreened".

Where no number is provided by the other network, the called PTN user is given an indication "number unavailable due to interworking" or "presentation restricted", as appropriate.

6.2 Outgoing Calls

This PTN supplementary service does not apply to outgoing calls.

NOTE 2:

The possible provision of the calling party number and/or subaddress to another network is part of the basic call.

7. SS-CLIP STAGE 1 - OVERALL SDL

Figure 1 contains the dynamic description in SDL format. The SDL process represents the behaviour of the network in providing SS-CLIP. The relationship of this process to the basic call process is indicated in the annotations.

Output signals to the right represent primitives to the called PTN user. Input signals from the left represent internal stimuli.

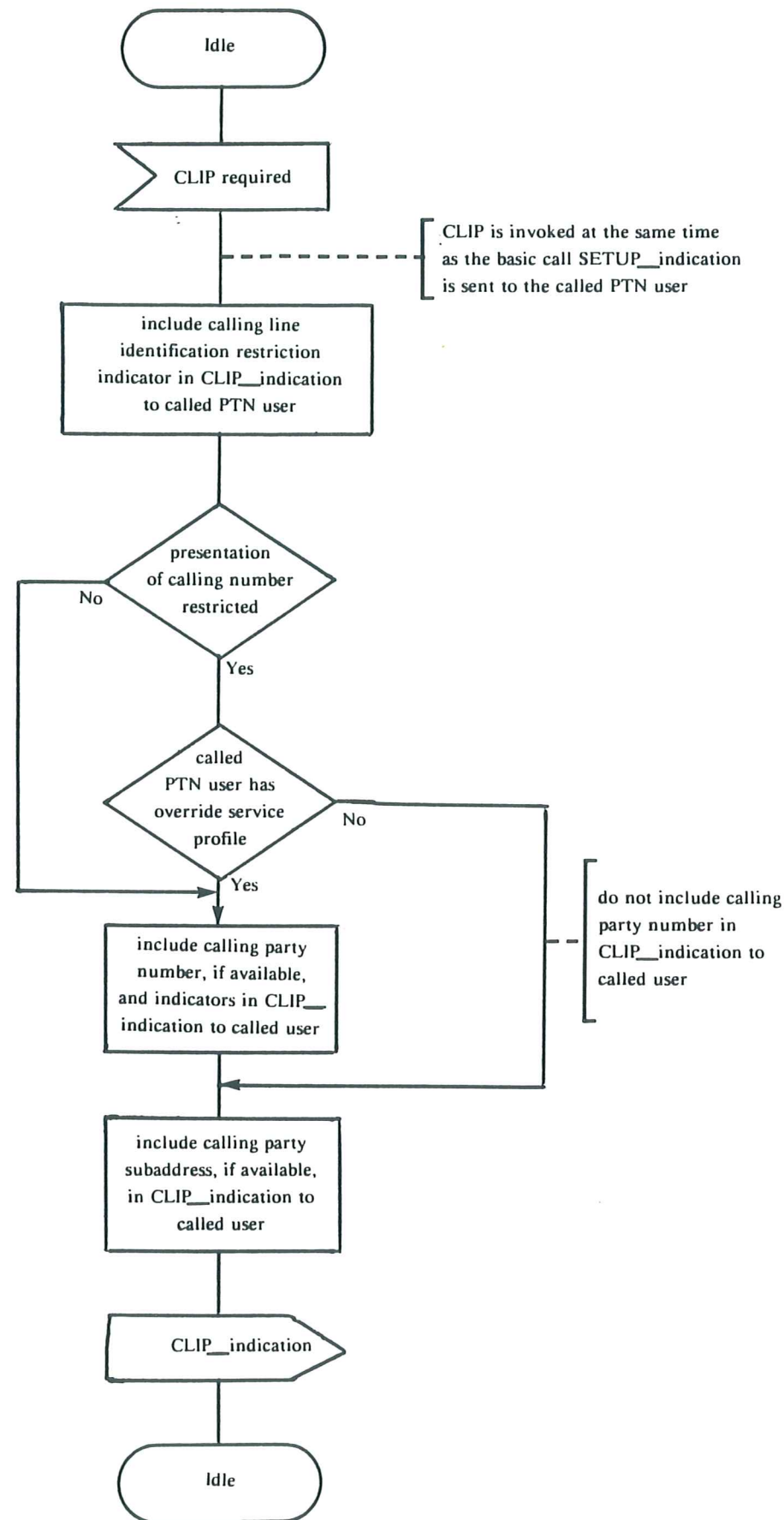


Figure 1 - SS-CLIP Overall SDL

8. SS-COLP STAGE 1 - SERVICE WITHIN A PTN

A Stage 3 Standard for SS-COLP shall be capable of supporting the service specified in this clause, including the various interactions with other supplementary services.

8.1 Definition

Connected Line Identification Presentation (SS-COLP) is a supplementary service which is offered to the calling party and which provides the called (connected) party's PTN number, and possibly a subaddress, to the calling party.

8.2 Description

8.2.1 General Description

The PTN provides the calling party with the number of the called party when the called party connects to the incoming call (connected party identification). The number provided should be sufficient to enable the calling party to repeat the call.

NOTE 3:

The number provided is the number of the connected party. Interactions with certain supplementary services may cause the connected party number to differ from the called party number requested by the calling party.

The connected party number may be accompanied by a subaddress.

8.2.2 Qualifications on Applicability to Telecommunication Services

This supplementary service is applicable to all basic telecommunication services.

8.3 Procedures

8.3.1 Provision/Withdrawal

SS-COLP is available to all PTN users with the ability to receive this information. There is no need for service profile control.

Some PTN users may have a service profile which permits the override of connected line identification restriction.

8.3.2 Normal Procedures

8.3.2.1 Activation/Deactivation/Registration/Interrogation

SS-COLP is permanently activated. No information needs to be registered with the PTN for this supplementary service.

8.3.2.2 Invocation and Operation

The calling party, when notified that call establishment is complete, is presented with the connected party number.

The number presented is accompanied by indications of the numbering plan and type of number, and should be sufficient to unambiguously identify the connected party.

Where the number presented has been wholly or partially provided by the connected party, it is marked "user provided, verified and passed". Otherwise it is marked "network-provided".

If the connected party has provided a connected party subaddress, it is delivered to the calling party along with the connected party number.

8.3.3 Exceptional Procedures

8.3.3.1 Activation/Deactivation/Registration/Interrogation

Not applicable.

8.3.3.2 Invocation and Operation

There are two exceptions when the connected party number is not presented to the calling party:

- when connected line identification restriction has been invoked (see definition of Calling/Connected Line Identification Restriction), and
- when the connected party number is not available, e.g., due to interworking with the analogue telephone network (PSTN).

In such cases the calling party receives an indication of the situation.

8.3.4 Alternative Procedures

8.3.4.1 Activation/Deactivation/Registration/Interrogation

Not applicable.

8.3.4.2 Invocation and Operation

In some cases where connected line identification restriction has been invoked, there may be certain categories of calling party that have the service profile to override this restriction and have the connected party number presented, e.g., emergency stations, PTN operators. In these circumstances, presentation includes an indication that restriction has been invoked.

8.4 Interaction with Other Supplementary Services

Interactions with other supplementary services for which PTN Standards were available at the time of publication of this Standard are described below. Appendix B anticipates interactions with future supplementary services.

8.4.1 Calling Line Identification Presentation

No interactions.

8.4.2 Calling/Connected Line Identification Restriction

The connected party number is not presented if connected line identification restriction has been invoked at the connected party unless the calling party has the service profile to override this restriction.

9. SS-COLP STAGE 1 - INTERWORKING CONSIDERATIONS

A Stage 3 Standard for SS-COLP shall be adequate for supporting the interworking considerations specified in this clause.

9.1 Outgoing Calls

On calls outgoing to another network, the connected party number, and subaddress if available, are obtained from the other network. In some circumstances the number may be marked "user-provided, unscreened".

Where no number is provided by the other network, the calling PTN user is given an indication "number unavailable due to interworking" or "presentation restricted", as appropriate.

9.2 Incoming Calls

This PTN supplementary service does not apply to incoming calls.

NOTE 4:

The possible provision of the connected party number and/or subaddress to another network is part of the basic call.

10. SS-COLP STAGE 1 - OVERALL SDL

Figure 2 contains the dynamic description in SDL format. The SDL process represents the behaviour of the network in providing SS-COLP. The relationship of this process to the basic call process is indicated in the annotations.

Output signals to the left represent primitives to the calling PTN user. Input signals from the right represent internal stimuli.

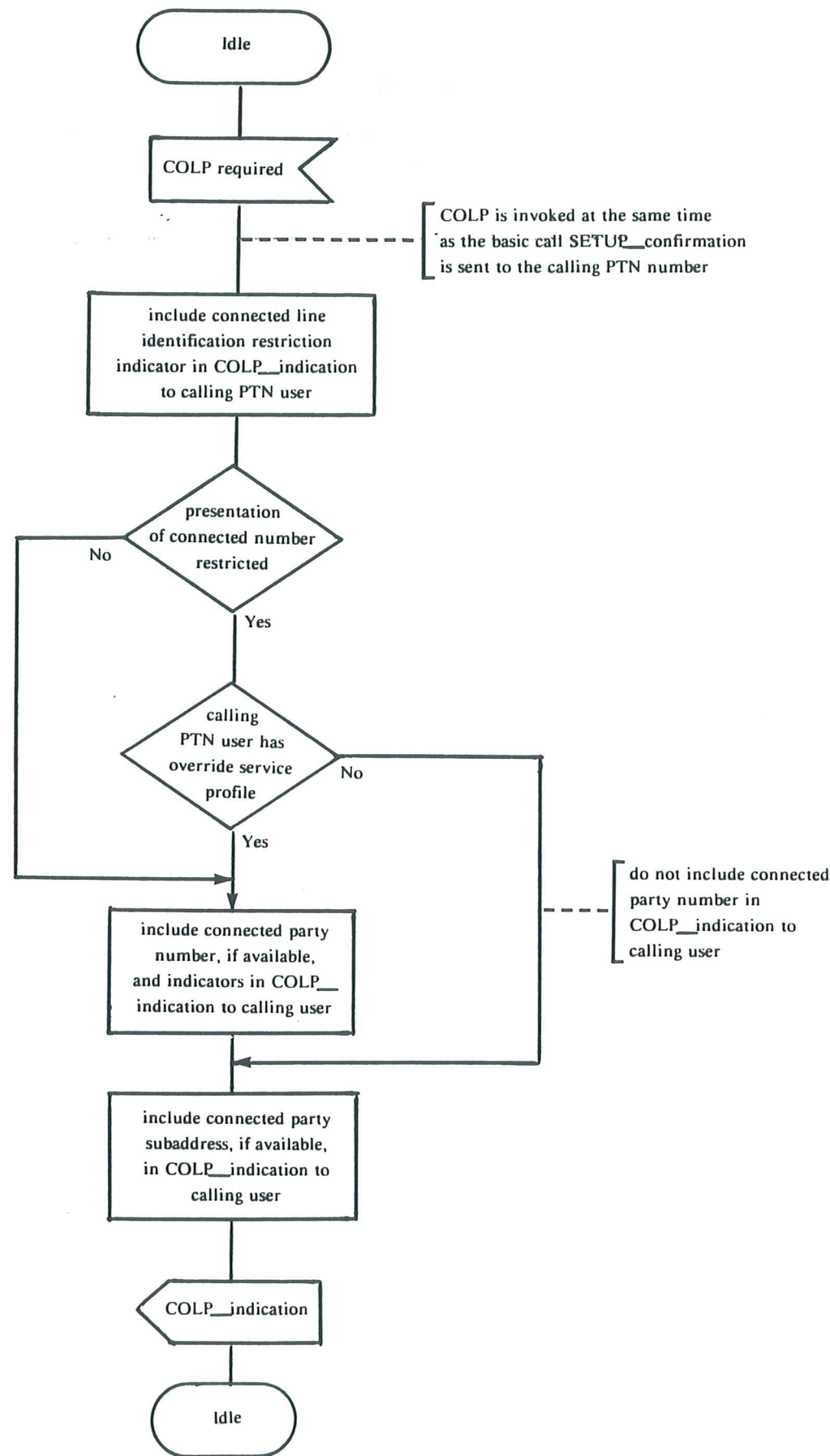


Figure 2 - SS-COLP Overall SDL

11. SS-CLIR STAGE 1 - SERVICE WITHIN A PTN

A Stage 3 Standard for SS-CLIR shall be capable of supporting the service specified in this clause, including the various interactions with other supplementary services.

11.1 Definition

Calling/connected Line Identification Restriction (SS-CLIR) is a supplementary service offered to a party to restrict presentation of that party's PTN number to another party.

11.2 Description

11.2.1 General Description

When SS-CLIR applies to a party, the party's number is not normally presented to any other party.

11.2.2 Qualifications on Applicability to Telecommunication Services

This supplementary service is applicable to all telecommunication services.

11.3 Procedures

11.3.1 Provision/Withdrawal

SS-CLIR is provided on a service profile basis. A PTN may provide one or more of several service profile options. The options apply separately to each PTN number. Service profile options are summarised in table 1.

Table 1 - Service Profile Options

Service Profile Option	- Values
SS-CLIR mode	- permanent (invoked for all calls) - temporary (specified by user per call)
Default (only for temporary mode)	- presentation restricted - presentation not restricted

11.3.2 Normal Procedures

11.3.2.1 Activation/Deactivation/Registration/Interrogation

The service is activated on provision and deactivated on withdrawal.

11.3.2.2 Invocation and Operation

If permanent mode is provided, restriction is invoked automatically for all calls originating or terminating at the PTN user concerned. If temporary mode with default "presentation restricted" is provided, restriction is invoked automatically for all calls originating or terminating at the PTN user concerned, unless requested otherwise by the PTN user at call establishment time. If temporary mode with default "presentation not restricted" is provided, restriction is not invoked for any call originating or terminating at the PTN user concerned, unless requested otherwise by the PTN user at call establishment time.

To override the default for an outgoing call when temporary mode is provided, the calling party makes a request for restriction or no restriction at the same time as requesting call establishment. To override the default for an incoming call when temporary mode is provided, the called party makes a request for restriction or no restriction at the same time as responding to the incoming call indication.

If restriction is invoked for an outgoing call, the calling party number is marked by the network as "presentation restricted". This prevents presentation to the called party (unless the called party has an override service profile).

If restriction is invoked for an incoming call, the connected party number is marked by the network as "presentation restricted". This prevents presentation to the calling party (unless the calling party has an override service profile).

11.3.3 Exceptional Procedures

11.3.3.1 Activation/Deactivation/Registration/Interrogation

Not applicable.

11.3.3.2 Invocation and Operation

A request from the PTN user for the override of a default is ignored if the PTN user is not provided with temporary mode.

11.3.4 Alternative Procedures

11.3.4.1 Activation/Deactivation/Registration/Interrogation

No alternative procedures.

11.3.4.2 Invocation and Operation

No alternative procedures.

11.4 Interaction with Other Supplementary Services

Interactions with other supplementary services for which PTN Standards were available at the time of publication of this Standard are described below. Appendix C anticipates interactions with future supplementary services.

11.4.1 Calling Line Identification Presentation

The invocation of restriction by or on behalf of the calling party will prevent the calling party number being presented to the called party.

The only occasion when restriction can be overridden is when the called PTN user has an override service profile. Provision of this service profile is a PTN option.

11.4.2 Connected Line Identification Presentation

The invocation of restriction by or on behalf of the called party will prevent the connected party number being presented to the calling party.

The only occasion when restriction can be overridden is when the calling PTN user has an override service profile. Provision of this service profile is a PTN option.

12. SS-CLIR STAGE 1 - INTERWORKING CONSIDERATIONS

A Stage 3 Standard for SS-CLIR shall be adequate for supporting the interworking considerations specified in this clause.

12.1 Incoming Calls

This PTN supplementary service does not apply to the calling party of an incoming call. The other network may provide the equivalent service, in which case the PTN may receive an indication that presentation of the calling party number is restricted. In such a situation the other network may or may not supply the calling party number to the PTN. If not provided, even a called PTN user with an override service profile will be given only an indication that presentation is restricted.

If the called (connected) party has invoked restriction, the connected party number is marked as "presentation restricted". This indication is passed on to the other network.

12.2 Outgoing Calls

This PTN supplementary service does not apply to the connected party of an outgoing call. The public ISDN may provide the equivalent service, in which case the PTN may receive an indication that presentation of the connected party number is restricted. In such a situation the other network may or may not supply the connected party number to the PTN. If not provided, even a calling PTN user with an override service profile will be given only an indication that presentation is restricted.

If the calling party has invoked restriction, the calling party number is marked as "presentation restricted". This indication is passed on to the other network.

13. SS-CLIR STAGE 1 - OVERALL SDL

Figure 3 contains the dynamic description in SDL format. The SDL process represents the behaviour of the network in providing SS-CLIR.

Input signals from the left represent primitives from the served PTN user.

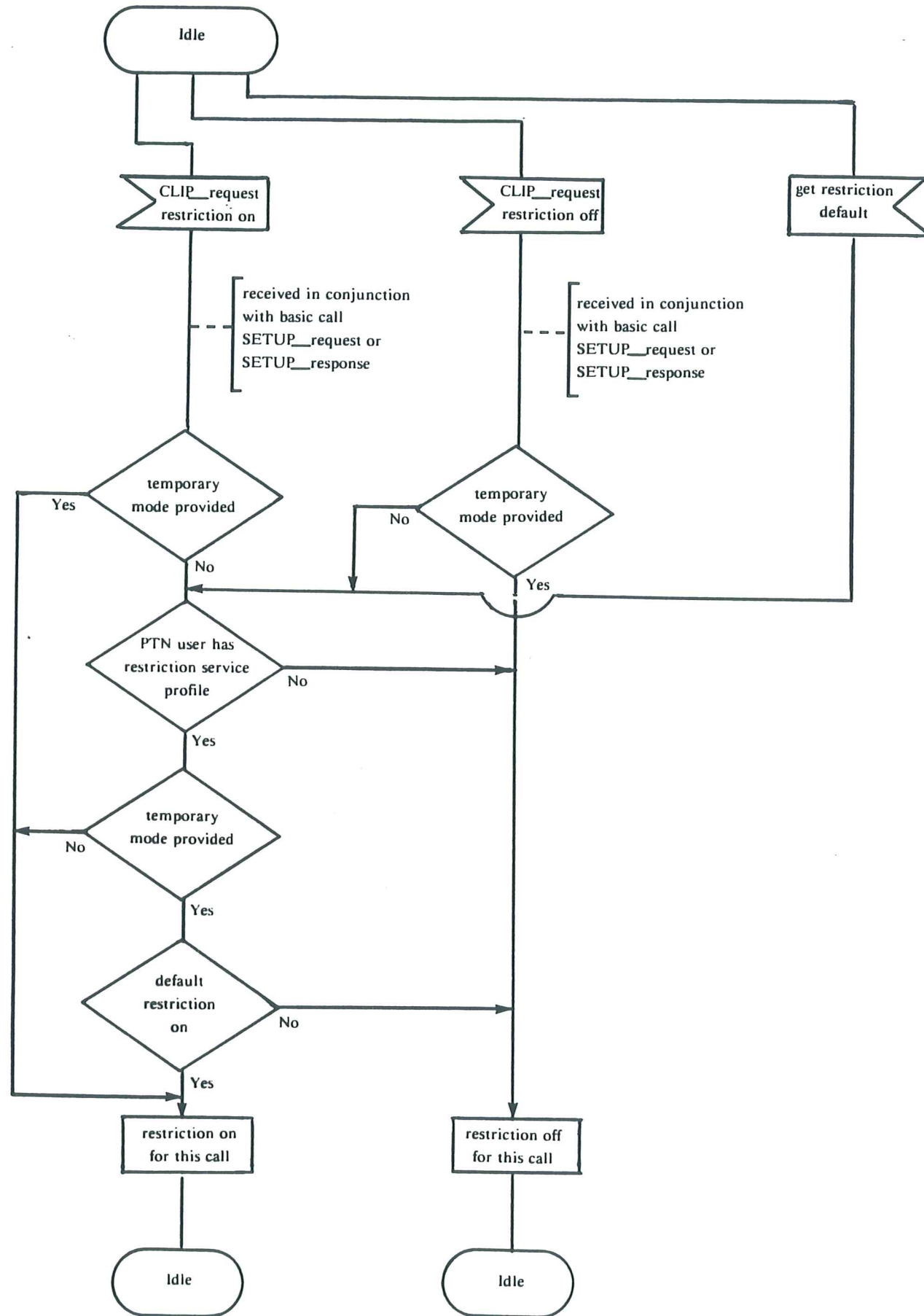


Figure 3 - SS-CLIR Overall SDL

14. SS-CLIP STAGE 2 - FUNCTIONAL MODEL

A Stage 3 Standard for SS-CLIP shall be capable of supporting the functional entities (FE) and the relationship specified in this clause.

14.1 Functional Model Description

The functional model comprises the FEs "CGLI Presentation" (FE1) and "CGLI Reception" (FE2). A relationship, rx, exists between FE1 and FE2. See figure 4.

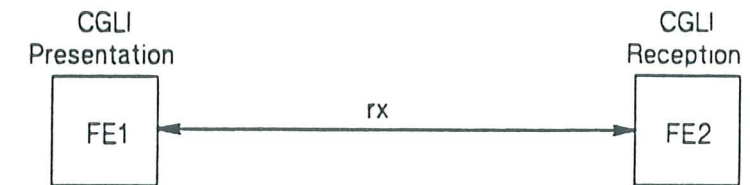


Figure 4 - Functional Model for SS-CLIP

14.2 Description of Functional Entities

14.2.1 CGLI Presentation Functional Entity, FE1

This functional entity is responsible for reporting the calling party identity and associated indicators to the CGLI Reception FE.

14.2.2 CGLI Reception Functional Entity, FE2

This functional entity receives the calling party identity and associated indicators and delivers this information to the PTN user.

15. SS-CLIP STAGE 2 - INFORMATION FLOWS

A Stage 3 Standard for SS-CLIP shall be capable of supporting the information flows specified in this clause.

15.1 Information Flows across Relationship rx

The following information flows are required across relationship rx.

15.1.1 CGLI (Calling Line Identification)

15.1.1.1 Meaning of CGLI

CGLI is an unacknowledged information flow which conveys calling line identification information from FE1 (CGLI Presentation) to FE2 (CGLI Reception).

15.1.1.2 Information Content of CGLI

Table 2 lists the service elements within the CGLI information flow. The column headed "Request" indicates which of these service elements are mandatory (M) and which are optional (O) in a CGLI request/indication

information flow. Because the information flow is unconfirmed, there is no response/confirmation information flow.

Table 2 - Content of CGLI

Service Element	Request
Origination Number (ON)	M
Origination Subaddress (OS)	O

Service element ON is always included in the CGLI request/indication information flow at rx. As a minimum it contains one of the following presentation indicators:

- presentation of number not restricted;
- presentation of number restricted;
- origination number not available owing to interworking.

In addition ON contains the calling party number if it is available and if presentation is not restricted (or if presentation is restricted and the called party has an override service profile). The calling party number, if present, is accompanied by the numbering plan identifier, the type of number, and one of the following screening indicators:

- network provided;
- user provided, verified and passed;
- user provided, not screened (only occurs in certain interworking situations).

Service element OS is included in the CGLI request /indication information flow at rx only if the origination subaddress is available.

15.2 Example of Information Flow Sequences

Below is an example of a typical sequence of information flows. This sequence shall be taken into account at Stage 3. However, this example is not necessarily exhaustive, and in particular may not cover all error situations, interactions with other supplementary services, etc..

15.2.1 Normal Operation of SS-CLIP

Figure 5 shows the information flow sequence for normal operation of SS-CLIP.

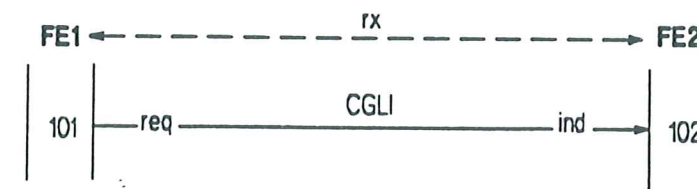


Figure 5 - Information Flow Sequence - Normal Operation of SS-CLIP

16. SS-CLIP STAGE 2 - FUNCTIONAL ENTITY ACTIONS

16.1 Functional entity actions of FE1

- 101 Obtain calling party number and/or subaddress for transmission to FE2, taking into account any restriction on presentation of the number and the called user's authority to override such restriction.

16.2 Functional entity actions of FE2

- 201 Pass any calling party number and/or subaddress received from FE1 to the connected user.

17. SS-CLIP STAGE 2 - FUNCTIONAL ENTITY BEHAVIOUR

The FE behaviours shown in this clause are intended to illustrate typical FE behaviour in terms of information flows sent and received.

Figure 6 shows the normal behaviour of FE1 in the form of an SDL diagram. Output signals to the right represent information flows to FE2. Input signals from the left represent internal stimuli.

Figure 7 shows the normal behaviour of FE2 in the form of an SDL diagram. Output signals to the right represent primitives to the called PTN user. Input signals from the left represent information flows from FE1.

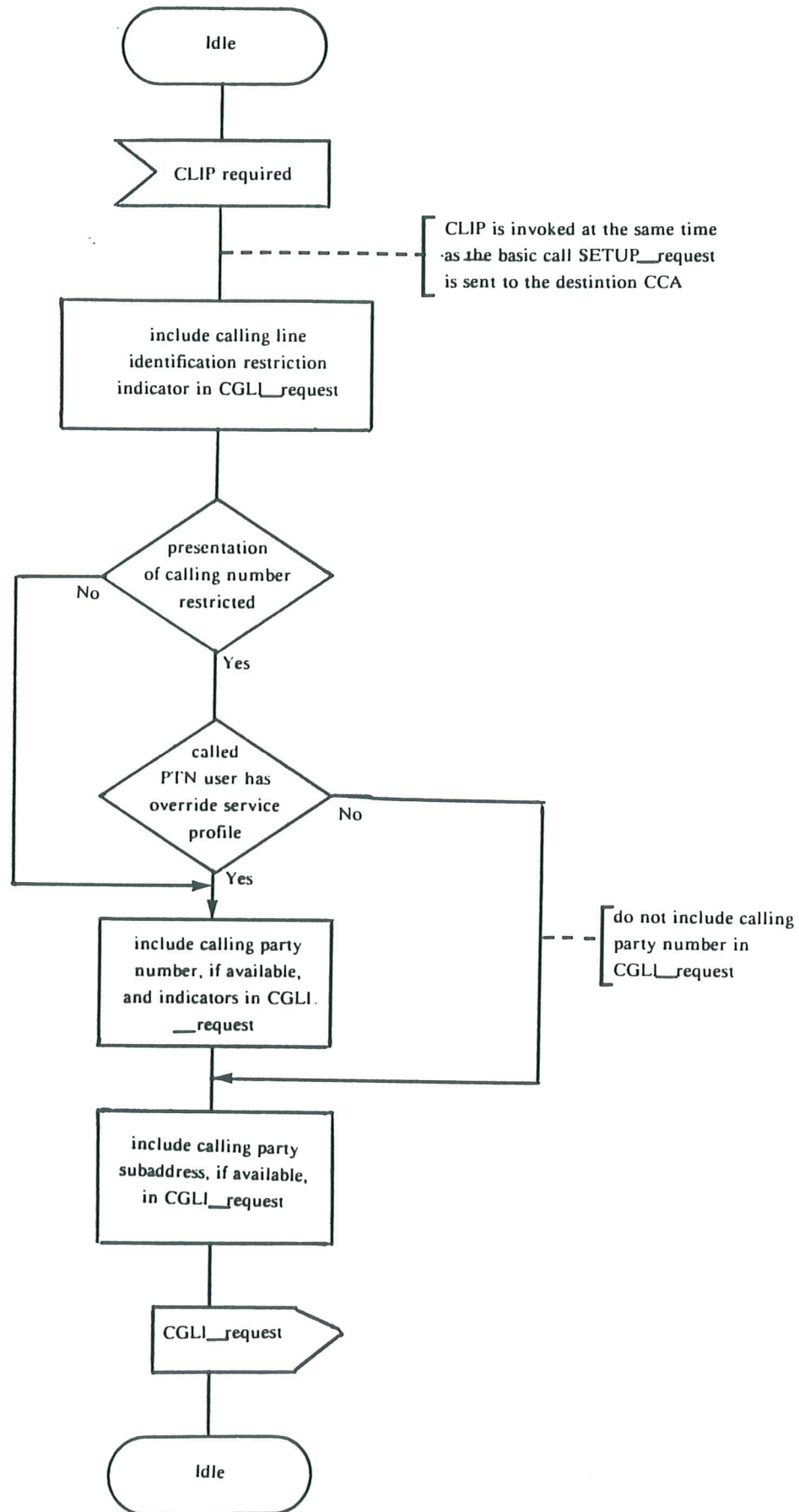


Figure 6 - SS-CLIP: SDL for Functional Entity FE1

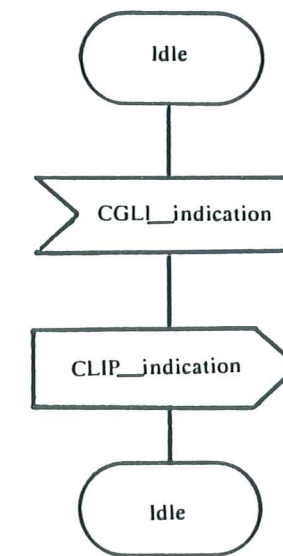


Figure 7 - SS-CLIP: SDL for Functional Entity FE2

18. SS-CLIP STAGE 2 - RELATIONSHIP TO BASIC CALL AND MAPPING ONTO PHYSICAL EQUIPMENT

18.1 Relationship of Functional Model to Basic Call Functional Model

A Stage 3 Standard for SS-CLIP shall be capable of supporting the following relationships between FEs for SS-CLIP and FEs for the basic call:

- FE1 collocated with the destination CC;
- FE2 collocated with the destination CCA.

NOTE 5:

Where the destination terminal is stimulus with respect to SS-CLIP but functional with respect to the basic call, FE2 is collocated with the destination CC.

Figure 8 shows an example of the relationship between the model for SS-CLIP and the model for the basic call.

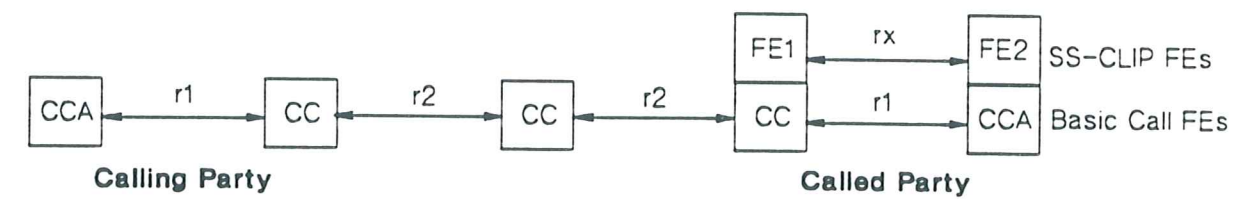


Figure 8. Relationship between models for SS-CLIP and Basic Call

18.2 Relationship of Information Flows to Basic Call Information Flows

The CGLI request/indication information flow is sent across rx at the same time as the basic call information flow SETUP request/indication is sent across basic call relationship r1 (destination CC to destination CCA).

NOTE 6:

The information content of CGLI is gained from information received in the basic call information flow SETUP request/indication received from basic call relationship r2, i.e., from the CC prior to the destination CC. This information ultimately comes from the originating CC and/or the originating CCA.

18.3 Allocation of Functional Entities to Physical Equipment

A Stage 3 Standard for SS-CLIP shall be capable of supporting the following allocations of FEs to physical equipment:

- FE1 located in the destination PTNX;
- FE2 located in the destination TE.

NOTE 7:

If the destination TE is stimulus with respect to SS-CLIP, FE2 is located in the destination PTNX.

19. SS-CLIP STAGE 2 - INTERWORKING CONSIDERATIONS

All FEs for SS-CLIP are always located within PTNXs and PTNX terminals.

When SS-CLIP is invoked on behalf of a basic call which has originated in another network, the basic call delivers to the served user's PTNX calling line identification information obtained from the other network. In the case of a public ISDN, the CC in the gateway PTNX uses the public ISDN's SS-CLIP to obtain this information.

Where the other network is unable to provide this information, the CC at the gateway PTNX provides instead an indication that the originating number is unavailable owing to interworking.

20. SS-COLP STAGE 2 - FUNCTIONAL MODEL

A Stage 3 Standard for SS-COLP shall be capable of supporting the functional entities (FE) and the relationship specified in this clause.

20.1 Functional Model Description

The functional model comprises the FEs "COLI Presentation" (FE1) and "COLI Reception" (FE2). A relationship, rx, exists between FE1 and FE2. See figure 9.

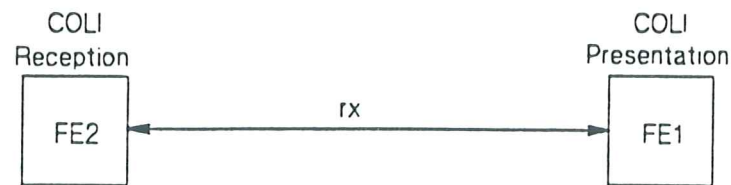


Figure 9 - Functional Model for SS-COLP

20.2 Description of Functional Entities

20.2.1 COLI Presentation Functional Entity, FE1

This functional entity is responsible for reporting the connected party identity and associated indicators to the COLI Reception FE.

20.2.2 COLI Reception Functional Entity, FE2

This functional entity receives the connected party identity and associated indicators and delivers this information to the PTN user.

21. SS-COLP STAGE 2 - INFORMATION FLOWS

A Stage 3 Standard for SS-COLP shall be capable of supporting the information flows specified in this clause.

21.1 Information Flows across Relationship rx

The following information flows are required across relationship rx.

21.1.1 COLI (Connected Line Identification)

21.1.1.1 Meaning of COLI

COLI is an unacknowledged information flow which conveys connected line identification information from FE1 (COLI Presentation) to FE2 (COLI Reception).

21.1.1.2 Information Content of COLI

Table 3 lists the service elements within the COLI information flow. The column headed "Request" indicates which of these service elements are mandatory (M) and which are optional (O) in a COLI request/indication information flow. Because the information flow is unconfirmed, there is no response/confirmation information flow.

Table 3 - Content of COLI

Service Element	Request
Connected Number (CN)	M
Connected Subaddress (CS)	O

Service element CN is always included in the COLI request/indication information flow at rx. As a minimum it contains one of the following presentation indicators:

- presentation of number not restricted;
- presentation of number restricted;
- connected number not available owing to interworking.

In addition CN contains the connected party number if it is available and if presentation is not restricted (or if presentation is restricted and the calling party has an override service profile). The connected party

number, if present, is accompanied by the numbering plan identifier, the type of number, and one of the following screening indicators:

- network provided;
- user provided, verified and passed;
- user provided, not screened (only occurs in certain interworking situations).

Service element CS is included in the COLI request/indication information flow at rx only if the connected subaddress is available.

21.2 Example of Information Flow Sequences

Below is an example of a typical sequence of information flows. This sequence shall be taken into account at Stage 3. However, this example is not necessarily exhaustive, and in particular may not cover all error situations, interactions with other supplementary services, etc..

21.2.1 Normal Operation of SS-COLP

Figure 10 shows the information flow sequence for normal operation of SS-COLP.

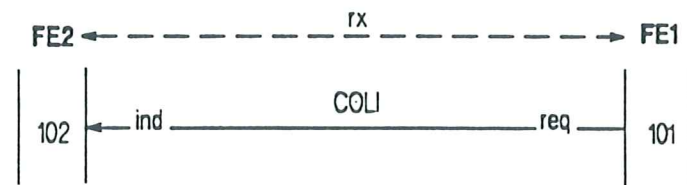


Figure 10 - Information Flow Sequence - Normal Operation of SS-COLP

22. SS-COLP STAGE 2 - FUNCTIONAL ENTITY ACTIONS

22.1 Functional entity actions of FE1

101 Obtain connected party number and/or subaddress for transmission to FE2, taking into account any restriction on presentation of the number and the calling user's authority to override such restriction.

22.2 Functional entity actions of FE2

201 Pass any connected party number and/or subaddress received from FE1 to the calling user.

23. SS-COLP STAGE 2 - FUNCTIONAL ENTITY BEHAVIOUR

The FE behaviours shown in this clause are intended to illustrate typical FE behaviour in terms of information flows sent and received.

Figure 11 shows the normal behaviour of FE1 in the form of an SDL diagram. Output signals to the left represent information flows to FE2. Input signals from the right represent internal stimuli.

Figure 12 shows the normal behaviour of FE2 in the form of an SDL diagram. Output signals to the left represent primitives to the calling PTN user. Input signals from the right represent information flows from FE1.

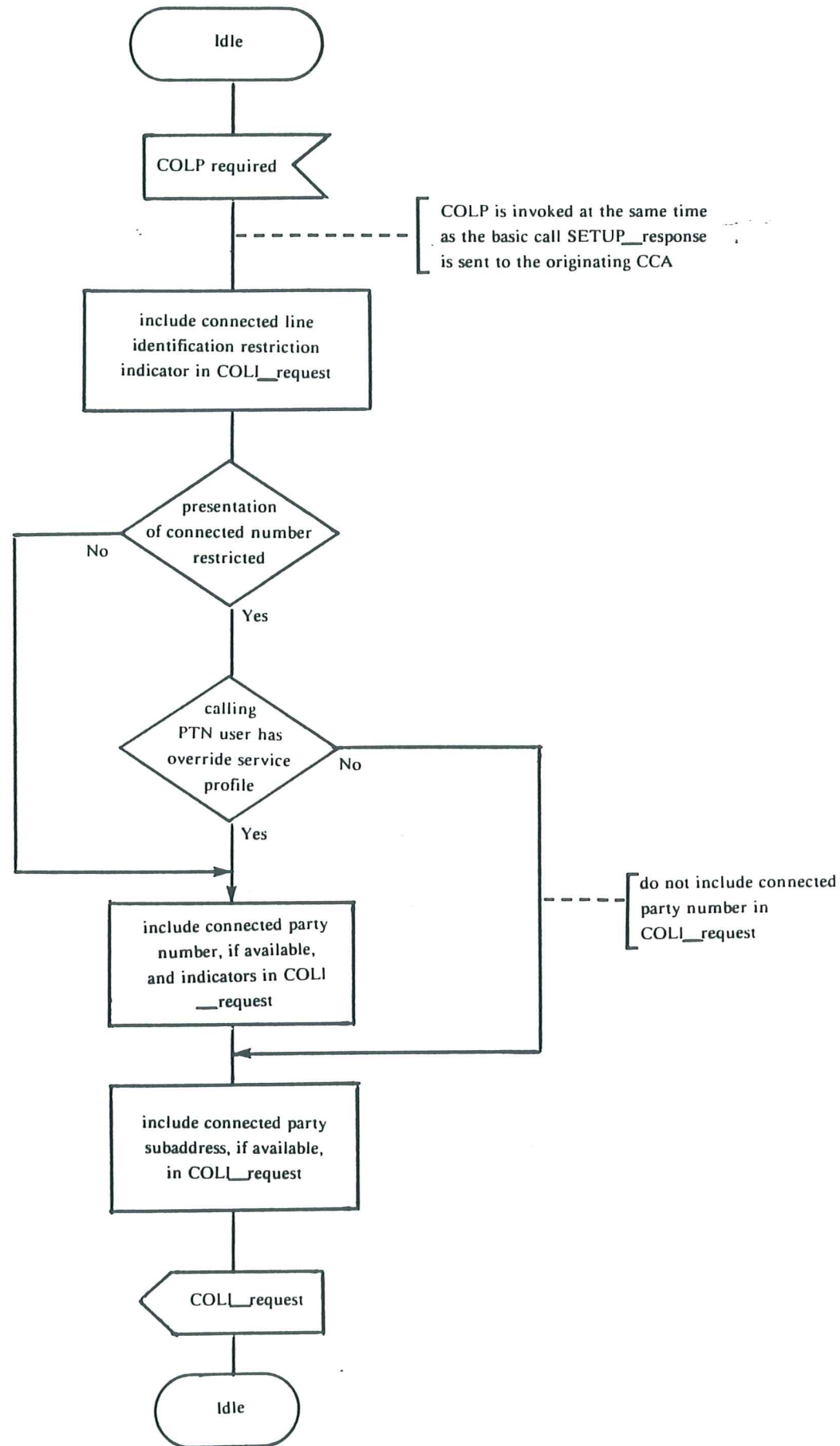


Figure 11 - SS-COLP: SDL for Functional Entity FE1

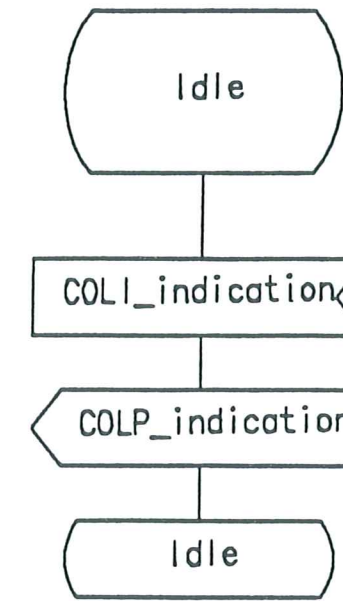


Figure 12 - SS-COLP: SDL for Functional Entity FE2

24. SS-COLP STAGE 2 - RELATIONSHIP TO BASIC CALL AND MAPPING ONTO PHYSICAL EQUIPMENT

24.1 Relationship of Functional Model to Basic Call Functional Model

A Stage 3 Standard for SS-COLP shall be capable of supporting the following relationships between FEs for SS-COLP and FEs for the basic call:

- FE1 collocated with the originating CC;
- FE2 collocated with the originating CCA.

NOTE 8:

Where the calling terminal is stimulus with respect to SS-COLP but functional with respect to the basic call, FE2 is collocated with the originating CC.

Figure 13 shows an example of the relationship between the model for SS-COLP and the model for the basic call.

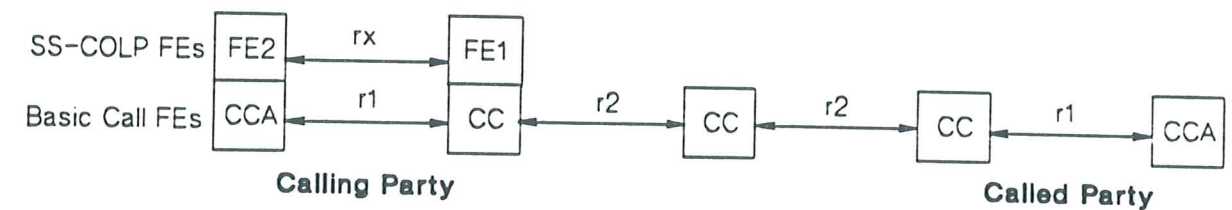


Figure 13 - Relationship between models for SS-COLP and Basic Call

24.2 Relationship of Information Flows to Basic Call Information Flows

The COLI request/indication information flow is sent across rx at the same time as the basic call information flow SETUP response/confirmation is sent across basic call relationship r1 (originating CC to originating CCA).

NOTE 9:

The information content of COLI is gained from information received in the basic call information flow SETUP response/confirmation received from basic call relationship r2, i.e., from the CC next to the originating CC. This information ultimately comes from the destination CC and/or the destination CCA.

24.3 Allocation of Functional Entities to Physical Equipment

A Stage 3 Standard for SS-COLP shall be capable of supporting the following allocations of FEs to physical equipment:

- FE1 located in the originating PTNX;
- FE2 located in the originating TE.

NOTE 10:

If the originating TE is stimulus with respect to SS-COLP, FE2 is located in the originating PTNX.

25. SS-COLP STAGE 2 - INTERWORKING CONSIDERATIONS

All FEs for SS-COLP are always located within PTNXs and PTNX terminals.

When SS-COLP is invoked on behalf of a basic call which has its destination in another network, the basic call delivers to the served user's PTNX connected line identification information obtained from the other network. In the case of a public ISDN, the CC in the gateway PTNX uses the public ISDN's SS-COLP to obtain this information.

Where the other network is unable to provide this information, the CC at the gateway PTNX provides instead an indication that the connected number is unavailable owing to interworking.

26. SS-CLIR STAGE 2 - FUNCTIONAL MODEL

A Stage 3 Standard for SS-CLIR shall be capable of supporting the functional entities (FE) and the relationship specified in this clause.

26.1 Functional Model Description

The functional model comprises the FEs "Restriction Request" (FE1) and "Restriction Control" (FE2). A relationship, rx, exists between FE1 and FE2. See figure 14.

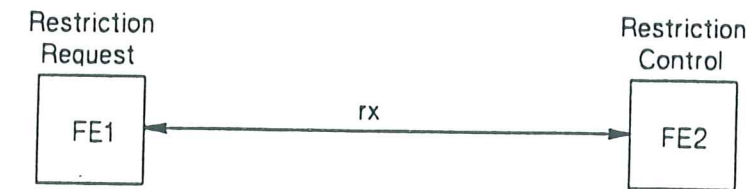


Figure 14 - Functional Model for SS-CLIR

26.2 Description of Functional Entities

26.2.1 Restriction Request Functional Entity, FE1

This functional entity is responsible for receiving PTN user requests for override of the temporary mode default and passing them on to the Restriction Control FE.

26.2.2 Restriction Control Functional Entity, FE2

This functional entity is responsible for determining whether to invoke restriction on behalf of a party in a call, based on the party's service profile and any requests from FE1 for the override of the temporary mode default.

27. SS-CLIR STAGE 2 - INFORMATION FLOWS

A Stage 3 Standard for SS-CLIR shall be capable of supporting the information flows specified in this clause.

27.1 Information Flows across Relationship rx

The following information flows are required across relationship rx.

27.1.1 RESTRICT

27.1.1.1 Meaning of RESTRICT

RESTRICT is an unacknowledged information flow which conveys a PTN user request to override the SS-CLIR temporary mode default from FE1 to FE2.

27.1.1.2 Information Content of RESTRICT

Table 4 lists the service elements within the RESTRICT information flow. The column headed "Request" indicates which of these service elements are mandatory (M) and which are optional (O) in a RESTRICT request/indication information flow. Because the information flow is unconfirmed, there is no response/confirmation information flow.

Table 4 - Content of RESTRICT

Service Element	Request
Restriction Indicator (RI)	M

Service element RI is included in the RESTRICT request/indication information flow at rx. It contains one of the following indicators:

- presentation not restricted;
- presentation restricted.

27.2 Example of Information Flow Sequences

Below is an example of a typical sequence of information flows. This sequence shall be taken into account at Stage 3. However, this example is not necessarily exhaustive, and in particular may not cover all error situations, interactions with other supplementary services, etc..

27.2.1 Normal Operation of SS-CLIR

Figure 15 shows the information flow sequence for normal operation of SS-CLIR. The RESTRICT information flow is sent only when the served user wishes to override the SS-CLIR temporary mode default.

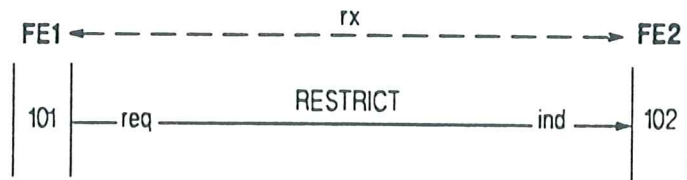


Figure 15 - Information Flow Sequence - Normal Operation of SS-CLIR

28. SS-CLIR STAGE 2 - FUNCTIONAL ENTITY ACTIONS

28.1 Functional entity actions of FE1

101 If served user wishes to override the CLIR temporary mode restriction default, generate a request and send to FE2.

28.2 Functional entity actions of FE2

201 Assign the appropriate presentation restriction indicator to the served user's number, based on whether CLIR permanent mode or temporary mode applies and, in the case of temporary mode, whether a request to override the default has been received from FE1.

29. SS-CLIR STAGE 2 - FUNCTIONAL ENTITY BEHAVIOUR

The FE behaviours shown in this clause are intended to illustrate typical FE behaviour in terms of information flows sent and received.

Figure 16 shows the normal behaviour of FE1 in the form of an SDL diagram. Output signals to the right represent information flows to FE2. Input signals from the left represent primitives from the served (calling or connected) PTN user.

Figure 17 shows the normal behaviour of FE2 in the form of an SDL diagram. Input signals from the left represent information flows from FE1.

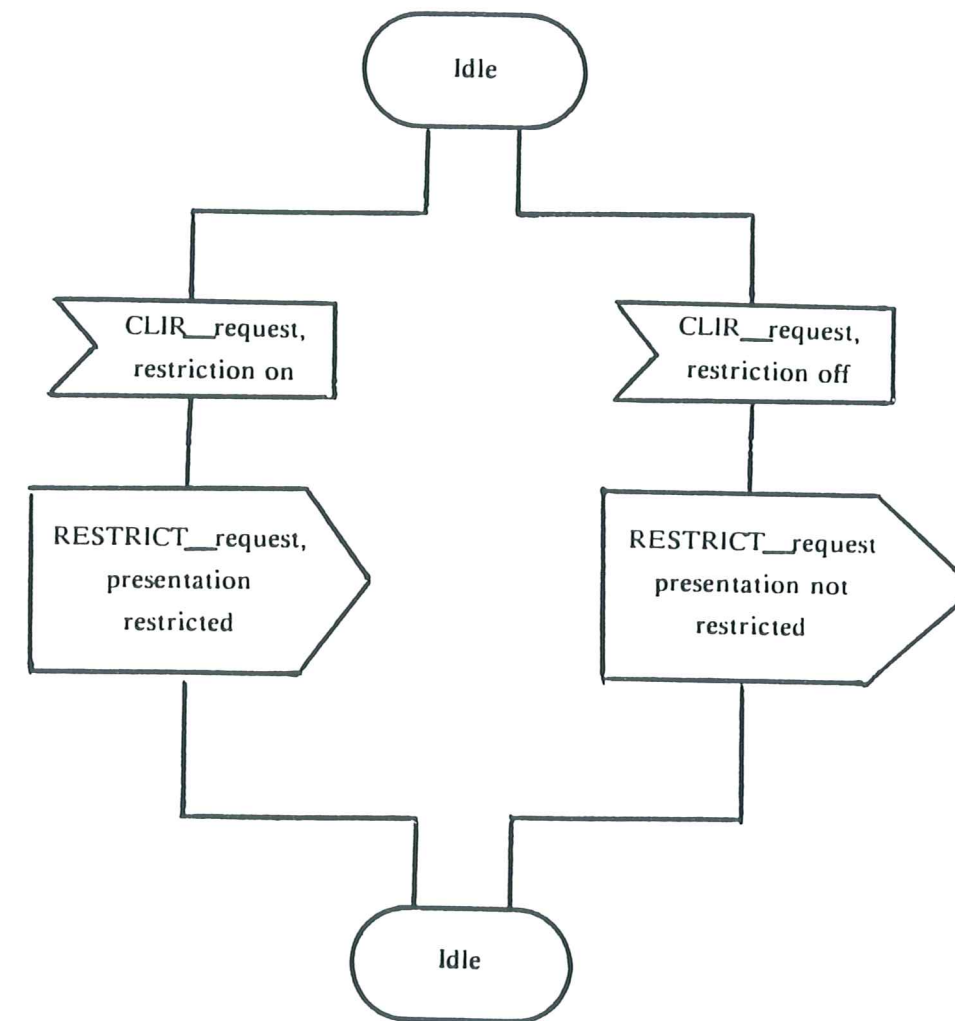


Figure 16 - SS-CLIR: SDL for Functional Entity FE1

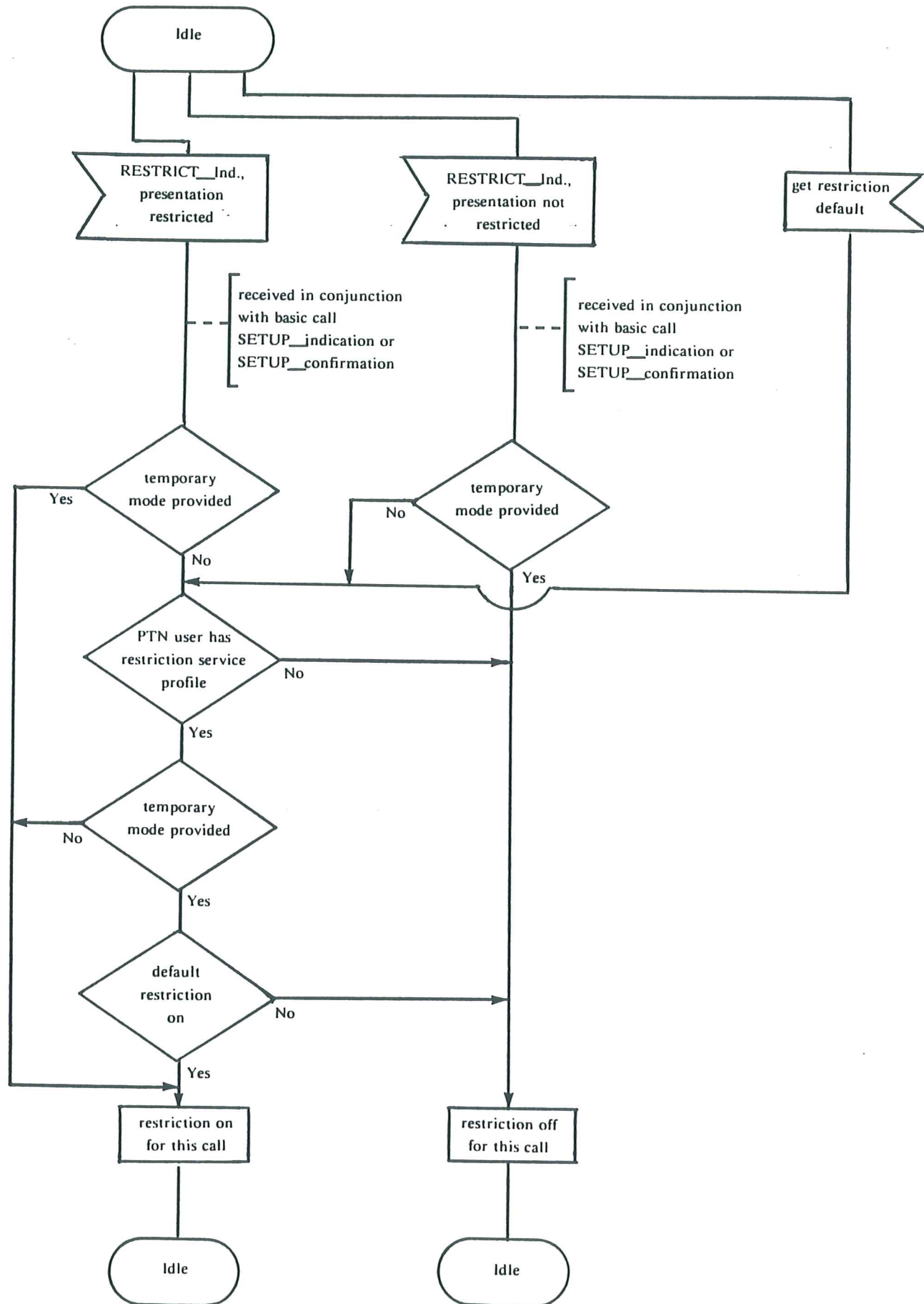


Figure 17 - SS-CLIR: SDL for Functional Entity FE2

30. SS-CLIR STAGE 2 - RELATIONSHIP TO BASIC CALL AND MAPPING ONTO PHYSICAL EQUIPMENT

30.1 Relationship of Functional Model to Basic Call Functional Model

A Stage 3 Standard for SS-CLIR shall be capable of supporting the following relationships between FEs for SS-CLIR and FEs for the basic call:

- FE2 collocated with the CC local to the served PTN user, i.e., the originating CC or the destination CC;
- FE1 collocated with the served PTN user's CCA.

NOTE 11:

Where the terminal is stimulus with respect to SS-CLIR but functional with respect to the basic call, FE1 is collocated with FE2.

Figure 18 shows an example of the relationship between the model for SS-CLIR and the model for the basic call. SS-CLIR is available to both the calling party (for calling line identification restriction) and the called party (for connected line identification restriction). Hence there are two instances each of FE1 and FE2.

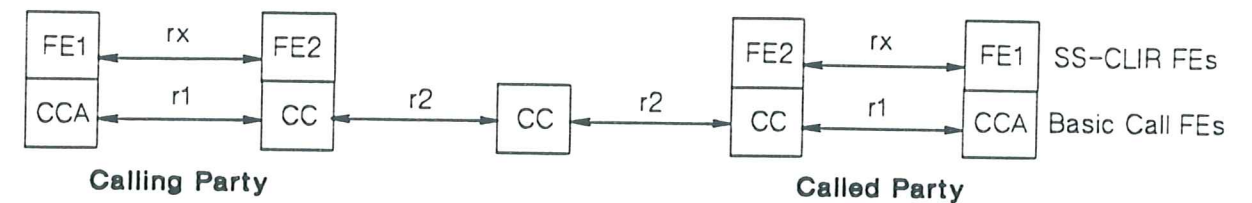


Figure 18 - Relationship between models for SS-CLIR and Basic Call

30.2 Relationship of Information Flows to Basic Call Information Flows

When the calling PTN user wishes to override the SS-CLIR temporary mode default, the RESTRIC request/indication information flow is sent across rx at the same time as the basic call information flow SETUP request/indication is sent across basic call relationship r1 (originating CCA to originating CC).

When the called PTN user wishes to override the SS-CLIR temporary mode default, the RESTRIC request/indication information flow is sent across rx at the same time as the basic call information flow SETUP response/confirmation is sent across basic call relationship r1 (destination CCA to destination CC).

NOTE 12:

If FE2 invokes SS-CLIR on behalf of the calling or called party (automatically or on request from the PTN user), an indication that restriction applies is included in the basic call SETUP request/indication or the SETUP response/confirmation information flow respectively across r2. It is then the responsibility of FEs of SS-CLIP or SS-COLP respectively to ensure that identification information is not presented to the other user.

30.3 Allocation of Functional Entities to Physical Equipment

A Stage 3 Standard for SS-CLIR shall be capable of supporting the following allocations of FEs to physical equipment:

- FE2 located in the served user's PTNX, i.e., the originating or destination PTNX;
- FE1 located in the served user's TE.

NOTE 13:

If the served user's TE is stimulus with respect to SS-CLIR, FE1 is located in the served user's PTNX.

31. SS-CLIR STAGE 2 - INTERWORKING CONSIDERATIONS

All FEs for SS-CLIR are always located within PTNXs and PTNX terminals.

When SS-CLIR is invoked for a basic call which has originated or which has its destination in another network, the basic call delivers to the other network an indication that presentation is restricted and does not deliver the PTN user's number. In the case of a public ISDN, the CC in the gateway PTNX uses the public ISDN's Calling Line Identification Restriction or Connected Line Identification Restriction supplementary service to indicate this.

APPENDIX A

(This Appendix is not Part of the Standard)

INTERACTIONS BETWEEN SS-CLIP AND POSSIBLE FUTURE SUPPLEMENTARY SERVICES

This Appendix describes anticipated interactions between SS-CLIP and other PTN supplementary services for which Stage 1 and 2 Standards have not yet been published. Each supplementary service in this list is also in the process of specification by ETSI for public ISDNs.

A.1 Add-On Conference

No interaction

A.2 Advice of Charge

No interaction

A.3 Call Forwarding (Unconditional, on Busy, on No Reply) and Call Deflection

Unless restriction applies, the identity of the calling party is provided to the diverted-to party. In addition, unless restriction applies, the diverting party (parties if the call is diverted more than once) receives the identity of the calling party as part of normal call presentation (if the call is presented prior to the invocation of diversion) and/or as part of any notification to the diverting party that a call has been diverted.

NOTE A.1:

Other identification presentations will be specified in the various diversion service specifications.

A.4 Call Hold

No interaction

A.5 Call Transfer

No interaction

NOTE A.2:

The presentation of the identity of a transferred party is part of the Call Transfer supplementary service, not SS-CLIP.

A.6 Call Waiting

No interaction

A.7 Closed User Group

No interaction

A.8 Completion of Calls to Busy Subscriber

Unless restriction applies, SS-CLIP applies to the called party when the call is eventually offered to that party.

A.9 Completion of Calls on No Reply

Unless restriction applies, SS-CLIP applies to the called party when the call is eventually offered to that party.

A.10 Freephone

No interaction

A.11 Malicious Call Identification

No interaction

NOTE A.3:

A number recorded as a result of invocation of the Malicious Call Identification supplementary service by the called user is not necessarily the same as that presented to the user as a result of SS-CLIP.

A.12 Meet Me Conference

No interaction

A.13 Terminal Portability

No interaction

A.14 User to User Signalling

No interaction

APPENDIX B

(This Appendix is not Part of the Standard)

**INTERACTIONS BETWEEN SS-COLP AND POSSIBLE FUTURE
SUPPLEMENTARY SERVICES**

This Appendix describes anticipated interactions between SS-COLP and other PTN supplementary services for which Stage 1 and 2 Standards have not yet been published. Each supplementary service in this list is also in the process of specification by ETSI for public ISDNs.

B.1 Add-On Conference

No interaction

B.2 Advice of Charge

No interaction

B.3 Call Forwarding (Unconditional, on Busy, on No Reply) and Call Deflection

Unless restriction applies, the calling party receives the identity of the final connected party, after all diversions have taken place. Restriction, in this case, includes not only Connected Line Identification Restriction invoked at the final connected party, but also any restriction imposed by the diverting party on calling party notification that diversion has taken place.

NOTE B.1:

Under some circumstances the various call diversion supplementary services may provide the calling party with the identity of the diverted to party including, in the case of multiple diversions, the identities of intermediate parties. This information may be presented prior to answer, in which case it will not necessarily correspond to the information provided by SS-COLP at the time of answer.

B.4 Call Hold

No interaction

B.5 Call Transfer

No interaction

NOTE B.2:

The presentation of the identity of a transferred party is part of the Call Transfer supplementary service, not SS-COLP.

B.6 Call Waiting

No interaction

B.7 Closed User Group

No interaction

B.8 Completion of Calls to Busy Subscriber

Unless restriction applies, the calling party receives the identity of the party connected to as a result of Completion of Calls to Busy Subscriber.

B.9 Completion of Calls on No Reply

Unless restriction applies, the calling party receives the identity of the party connected to as a result of Completion of Calls on No Reply.

B.10 Freephone

The connected party number presented, if any, is that provided by the public network which provides the Freephone supplementary service.

B.11 Malicious Call Identification

No interaction

B.12 Meet Me Conference

No interaction

B.13 Terminal Portability

No interaction

B.14 User to User Signalling

No interaction

APPENDIX C

(This Appendix is not Part of the Standard)

**INTERACTIONS BETWEEN SS-CLIR AND POSSIBLE FUTURE
SUPPLEMENTARY SERVICES**

This Appendix describes anticipated interactions between SS-CLIR and other PTN supplementary services for which Stage 1 and 2 Standards have not yet been published. Each supplementary service in this list is also in the process of specification by ETSI for public ISDNs.

C.1 Add-On Conference

The identify of a conference controller or conferee who has invoked restriction shall not be revealed to any of the other participants in the conference, unless override applies.

C.2 Advice of Charge

No interaction

C.3 Call Forwarding (Unconditional, on Busy, on No Reply) and Call Deflection

When call diversion occurs, the identity of a calling PTN user which has invoked restriction (automatically or on request from the PTN user) is not presented to the diverting party or the diverted-to party, except for the case of a diverting party or diverted-to party with an override service profile.

A diverted-to PTN user that has invoked restriction (automatically or on request from the PTN user) does not have its identity presented to the calling party, either as SS-COLP or as part of a notification of diversion, unless the calling party has an override service profile. A diverted-to party which is provided with SS-CLIR temporary mode shall not have its identity revealed to the calling party as part of a notification of diversion until the diverted-to party has responded and it is known that restriction is not to be invoked, unless the calling party has an override service profile.

NOTE C.1:

The invocation of SS-CLIR at the diverting party has no impact on the presentation of the diverting party's number to the calling party or to the diverted-to party. These presentations are governed by options in the various diversion services.

C.4 Call Hold

No interaction

C.5 Call Transfer

When call transfer occurs, the identity of a PTN user which has invoked restriction (automatically or on request from the PTN user at the time of establishment of the original call) is not presented to the party to whom the

PTN user is transferred, unless that other party has an override service profile.

C.6 Call Waiting

No interaction

C.7 Closed User Group

No interaction

C.8 Completion of Calls to Busy Subscriber

No interaction

C.9 Completion of Calls on No Reply

No interaction

C.10 Freephone

No interaction

C.11 Malicious Call Identification

Malicious Call Identification overrides the invocation of restriction by the calling party.

C.12 Meet Me Conference

The identify of a conference controller or conferee who has invoked restriction shall not be revealed to any of the other participants in the conference, unless override applies.

C.13 Terminal Portability

No interaction

C.14 User to User Signalling

No interaction

APPENDIX D

(This Appendix is not Part of the Standard)

RELATIONSHIP TO CORRESPONDING ETSs

The Identification Supplementary Services for PTNs specified in this ECMA Standard complement, and are compatible with, the corresponding services for public ISDNs as specified in the various ETSs listed in Appendix E. There are no differences which will prevent terminal compatibility between PTNs and public ISDNs. However, there are significant differences in the style and layout of this Standard in comparison with the corresponding ETSs. The main differences can be summarised as follows.

- i) PTN terminology is used, where appropriate, instead of public ISDN terminology.
- ii) Whereas this ECMA Standard specifies a single supplementary service for restriction (SS-CLIR - Calling/Connected Line Identification Restriction), ETSI specifies two separate supplementary services (SS-CLIR - Calling Line Identification Restriction; SS-COLR - Connected Line Identification Restriction).
- iii) All Identification Supplementary Services are specified in this ECMA Standard. ETSI has a separate Stage 1 ETS for each service, a Stage 2 ETS for SS-CLIP and SS-CLIR, and a Stage 2 ETS for SS-COLP and SS-COLR.
- iv) The specification of the Stage 1 aspects in this ECMA Standard is in terms of primitives transferred across service access points to, and from, the user. ETSI Stage 1 specifications are in terms of the visibility of the service at the S/T and T reference points.
- v) The scope of SS-CLIP and SS-COLP in this ECMA Standard is limited to the presentation of information to the served user. The derivation of the information by the network, including the possible supply of information by the party to be identified and the passing of that information across the network and to, and from, other networks, is considered to be part of the basic call and is specified in Standard ECMA-142. Although when interworking with a public ISDN identification information is obtained from the public ISDN by means of the public ISDN's SS-CLIP and SS-COLP, this is not considered to be part of the SS-CLIP and SS-COLP as provided by a PTN to its users. Instead it is considered to be part of the basic call and is specified in Standard ECMA-142.
- vi) In the Stage 1 specifications, interactions with other supplementary services are specified only for those other supplementary services for which PTN standards were available at the time of publication of this ECMA Standard. Appendices A, B and C describe anticipated interactions with future supplementary services.

- vii) In the Stage 2 specifications in this ECMA Standard, a clear separation has been maintained between functions and information flows for the supplementary services and functions and information flows for the basic call.
- viii) In this Standard, the presentation of calling and connected party subaddresses is not subject to restriction.

APPENDIX E

(This Appendix is not Part of the Standard)

BIBLIOGRAPHY

ETS

- ETS-300089 Integrated Services Digital Network (ISDN) Calling Line Identification Presentation (CLIP) supplementary service Service description
- ETS-300094 Integrated Services Digital Network (ISDN) Connected Line Identification Presentation (COLP) supplementary service Service description
- ETS-300090 Integrated Services Digital Network (ISDN) Calling Line Identification Restriction (CLIR) supplementary service Service description
- ETS-300095 Integrated Services Digital Network (ISDN) Connected Line Identification Restriction (COLR) supplementary service Service description
- ETS-300091 Integrated Services Digital Network (ISDN) Calling Line Identification Presentation and Restriction (CLIP and CLIR) supplementary services Functional capabilities and information flows
- ETS-300096 Integrated Services Digital Network (ISDN) Connected Line Identification Presentation and Restriction (COLP and COLR) supplementary services Functional capabilities and information flows

CCITT Recommendations

- Rec. I.251 Number Identification Supplementary Services

NOTE E.1:

This contains the Stage 1 descriptions.

- Rec. Q.81 Number Identification Supplementary Services

NOTE E.2:

This contains the Stage 2 descriptions.