



SLOVENSKI STANDARD SIST ETS 300 256 E1:2005

01-maj-2005

Zasebno telekomunikacijsko omrežje (PTN) – Specifikacija, funkcijski modeli in informacijski pretoki - Dopolnilna storitev: izsmeritev klica

Private Telecommunication Network (PTN); Specification, functional models and information flows; Diversion supplementary services

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: **ETS 300 256 Edition 1**
<https://standards.iteh.ai/catalog/standards/sist/181098b1-6273-4a05-b434-df7851f164f5/sist-ets-300-256-e1-2005>

ICS:

33.040.35 Telefonska omrežja Telephone networks

SIST ETS 300 256 E1:2005 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST ETS 300 256 E1:2005

<https://standards.iteh.ai/catalog/standards/sist/18f098b1-b273-4a65-b434-df7851f164f5/sist-ets-300-256-e1-2005>



EUROPEAN
TELECOMMUNICATION
STANDARD

ETS 300 256

November 1993

Source: ETSI TC-ECMA

Reference: DE/ECMA-0006

ICS: 33.080

Key words: PTN, ECMA-173, CFSD

iTeh STANDARD PREVIEW
(standards.itih.ai)
Private Telecommunication Network (PTN);
Specification, functional models and information flows
Diversion supplementary services

SIST ETS 300 256 E1:2005
<https://standards.itih.ai/standards/ets/300/256/e1/2005>
df7851f164f5/sist-ets-300-256-e1-2005

ETSI

European Telecommunications Standards Institute

ETSI Secretariat

Postal address: F-06921 Sophia Antipolis CEDEX - FRANCE

Office address: 650 Route des Lucioles - Sophia Antipolis - Valbonne - FRANCE

X.400: c=fr, a=atlas, p=etsi, s=secretariat - **Internet:** secretariat@etsi.fr

Tel.: +33 92 94 42 00 - Fax: +33 93 65 47 16

Copyright Notification: No part may be reproduced except as authorized by written permission. The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 1993. All rights reserved.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST ETS 300 256 E1:2005](https://standards.iteh.ai/catalog/standards/sist/18f098b1-b273-4a65-b434-df7851f164f5/sist-ets-300-256-e1-2005)

<https://standards.iteh.ai/catalog/standards/sist/18f098b1-b273-4a65-b434-df7851f164f5/sist-ets-300-256-e1-2005>

Table of contents

Foreword	7
1 Scope	9
2 Conformance	9
3 References	9
4 Definitions	10
4.1 External definitions	10
4.2 Additional network feature.....	10
4.3 Busy.....	10
4.4 Call, Basic call.....	10
4.5 Connected number.....	11
4.6 Diversion.....	11
4.7 Diverted-to number	11
4.8 Diverted-to subaddress.....	11
4.9 Diverted-to user.....	11
4.10 Diverting cause.....	11
4.11 Diverting number.....	11
4.12 Forwarding	11
4.13 Forward switching.....	11
4.14 Last diverting user.....	11
4.15 Original called number.....	11
4.16 Original called user.....	12
4.17 Partial re-routing.....	12
4.18 Presentation indicator.....	12
4.19 PTN number.....	12
4.20 Re-routing.....	12
4.21 Served user.....	12
4.22 User A	12
4.23 User B	12
4.24 User B1, user B2, user B3, etc.	12
4.25 User C.....	12
5 List of acronyms	13
6 SS-CFU stage 1 description	13
6.1 Description	13
6.1.1 General description	13
6.1.2 Qualifications on applicability to telecommunication services	13
6.2 Procedures.....	14
6.2.1 Provision/withdrawal	14
6.2.2 Normal procedures.....	14
6.2.2.1 Activation/deactivation/interrogation/registration	14
6.2.2.1.1 Local activation/deactivation	14
6.2.2.1.2 Remote activation/deactivation.....	15
6.2.2.1.3 Local interrogation.....	16
6.2.2.1.4 Remote interrogation.....	16
6.2.2.2 Invocation and operation	17
6.2.2.2.1 Served user notification	17
6.2.2.2.2 Diverted-to user notification	17
6.2.2.2.3 Calling user notification.....	17
6.2.3 Exceptional procedures.....	18
6.2.3.1 Activation/deactivation.....	18
6.2.3.2 Interrogation	18
6.2.3.3 Invocation and operation	19
6.3 Interactions with other supplementary services and ANFs.....	19

6.3.1	Calling Line Identification Presentation (CLIP)	19
6.3.2	Connected Line Identification Presentation (COLP)	19
6.3.3	Calling/Connected Line Identification Restriction (CLIR)	20
6.3.4	Calling Name Identification Presentation (CNIP)	20
6.3.5	Connected Name Identification Presentation (CONP).....	20
6.3.6	Calling/Connected Name Identification Restriction (CNIR)	20
6.3.7	Call Forwarding Busy (CFB).....	20
6.3.8	Call Forwarding No Reply (CFNR).....	20
6.3.9	Call Transfer (CT)	21
6.3.10	Path Replacement (PR).....	21
6.4	Interworking considerations	21
6.5	Overall SDL	21
7	SS-CFB stage 1 description	25
7.1	Description	25
7.1.1	General description	25
7.1.2	Qualifications on applicability to telecommunication services	25
7.2	Procedures.....	25
7.2.1	Provision/withdrawal	25
7.2.2	Normal procedures.....	25
7.2.2.1	Activation/deactivation/interrogation/registration	25
7.2.2.2	Invocation and operation	25
7.2.2.2.1	Served user notification	25
7.2.2.2.2	Diverted-to user notification	25
7.2.2.2.3	Calling user notification.....	25
7.2.3	Exceptional procedures.....	25
7.3	Interactions with other supplementary services and ANFs.....	25
7.3.1	Calling Line Identification Presentation (CLIP)	25
7.3.2	Connected Line Identification Presentation (COLP)	26
7.3.3	Calling/Connected Line Identification Restriction (CLIR)	26
7.3.4	Calling Name Identification Presentation (CNIP)	26
7.3.5	Connected Name Identification Presentation (CONP).....	26
7.3.6	Calling/Connected Name Identification Restriction (CNIR)	26
7.3.7	Call Forwarding Unconditional (CFU).....	26
7.3.8	Call Forwarding No Reply (CFNR).....	26
7.3.9	Call Transfer (CT)	26
7.3.10	Path Replacement (PR).....	26
7.4	Interworking considerations	26
7.5	Overall SDL	26
8	SS-CFNR stage 1 description	26
8.1	Description	26
8.1.1	General description	26
8.1.2	Qualifications on applicability to telecommunication services	27
8.2	Procedures.....	27
8.2.1	Provision/withdrawal	27
8.2.2	Normal procedures.....	27
8.2.2.1	Activation/deactivation/interrogation/registration	27
8.2.2.2	Invocation and operation	27
8.2.2.2.1	Served user notification	27
8.2.2.2.2	Diverted-to user notification	27
8.2.2.2.3	Calling user notification.....	27
8.2.3	Exceptional procedures.....	27
8.2.3.1	Activation/deactivation	27
8.2.3.2	Interrogation	27
8.2.3.3	Invocation and operation	27
8.3	Interactions with other supplementary services and ANFs.....	28
8.3.1	Calling Line Identification Presentation (CLIP)	28
8.3.2	Connected Line Identification Presentation (COLP)	28
8.3.3	Calling/Connected Line Identification Restriction (CLIR)	28
8.3.4	Calling Name Identification Presentation (CNIP)	28

8.3.5	Connected Name Identification Presentation (CONP).....	28
8.3.6	Calling/Connected Name Identification Restriction (CNIR)	28
8.3.7	Call Forwarding Unconditional (CFU)	29
8.3.8	Call Forwarding Busy (CFB)	29
8.3.9	Call Transfer (CT)	29
8.3.10	Path Replacement (PR).....	29
8.4	Interworking considerations	29
8.5	Overall SDL	29
9	SS-CF stage 2 description	29
9.1	Functional model	29
9.1.1	Functional model description	29
9.1.2	Description of the functional entities	30
9.1.2.1	Calling user's service agent, FE1	30
9.1.2.2	Calling user's service control entity, FE2.....	30
9.1.2.3	Call diversion execution entity, FE3.....	31
9.1.2.4	Call diversion detection and control entity, FE4.....	31
9.1.2.5	Served user's service agent, FE5.....	31
9.1.2.6	Diverted-to user's service control entity, FE6.....	31
9.1.2.7	Diverted-to user's service agent, FE7.....	31
9.1.2.8	User's activation, deactivation and interrogation control, FE8	31
9.1.2.9	User's activation, deactivation and interrogation agent, FE9	31
9.1.3	Relationship of Functional Model to Basic Call Functional Model.....	31
9.2	Information flows	32
9.2.1	Definition of information flows	32
9.2.1.1	INFORM 1.....	32
9.2.1.2	INFORM 2.....	33
9.2.1.3	INFORM 3.....	33
9.2.1.4	INFORM 4.....	34
9.2.1.5	INFORM 5.....	34
9.2.1.6	INFORM 6.....	35
9.2.1.7	INFORM 7.....	35
9.2.1.8	INFORM 8.....	36
9.2.1.9	INFORM 9.....	36
9.2.1.10	INFORM 10.....	37
9.2.1.11	DIVERT	37
9.2.1.12	INTERROGATE	38
9.2.1.13	ACTIVATE	39
9.2.1.14	DEACTIVATE.....	39
9.2.1.15	ENABLE	40
9.2.1.16	DISABLE	41
9.2.1.17	CHECK.....	41
9.2.2	Information flow sequences	42
9.2.2.1	Information flow sequences for CFU/CFB operation	43
9.2.2.2	Information flow sequences for CFNR operation	46
9.2.2.3	Information flow sequences for activation.....	51
9.2.2.4	Information flow sequence for deactivation.....	52
9.2.2.5	Information flow sequence for enabling/disabling of remote activation	52
9.2.2.6	Information flow sequence for interrogation.....	53
9.3	Functional Entity actions	53
9.3.1	Functional Entity actions of FE1.....	53
9.3.2	Functional Entity actions of FE2.....	53
9.3.3	Functional Entity actions of FE3.....	54
9.3.4	Functional Entity actions of FE4.....	54
9.3.5	Functional Entity actions of FE5.....	55
9.3.6	Functional Entity actions of FE6.....	55
9.3.7	Functional Entity actions of FE7.....	55
9.3.8	Functional Entity actions of FE8.....	55
9.3.9	Functional Entity actions of FE9.....	56
9.4	Functional Entity behaviour	56

iTeh STANDARD PREVIEW
(standardsiteh.ai)

SIST ETS 300 256 E1:2005
<https://standardsiteh.ai/catalog/standards/sist/81098b1-b273-4a65-b434-a17851f164f5/sist-ets-300-256-e1-2005>

9.4.1	Behaviour of FE1.....	56
9.4.2	Behaviour of FE2.....	56
9.4.3	Behaviour of FE3.....	58
9.4.4	Behaviour of FE4.....	59
9.4.5	Behaviour of FE5.....	61
9.4.6	Behaviour of FE6.....	61
9.4.7	Behaviour of FE7.....	63
9.4.8	Behaviour of FE8.....	63
9.4.9	Behaviour of FE9.....	64
9.5	Allocation of Functional Entities to Physical Locations.....	65
9.6	Interworking considerations	66
Annex A (informative):	Relationship to corresponding Standards for Public ISDNs	67
Annex B (informative):	Bibliography	68
History.....		69

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST ETS 300 256 E1:2005](https://standards.iteh.ai/catalog/standards/sist/18f098b1-b273-4a65-b434-df7851f164f5/sist-ets-300-256-e1-2005)

<https://standards.iteh.ai/catalog/standards/sist/18f098b1-b273-4a65-b434-df7851f164f5/sist-ets-300-256-e1-2005>

Foreword

This European Telecommunication Standard (ETS) has been produced by the European Computer Manufacturers Association (ECMA) on behalf of its members and those of the European Telecommunications Standards Institute (ETSI).

This ETS is one of a series of standards defining services and signalling protocols applicable to Private Telecommunication Networks (PTNs). 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.

This particular ETS specifies the Call Forwarding Unconditional, Call Forwarding Busy, and Call Forwarding No Reply supplementary services.

The ETS 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 other international and national standardisation bodies. It represents a pragmatic and widely based consensus.

The services specified are compatible with the equivalent services specified by ETSI for public ISDNs. The ETSI specifications (listed in annex B) are to be found in ETS 300 199, ETS 300 200 and ETS 300 201 (stage 1), and ETS 300 203, ETS 300 204 and ETS 300 205 (stage 2). Annex A describes the relationship between this ETS and the corresponding ETSs for the public ISDN.

This ETS was produced by ECMA using the ECMA guidelines for the production of standards and using the ECMA stylesheet. In order to avoid undue delays in the voting process for this ETS it has been agreed that this ETS will not be converted to the ETSI stylesheet.

iteh STANDARD PREVIEW
(standards.iteh.ai)

[SIST ETS 300 256 E1:2005](https://standards.iteh.ai/catalog/standards/sist/18f098b1-b273-4a65-b434-df7851f164f5/sist-ets-300-256-e1-2005)

<https://standards.iteh.ai/catalog/standards/sist/18f098b1-b273-4a65-b434-df7851f164f5/sist-ets-300-256-e1-2005>

Blank page

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST ETS 300 256 E1:2005](https://standards.iteh.ai/catalog/standards/sist/18f098b1-b273-4a65-b434-df7851f164f5/sist-ets-300-256-e1-2005)

<https://standards.iteh.ai/catalog/standards/sist/18f098b1-b273-4a65-b434-df7851f164f5/sist-ets-300-256-e1-2005>

1 Scope

This European Telecommunication Standard (ETS) specifies the supplementary services Call Forwarding Unconditional (CFU), Call Forwarding Busy (CFB) and Call Forwarding No Reply (CFNR), which are applicable to various basic services supported by Private Telecommunication Networks (PTNs). Basic services are specified in ETS 300 171.

SS-CFU, SS-CFB and SS-CFNR are supplementary services which apply during call establishment providing a diversion of an incoming call to another destination.

Service specifications are produced in three stages, according to the method described in ENV 41005. This ETS contains the stage 1 and 2 specifications of the Call Forwarding supplementary services. The stage 1 specifications specify the supplementary services as seen by users of PTNs. The stage 2 specifications identify the functional entities involved in the supplementary services and the information flows between them.

2 Conformance

In order to conform to this ETS, a stage 3 standard shall specify signalling protocols and equipment behaviour that are capable of being used in a PTN which supports the supplementary services specified in this ETS. This means that, to claim conformance, a stage 3 standard is required to be adequate for the support of those aspects of the stage 1 and stage 2 clauses which are relevant to the interface or equipment to which the stage 3 standard applies.

The stage 1 and stage 2 clauses which a stage 3 standard for the Call Forwarding Unconditional supplementary service is required to support are clauses 6 and 9 respectively.

The stage 1 and stage 2 clauses which a stage 3 standard for the Call Forwarding Busy supplementary service is required to support are clauses 7 and 9 respectively.

The stage 1 and stage 2 clauses which a stage 3 standard for the Call Forwarding No Reply supplementary service is required to support are clauses 8 and 9 respectively.

3 References

This ETS incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to, or revisions of any of these publications apply to this ETS only when incorporated into it by amendment or revision. For undated references the latest edition of the publication referred to applies.

ENV 41005	Method for the specification of basic and supplementary services of private telecommunication networks (1989).
ENV 41007	Definition of terms in private telecommunication networks (1989).
ETS 300 171	Private Telecommunication Network (PTN); Specification, functional models and information flows, Control aspects of circuit mode basic services (1992).
ETS 300 173	Private Telecommunication Network (PTN); Specification, functional models and information flows Identification supplementary services (1992).
ETS 300 189	Private Telecommunication Network (PTN); Addressing (1992).
ETS 300 237	Private Telecommunication Network (PTN); Specification, functional models and information flows, Name identification supplementary services (1993).

CCITT Recommendation I.112	Vocabulary of terms for ISDNs (1988).
CCITT Recommendation I.210	Principles of telecommunication services supported by an ISDN and the means to describe them (1988).
CCITT Recommendation Z.100	Specification and description language (1988).

4 Definitions

For the purpose of this ETS the following definitions apply.

4.1 External definitions

This ETS uses the following terms defined in other documents:

- Basic Service	(CCITT Recommendation I.210);
- Connection	(CCITT Recommendation I.112);
- Integrated Services Digital Network	(CCITT Recommendation I.112);
- Private	(ENV 41007);
- Private Telecommunication Network Exchange	(ENV 41007);
- Public	(ENV 41007);
- Public ISDN	(ENV 41007);
- Service	(CCITT Recommendation I.112);
- Signalling	(CCITT Recommendation I.112);
- Supplementary Service	(CCITT Recommendation I.210);
- Telecommunication Network	(ENV 41007);
- Terminal, Terminal equipment	(ENV 41007);
- User	(ETS 300 171).

This ETS refers to the following basic call functional entities defined in ETS 300 171:

- Call Control;
- Call Control Agent; [SIST ETS 300 256 E1:2005](http://standards.iteh.ai/catalog/standards/sist/18f098b1-b273-4a65-b434-df7851f164f5/sist-ets-300-256-e1-2005)

This ETS refers to the following basic call inter-FE relationships defined in ETS 300 171:

- r1;
- r2;
- r3.

This ETS refers to the following basic call information flows defined in ETS 300 171:

- DISCONNECT request/indication;
- REPORT request/indication;
- RELEASE request/indication;
- SETUP request/indication;
- SETUP response/confirmation;
- SETUP REJECT request/indication.

4.2 Additional network feature

A capability over and above that of a basic service provided by a PTN, but not directly to a PTN user.

4.3 Busy

An ISDN destination is considered to be busy if either a "network determined user busy" or a "user determined user busy" condition exists.

4.4 Call, Basic call

An instance of the use of a basic service.

4.5 Connected number

The number of the user that answers (user C).

4.6 Diversion

The redirection of a call, on request of a called user and prior to answer, to a number different from the number of that called user.

4.7 Diverted-to number

The number to which a call is diverted.

4.8 Diverted-to subaddress

The subaddress to which a call is diverted.

4.9 Diverted-to user

The user to which a call is diverted.

4.10 Diverting cause

The parameter which contains the reason for the diversion, e.g. CFU, CFB, CFNR.

4.11 Diverting number

The number of the served user.

4.12 Forwarding

The type of diversion invoked automatically by the network in accordance with information previously registered in the network against the called number.

NOTE 1

Forwarding can occur as a result of the supplementary services specified in this ETS (CFU, CFB, CFNR). Diversions of types other than forwarding (e.g. Call Deflection, whereby the diversion is invoked by action of the called user) are outside the scope of this edition of this ETS.

4.13 Forward switching

Network routing algorithm which performs the diversion by joining together the first connection from user A's node to user B's node and a second, new connection from user B's node to user C's node.

4.14 Last diverting user

The served user from the point of view of the diverted-to user for a particular stage of call diversion. In the case of a call subject to a single stage of call diversion, user B is the last diverting user from the point of view of user C. In the case of a call subject to multiple stages of call diversion, user B1 is the last diverting user from the point of view of user B2, user B2 is the last diverting user from the point of view of user B3, etc. The served user for the final stage of call diversion is the last diverting user from the point of view of user C.

4.15 Original called number

The number of user B (in case of multiple call diversion user B1).

4.16 Original called user

The first served user of a call which is subject to one or more stages of call diversion, i.e. user B or user B1.

4.17 Partial re-routing

Network routing algorithm which performs the call diversion by replacing a particular part of the connection from user A's node (located in the public ISDN) to user B's node (located in a private ISDN) by another connection from user A's node to user C's node (located in the public ISDN). The new connection is established completely within the public ISDN by joining together the original connection from user A's node to the public ISDN gateway node and a second, new connection from the public ISDN gateway node to user C's node.

NOTE 2

Re-routing by a Transit PTNX is not considered as partial re-routing.

4.18 Presentation indicator

The indicator showing whether the diverted-to number should be presented to the calling user, as derived from user C's COLR supplementary service.

4.19 PTN number

A number belonging to a PTN numbering plan (CCITT Recommendation E.164 ISDN/Private/Implicit numbering plan) specified in ETS 300 189.

4.20 Re-routing

Network routing algorithm which performs the call diversion by replacing the connection from user A's node to user B's node by another connection, possibly using some of the elements of the old connection, from user A's node to user C's node.

4.21 Served user

The user of a particular PTN number who is requesting that calls to his number be diverted. This user may also be referred to as the diverting user or the called user.

4.22 User A

The calling user of a call which is subject to call diversion.

4.23 User B

The served (diverting) user of a call which is subject to call diversion.

4.24 User B1, user B2, user B3, etc.

Served (diverting) users of a call which is subject to multiple stages of diversion. B1 is the first served user, B2 is the second served user, B3 is the third served user, etc.

NOTE 3

B2 is also the diverted-to user with respect to the first stage of call diversion, B3 is also the diverted-to user with respect to the second stage of call diversion, etc.

4.25 User C

The diverted-to user with respect to the final stage of call diversion.

5 List of acronyms

ANF	Additional Network Feature
CC	Call Control (functional entity)
CCA	Call Control Agent (functional entity)
CLIP	Calling Line Identification Presentation
CLIR	Calling/Connected Line Identification Restriction
CNIP	Calling Name Identification Presentation
CNIR	Calling/Connected Name Identification Restriction
COLP	Connected Line Identification Presentation
CONP	Connected Name Identification Presentation
DTN	Diverted-to Number
FE	Functional Entity
ISDN	Integrated Services Digital Network
MSN	Multiple Subscriber Number
NDUB	Network Determined User Busy
NSO	Notification Subscription Option
PTN	Private Telecommunication Network
PTNX	Private Telecommunication Network Exchange
SDL	Specification and Description Language
SS-CF, CF	Call Forwarding supplementary services
SS-CFB, CFB	Call Forwarding Busy supplementary service
SS-CFNR, CFNR	Call Forwarding No Reply supplementary service
SS-CFU, CFU	Call Forwarding Unconditional supplementary service
TE	Terminal Equipment
UDUB	User Determined User Busy

iTeh STANDARD PREVIEW
(standards.iteh.ai)

6 SS-CFU stage 1 description**6.1 Description**

[SIST ETS 300 256 E1:2005](https://standards.iteh.ai/catalog/standards/sist/18f098b1-b273-4a65-b434-df7851f164f5/sist-ets-300-256-e1-2005)

6.1.1 General description

SS-CFU enables a served user to have the PTN redirect to another user calls which are addressed to the served user's PTN number. SS-CFU may operate on all calls, or just those associated with specified basic services. The served user's ability to originate calls is unaffected by SS-CFU. After SS-CFU has been activated, calls are forwarded independently of the status of the served user.

CFU is provided on a per PTN number basis.

The maximum number of diversions to a single call is an implementation option. When counting the number of diversions, all types of diversions shall be included.

6.1.2 Qualifications on applicability to telecommunication services

This supplementary service is applicable to all basic services defined in ETS 300 171.