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8 [[]HJbc`ca fYy`Y`n`]bhY[f]fUb]a]`g]c]f]h] Ua]`f]G8 BŁ!`8 cdc`b]`bY`g]c]f]h] Y.`dfYdcj YX] cX\ cXb] \ `]Wj `fC7 6Ł!`Df]c]c`c`X]]]HJbY`bU]c b]ý_Y`g]] bU]nUW]Y`ýH`r`%fB GG°Ł!`%` XY.`GdYW]Z_UW]Udf]c]c`c`U

Integrated Services Digital Network (ISDN); Outgoing Call Barring (OCB) supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification

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European Standard (Telecommunications series)

**Integrated Services Digital Network (ISDN);
Outgoing Call Barring (OCB) supplementary services;
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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Signalling Protocols and Switching (SPS).

The present document is part 1 of a multi-part standard covering the Digital Subscriber Signalling System No. one (DSS1) protocol specification for the Integrated Services Digital Network (ISDN) Outgoing Call Barring (OCB) supplementary services, as described below:

Part 1: "Protocol specification";

Part 2: "Protocol Implementation Conformance Statement (PICS) proforma specification";

Part 3: "Test Suite Structure and Test Purposes (TSS&TP) specification for the user";

Part 4: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the user";

Part 5: "Test Suite Structure & Test Purposes (TSS&TP) specification for the network";

Part 6: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the network".

In accordance with CCITT Recommendation I.130 [11], the following three level structure is used to describe the supplementary telecommunication services as provided by European public telecommunications operators under the pan-European ISDN:

- Stage 1: is an overall service description, from the user's standpoint;
- Stage 2: identifies the functional capabilities and information flows needed to support the service described in stage 1; and
- Stage 3: defines the signalling system protocols and switching functions needed to implement the service described in stage 1.

The present document details the stage 3 aspects (signalling system protocols and switching functions) needed to support the OCB supplementary services. The stage 1 aspects are detailed in EN 301 082 [7] and EN 301 084 [8]. The stage 2 aspects of the OCB supplementary services have not been specified.

National transposition dates	
Date of adoption of this EN:	7 August 1998
Date of latest announcement of this EN (doa):	30 November 1998
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 May 1998
Date of withdrawal of any conflicting National Standard (dow):	31 May 1998

1 Scope

This first part of EN 301 001 specifies the stage three of the OCB supplementary services for the pan-European Integrated Services Digital Network (ISDN) as provided by the European public telecommunications operators at the T reference point or coincident S and T reference point (as defined in ITU-T Recommendation I.411 [9]) by means of the Digital Subscriber Signalling System No. one (DSS1) protocol. Stage three identifies the protocol procedures and switching functions needed to support a telecommunication service (see CCITT Recommendation I.130 [11]).

In addition, the present document specifies the protocol requirements at the T reference point where the service is provided to the user via an intermediate private ISDN.

The present document does not specify the additional protocol requirements where the service is provided to the user via a telecommunications network that is not an ISDN.

The outgoing call barring supplementary services comprise the following services:

- Outgoing Call Barring-Fixed (OCB-F) supplementary service;
- Outgoing Call Barring-User Controlled (OCB-UC) supplementary service.

The OCB-F supplementary service enables a served user to have the network reject calls belonging to certain types, when they are originated by the served user. The served user's ability to receive calls is unaffected by the OCB-F supplementary service. The OCB-F supplementary service may operate on all calls belonging to certain types, or just on those calls associated with specified basic services. The OCB-F supplementary service operates according to the requirements specified by the served user on provision and cannot be activated or deactivated under the control of the served user.

The OCB-UC supplementary service enables a served user to have the network reject calls belonging to certain types, when they are originated by the served user. The served user's ability to receive calls is unaffected by the OCB-UC supplementary service. The OCB-UC supplementary service may operate on all calls belonging to certain types, or just on those calls associated with specified basic services. The served user can select the barring program(s), activate and later deactivate them.

The OCB supplementary services are applicable to all circuit-switched telecommunications services.

Further parts of the present document specify the method of testing required to identify conformance to the present document.

The present document is applicable to equipment supporting at least one of the OCB supplementary services, to be attached at either side of a T reference point or coincident S and T reference point when used as an access to the public ISDN.

2 References

References may be made to:

- a) specific versions of publications (identified by date of publication, edition number, version number, etc.), in which case, subsequent revisions to the referenced document do not apply; or
- b) all versions up to and including the identified version (identified by "up to and including" before the version identity); or
- c) all versions subsequent to and including the identified version (identified by "onwards" following the version identity); or
- d) publications without mention of a specific version, in which case the latest version applies.

A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

2.1 Normative references

- [1] CCITT Recommendation X.208 (1988): "Specification of Abstract Syntax Notation One (ASN.1)".
- [2] CCITT Recommendation X.219 (1988): "Remote operations: Model, notation and service definition".
- [3] EN 300 195-1: "Integrated Services Digital Network (ISDN); Supplementary service interactions; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [4] EN 300 196-1: "Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
<https://standards.iteh.ai/catalog/standards/sist/2b2753e5-6d2b-498b-a7b5-d6157277f781/sist-en-301-001-1-2000>
- [5] EN 300 403-1: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 1: Protocol specification [ITU-T Recommendation Q.931, modified]".
- [6] EN 301 002-1 (V1.1): "Integrated Services Digital Network (ISDN); Security tools procedures; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [7] EN 301 082: "Network Aspects (NA); Integrated Services Digital Network (ISDN); Outgoing Call Barring-Fixed (OCB-F) supplementary service; Service description".
- [8] EN 301 084: "Network Aspects (NA); Integrated Services Digital Network (ISDN); Outgoing Call Barring-User Controlled (OCB-UC) supplementary service; Service description".
- [9] ITU-T Recommendation I.411 (1993): "ISDN user-network interfaces - reference configurations".
- [10] ITU-T Recommendation Z.100 (1993): "CCITT specification and description language (SDL)".

2.2 Informative references

- [11] CCITT Recommendation I.130 (1988): "Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN".
- [12] ETR 232 (1995): "Security Techniques Advisory Group (STAG); Glossary of security terminology".
- [13] ITU-T Recommendation E.164 (1997): "The international public telecommunication numbering plan".
- [14] ITU-T Recommendation I.112 (1993): "Vocabulary of terms for ISDNs".

- [15] ITU-T Recommendation I.210 (1993): "Principles of telecommunication services supported by an ISDN and the means to describe them".

3 Definitions and abbreviations

3.1 Definitions

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

all services: If for the control of the OCB-UC supplementary service the parameter basicService is set to "allServices" then all basic services are affected that the served user is subscribed to, and for which the OCB-UC supplementary service applies and is subscribed to, at the point in time that the request is received in the network.

barring program: See EN 301 082 [7] or EN 301 084 [8].

basic service: A bearer service or teleservice. In the present document, refers only to circuit-switched basic services.

Bearer Capability (BC): The type of transmission media provided by the network, and thus the type of the overall connection, and also the set of lower layer protocols required on the connection.

bearer service: See ITU-T Recommendation I.112 [14], definition 202.

call reference: See EN 300 196-1 [4], subclause 3.1.

default ISDN number: An agreed ISDN number between the user, at the calling side, and the network provider.

disabling: See EN 301 084 [8], clause 3.

High layer compatibility (HLC): The set of higher layer protocols required for the call; this information may also be used to define the basic service as a particular teleservice.

Integrated Services Digital Network (ISDN): See ITU-T Recommendation I.112 [14], definition 308.

ISDN number: A number conforming to the numbering plan and structure specified in ITU-T Recommendation E.164 [13].

invoke component: See EN 300 196-1 [4], subclause 8.2.2.1. Where reference is made to an "xxxx" invoke component, an invoke component is meant with its operation value set to the value of the operation "xxxx".

network: The Digital Subscriber Signalling System No. one (DSS1) protocol entity at the network side of the user-network interface.

Personal Identification Number (PIN): See ETR 232 [12].

point-to-point terminal configuration: A terminal configuration in which there is one user signalling entity.

reject component: See EN 300 196-1 [4], subclause 8.2.2.4.

return error component: See EN 300 196-1 [4], subclause 8.2.2.3. Where reference is made to a "xxxx" return error component, a return error component is meant which is related to a "xxxx" invoke component.

return result component: See EN 300 196-1 [4], subclause 8.2.2.2. Where reference is made to a "xxxx" return result component, a return result component is meant which is related to a "xxxx" invoke component.

served user: The user who subscribes to, activates, deactivates or interrogates an OCB supplementary service.

service; telecommunication service: See ITU-T Recommendation I.112 [14], definition 201.

supplementary service: See ITU-T Recommendation I.210 [15], subclause 2.4.

teleservice: See ITU-T Recommendation I.112 [14], definition 203.

user: The DSS1 protocol entity at the user side of the user-network interface.

3.2 Abbreviations

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

ASN.1	Abstract Syntax Notation one
BC	Bearer Capability
DSS1	Digital Subscriber Signalling System No. one
HLC	High Layer compatibility
ISDN	Integrated Services Digital Network
MSN	Multiple Subscriber Number
OCB	Outgoing Call Barring
OCB-F	Outgoing Call Barring-Fixed
OCB-UC	Outgoing Call Barring-User Controlled
PIN	Personal Identification Number
SDL	Specification and Description Language

4 Description

The OCB supplementary services shall be available to users who are connected to the network via the basic access or the primary rate access.

Outgoing calls from the served user's termination shall be barred according to the barring program(s) which is (are) active for the served user's access or Integrated Services Digital Network (ISDN) number, and for the basic service associated with the call.

The network provider shall define the number of barring programs and shall define the contents of each barring program (i.e. types of call) available for, and to be shared by the OCB supplementary services. The maximum number of barring programs is a network option within the range of 1 to 256. A barring program can contain one type of call, or a combination of different types of call to be barred. The defined barring programs are available to all the served users of the OCB supplementary service.

Unauthorized control of the OCB-UC supplementary service by the served user is protected by the use of a Personal Identification Number (PIN).

5 Operational requirements

5.1 Provision and withdrawal

Each OCB supplementary service shall be provided after prior arrangement with the network provider. Provision of the OCB-UC supplementary service shall include the provision of a PIN.

Each OCB supplementary service can be withdrawn separately by the network provider at the subscriber's request, or for network provider reasons.

The OCB-F and OCB-UC supplementary services can be provided for all basic services subscribed to by the user, or as a network option, the user can identify particular basic services for which the supplementary service shall be provided.

As a network option, the OCB-F and OCB-UC supplementary services can be provided on a per ISDN number basis, or can be provided to the whole access. The network provider offers both provision options, it shall be a subscription option to choose which of these options applies.

When the OCB-UC supplementary service is provided on a per ISDN number basis, and more than one ISDN number is allocated to the served user's access, then, as a network option, the served user may be given the capability to indicate whether activation or deactivation applies to an indicated number or to all ISDN numbers on the access. This capability is to be provided by means of a subscription option.

As a network option, the served users of the OCB-UC and OCB-F supplementary services shall be able to have more than one barring program for a given basic service and ISDN number active simultaneously.

As a network option, the served users of the OCB-UC supplementary service shall be able, by using the disabling procedure, to indicate per call that for this call the network shall disregard any activated barring program.

The subscription options are summarized in table 1.

Table 1: Subscription options for the OCB supplementary services

Subscription option	Value	Applicability
OCB provision on access/number basis (note 1)	on access basis on ISDN number basis	OCB-UC and OCB-F
Activation, deactivation and interrogation for all ISDN numbers on the same access (in case of provision on a per ISDN number basis) (note 2)	No Yes	OCB-UC
NOTE 1: This option applies only if the value for the network option "OCB provision with relation to served user numbers" is "both".		
NOTE 2: This option applies to all the instances of the supplementary service, subscribed to on the access of the served user.		

The network options are summarized in table 2.

Table 2: Network options for the OCB supplementary services

Network option	Value	Applicability
Disabling procedure allowed	No Yes	OCB-UC
Maximum number of barring programs	1 to 256	OCB-UC and OCB-F
OCB provision with relation to basic services	for all subscribed basic services for particular basic service(s)	OCB-UC and OCB-F
OCB provision with relation to served user numbers	on access basis on ISDN number basis both	OCB-UC and OCB-F
Multiple active barring programmes allowed	Yes No	OCB-UC and OCB-F

5.2 Requirements on the originating network side

The procedures at the coincident S and T reference point in EN 300 403-1 [5], subclause 5.1 and the procedures of clause 8 in the present document shall apply.

5.3 Requirements on the destination network side

Not applicable.

6 Coding requirements

6.1 Coding of the Facility information element components

Table 3 shows the definitions of the operations and errors required for the OCB-UC supplementary service using Abstract Syntax Notation one (ASN.1) as specified in CCITT Recommendation X.208 [1] and using the OPERATION and ERROR macro as defined in figure 4 of CCITT Recommendation X.219 [2].

The formal definition of the component types to encode these operations and errors is provided in clause D.1 of EN 300 196-1 [4].

The inclusion of components in Facility information elements is defined in subclause 11.2.2.1 of EN 300 196-1 [4].

All components (invoke, return result, return error and reject) shall be included within a Facility information element. This Facility information element may be included in any appropriate message as specified in subclause 11.2.2.1 of EN 300 196-1 [4], unless a more restrictive specification is given in clause 9.

Table 3: Definition of operations and errors for the OCB supplementary services

```

Outgoing-Call-Barring-Operations-and-Errors {ccitt identified-organization etsi(0) 1001
                                             operations-and-errors(1)}

DEFINITIONS EXPLICIT TAGS ::=
BEGIN
EXPORTS
  ActivationOcb,
  ActivationStatusNotificationOcb,
  DeactivationOcb,
  DeactivationStatusNotificationOcb,
  InterrogationOcb,
  DisableOcb,
  OcbInvoked,
  InvalidBarringProgram,
  NoBarringProgram
;

IMPORTS
  OPERATION, ERROR
  FROM Remote-Operation-Notation
      {joint-iso-ccitt remote-operations(4) notation(0)}

  PartyNumber
  FROM Addressing-Data-Elements
      {ccitt identified-organization etsi(0) 196 addressing-data-elements(6)}

  BasicService
  FROM Basic-Service-Elements
      {ccitt identified-organization etsi(0) 196 basic-service-elements(8)}

  notSubscribed, notAvailable, basicServiceNotProvided, invalidServedUserNr,
  resourceUnavailable, notImplemented, supplementaryServiceInteractionNotAllowed
  FROM General-Errors
      {ccitt identified-organization etsi(0) 196 general-errors(2)}

  NotActivated
  FROM Diversion-Operations
      {ccitt identified-organization etsi(0) 207 operations-and errors(1)}

  Pin, invalidPin, userControlBlocked, changeOfPinRequired
  FROM Pin-Set-Operations-and-Errors
      {ccitt identified-organization etsi(0) 1002 operations-and-errors(1)}
;

```

(continued)