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Digitalno omrežje z integriranimi storitvami (ISDN) – Dopolnilna storitev: iskanje voda v skupini (LH) – Opis storitve

Integrated Services Digital Network (ISDN); Line Hunting (LH) supplementary service; Service description

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN).

In accordance with CCITT Recommendation I.130 [1], the following three level structure is used to describe the supplementary telecommunications services as provided by European public telecommunications operators under the pan-European Integrated Services Digital Network (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 1 aspects (overall service description) for the Line Hunting (LH) supplementary service. Stage 2 will be specified later in the ETS 300 356 [8] series. Stage 3 aspects are detailed in EN 301 484-1 [7].

National transposition dates

| | |
|--|------------------|
| Date of adoption of this EN: | 25 August 2000 |
| Date of latest announcement of this EN (doa): | 30 November 2000 |
| Date of latest publication of new National Standard or endorsement of this EN (dop/e): | 31 May 2001 |
| Date of withdrawal of any conflicting National Standard (dow): | 31 May 2001 |

1 Scope

The present document defines the stage one of the Line Hunting (LH) supplementary service for the pan-European Integrated Services Digital Network (ISDN) as provided by European public telecommunications operators. Stage one is an overall service description from the user's point of view (see CCITT Recommendation I.130 [1]), but does not deal with the details of the human interface itself.

The present document defines the interworking requirements of private ISDNs with the public ISDN.

In addition the present document specifies the base functionality where the service is provided to the user by a private ISDN.

The present document does not specify the additional requirements where the service is provided to the user via a telecommunications network that is not an ISDN but does include interworking requirements of other networks with the public ISDN.

Interactions with (supplementary) services not listed in clauses 8 and 9 are outside the scope of the present document.

Charging principles are outside the scope of the present document.

The LH supplementary service enables calls to a single ISDN number to be offered to a free access in a group of accesses to which terminals are connected to an end-user's multiple access group (S/T reference point).

The principles for the selection of a free channel within an access are a network provider matter as part of the basic call procedures and so are outside the scope of the present document.

The LH supplementary service is applicable to all circuit-switched telecommunications services with the exception of services requiring the use of more than one B-channel.

The present document is applicable to the stage two and stage three standards for the ISDN LH supplementary service. The terms "stage two" and "stage three" are also defined in CCITT Recommendation I.130 [1]. Where the text indicates the status of a requirement, (i.e. as strict command or prohibition, as authorization leaving freedom, as a capability or possibility), this shall be reflected in the text of the relevant stage two and stage three standards.

Furthermore, conformance to the present document is met by conforming to the stage three standards with the field of application appropriate to the equipment being implemented. Therefore no method of testing is provided for the present document.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, 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.

- [1] CCITT Recommendation I.130 (1988): "Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN".
- [2] ITU-T Recommendation I.112 (1993): "Vocabulary of terms for ISDNs".
- [3] ITU-T Recommendation I.210 (1993): "Principles of telecommunication services supported by an ISDN and the means to describe them".

- [4] ITU-T Recommendation E.164 (1997): "The international public telecommunication numbering plan".
- [5] ITU-T Recommendation I.221 (1993): "Common specific characteristics of services".
- [6] ETSI EN 300 089: "Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service; Service description".
- [7] ETSI EN 301 484-1: "Integrated Services Digital Network (ISDN); Line Hunting (LH) supplementary service; Digital Subscriber Signalling System No. one (DSS1); Part 1: Protocol specification".
- [8] ETSI ETS 300 356: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 2 for the international interface".

3 Definitions

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

access: general term, used in the present document, denoting basic accesses and as a network provider option, primary rate accesses

access identity: means of identifying an individual access belonging to a hunt group; the access identity consists of the hunt group number plus a sequence number identifying the individual access within the hunt group

Integrated Services Digital Network (ISDN): see ITU-T Recommendation I.112 [2], subclause 2.3, definition 308

service; telecommunications service: see ITU-T Recommendation I.112 [2], subclause 2.2, definition 201

supplementary service: see ITU-T Recommendation I.210 [3], subclause 2.4

ISDN number: number conforming to the numbering plan and structure specified in ITU-T Recommendation E.164 [4]

basic access: see ITU-T Recommendation I.112 [2], subclause 2.4, definition 425

primary rate access: see ITU-T Recommendation I.112 [2], subclause 2.4, definition 426

free access: access to which the call can be offered without exceeding the number of used B-channels specified for this access

hunt group: number of accesses over which the LH supplementary service applies for the assigned ISDN number. A hunt group may consist of a single access

hunt group number: ISDN number, to which the LH supplementary service is allocated and to which ISDN basic services and supplementary services relating to the hunt group are allocated.

hunt group withdrawal: request by an access of the hunt group in order to temporarily prevent this access from receiving calls to the hunt group (existing calls are not affected)

individual number: (in the context of the present document) ISDN number which is not a hunt group number, but which can be associated with an access that belongs to a hunt group in order to identify one or more terminals connected to the access

served user: user to whom the LH supplementary service is provided

basic call procedures: procedures by which a call (as an instance of a basic telecommunications service) is established and terminated

network determined user busy: see ITU-T Recommendation I.221 [5], subclause 2.1.4

user determined user busy: see ITU-T Recommendation I.221 [5], subclause 2.1.4

sequential hunting: selection of a free access always starts with the same access and then follows a fixed order until all accesses in the hunt group have been searched or a free access is found

cyclic hunting: selection of a free access always starts at the next access after the one used last, and follows a fixed order. When the last access in the group is reached, the search continues from the beginning of the group until all accesses in the group have been searched

default number: defined for the CLIP service in EN 300 089 [6]

In order to provide consistency from a customer perspective the same default number may be associated with all the accesses that go to a user installation. In this situation the default number is a Hunt Group Number and the Hunt Group it relates to contains all the accesses that go to a user installation.

end-user: user who is connected at the S/T-reference point

S/T-reference point: see ITU-T Recommendation I.221 [5]

4 Abbreviations

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

| | |
|------|-------------------------------------|
| BA | Basic Access |
| ISDN | Integrated Services Digital Network |
| LH | Line Hunting |
| PRA | Primary Rate Access |

5 Description

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The LH supplementary service is intended for use on accesses at the S/T-reference point.

The LH supplementary service shall be available to users who are connected to the network via:

- a basic access and/or as a network operator option a PRA.

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The LH supplementary service enables calls to an ISDN number (i.e. the hunt group number) to be offered to a free access in a hunt group. The hunt group can comprise basic accesses, primary rate accesses, or a mixture of these types of accesses.

The LH supplementary service applies to accesses within a hunt group that are connected to the same exchange. As a network operator option the LH supplementary service can be used to create a multi-nodal service that allows line hunting across accesses on multiple exchanges. The specification of the multi-nodal service is outside the scope of the present document, however annex A considers some of the implications of this service.

NOTE 1: The individual accesses that are members of the hunt group can also have individual numbers (e.g., with the multiple subscriber number supplementary service) allocated.

NOTE 2: For some networks, calls made to an individual number (see note 1) may be offered on the corresponding access without being subject to hunting procedures (channel hunting may be performed within the access itself).

It is the user's responsibility to ensure compatibility of the equipment connected to an access in a hunt group.

The served user can determine at subscription for each access how many B-channels shall be available for the hunt group. A call to the hunt group can only be presented to an access, if the number of used B-channels specified for an access will not be exceeded (independent of the required telecommunications service).

NOTE 3: In order to minimize the user determined user busy condition after the call has been presented to an access, the user should only allocate as many B-channels for each access of the hunt group, as compatible terminals are connected to that access. An access may only be a member of one hunt group.

The method of selecting an access shall be either sequential or cyclic hunting.

An access in a hunt group can activate "hunt group withdrawal" to be temporarily prevented from receiving calls to the hunt group, if this option is subscribed to.

As a subscription option the served user can receive an indication that the served user's access is currently withdrawn from the hunt group. This indication shall be provided when the served user originates a call on the access, which is withdrawn from the hunt group.

Services can be subscribed to on the hunt group identified by the hunt group number. Some supplementary services on the hunt group number which need special authorization can only be activated and deactivated from an access which is a member of the hunt group and on which the option "activation allowance" is subscribed to. These supplementary services are listed in clause 8.

NOTE 4: Services can also be subscribed to on an individual access defined by its individual number (e.g., with the multiple subscriber number supplementary service).

6 Procedures

6.1 Provision and withdrawal

The LH supplementary service shall be provided after prior arrangement with the service provider. To establish the hunt group, a list of the accesses shall be provided to identify the members of the hunt group. It shall be possible to allocate more access interfaces to a multiple access group when the LH supplementary service is already activated.

As a service provider option, the LH supplementary service can be offered with a number of subscription options. The subscription option applying to the whole hunt group is shown in table 1. The subscription options applying to each access in a hunt group are summarized in table 2.

Table 1: Subscription option applying for the whole hunt group

| Subscription Option | Values |
|---------------------|--|
| Selection Method | - sequential hunting - cyclic hunting |

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If the LH supplementary service is provided without the subscription option "selection method", the service provider shall determine the selection method.

Table 2: Subscription options applying to each access in a hunt group

| Subscription option | Values |
|---|---|
| Number of B-channels available for the hunt group | value 1 or 2 for BA and 1 to 30 for PRA |
| Activation allowance (for supplementary services related to the hunt group) | - yes - no |
| Hunt group withdrawal | - available - not available |
| User receives notification, that his access is currently withdrawn from one or more hunt groups | - yes - no |

If the service provider does not offer the subscription option "number of B-channels available for the hunt group", then all B-channels of the access shall be available for the hunt group.

If the service provider does not offer the subscription option "activation allowance", then the supplementary services subscribed for the whole hunt group can be activated and deactivated from all accesses which are member of the hunt group.

If the service provider does not offer the subscription option "hunt group withdrawal", then the accesses can not be withdrawn from the hunt group.

If the service provider does not offer the subscription option "user receives notification, that his access is currently withdrawn from one or more hunt groups", then the user will receive no notification if his access is withdrawn from a hunt group.

The LH supplementary service shall be withdrawn by the service provider upon request of the subscriber or for service provider reasons.