



EUROPEAN
TELECOMMUNICATION
STANDARD

ETS 300 050

October 1991

Source: ETSI TC-NA

Reference: T/NA1(89)20

ICS: 33.080

Key words: ISDN, supplementary service

**Integrated Services Digital Network (ISDN);
Multiple Subscriber Number (MSN) supplementary service
Service description**

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 1991. All rights reserved.

Contents

Foreword	5
1 Scope	7
2 Normative references	8
3 Definitions	8
4 Symbols and abbreviations	8
5 Description	9
6 Procedures	9
6.1 Provision and withdrawal	9
6.2 Normal procedures	9
6.2.1 Activation, deactivation and registration	9
6.2.2 Erasure	9
6.2.3 Invocation and operation	9
6.2.4 Interrogation	10
6.3 Exceptional procedures	10
6.3.1 Activation, deactivation and registration	10
6.3.2 Erasure	10
6.3.3 Invocation and operation	10
6.3.4 Interrogation	10
7 Intercommunication considerations	10
7.1 Interworking with non-ISDNs	10
7.2 Interworking with private ISDNs	10
8 Interaction with other supplementary services	11
8.1 Advice of charge services	11
8.1.1 Charging information at call set-up time	11
8.1.2 Charging information during the call	11
8.1.3 Charging information at the end of the call	11
8.2 Call waiting	11
8.3 Call hold	11
8.4 Call transfer	11
8.4.1 Explicit call transfer	11
8.4.2 Single step call transfer	11
8.5 Number identification services	11
8.5.1 Calling line identification presentation	11
8.5.2 Calling line identification restriction	12
8.5.3 Connected line identification presentation	12
8.6 Closed user group	12
8.7 Completion of calls to busy subscriber	12
8.8 Conference services	12
8.8.1 Conference call, add-on	12
8.8.2 Meet me conference	12
8.9 Direct dialling in	12
8.10 Diversion services	13
8.10.1 Call forwarding unconditional	13
8.10.2 Call forwarding busy	13
8.10.3 Call forwarding no reply	13
8.10.4 Call deflection	13
8.11 Freephone	13
8.12 Malicious call identification	13

8.13	Multiple subscriber number	13
8.14	Subaddressing	13
8.15	Terminal portability	14
8.16	Three party	14
8.17	User-user signalling.....	14
Annex A (informative):	Terminal interchangeability between public and private ISDNs.....	15
Annex B (informative):	Bibliography	16
History		17

Foreword

This European Telecommunication Standard (ETS) has been produced by the Network Aspects (NA) Technical Committee of the European Telecommunications Standards Institute (ETSI).

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.

This ETS details the stage 1 aspects (overall service description) for the Multiple Subscriber Number (MSN) supplementary service. The stage 2 and stage 3 aspects are detailed in ETS 300 051 (1991) and ETS 300 052 (1991), respectively.

Blank page

1 Scope

This standard defines the stage one of the Multiple Subscriber Number (MSN) 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.

This standard defines the interworking requirements of private ISDNs with the public ISDN.

In addition this standard specifies the base functionality where the service is provided to the user via a private ISDN.

This standard 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 Clause 8 are outside the scope of this standard.

Charging principles are outside the scope of this standard.

The Multiple Subscriber Number (MSN) supplementary service provides the possibility for assigning multiple numbers to a single public or private access.

NOTE: This allows e.g.:

- 1) a calling user to select, via the public network, one or multiple distinct terminals out of a multiple choice;
- 2) to identify the terminal to the network for the application of other supplementary services.

It is considered:

- that in the case of a basic access some service providers may not have knowledge or control over what is connected, e.g. a private ISDN or a terminal configuration;
- that service providers have differing numbering methods.

The MSN supplementary service is applicable to all telecommunication services.

This standard is applicable to the stage two and stage three standards for the ISDN MSN 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 authorisation 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 this standard 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 this standard.

2 Normative references

This standard 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 standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] CCITT Recommendation I.130 (1988): "Method for the characterisation of telecommunication services supported by an ISDN and network capabilities of an ISDN".
- [2] CCITT Recommendation I.112 (1988): "Vocabulary of terms for ISDNs".
- [3] CCITT Recommendation E.164 (1988): "Numbering plan for the ISDN era".
- [4] ETS 300 089 (1991): "Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service; service description".
- [5] CCITT Recommendation I.210 (1988): "Principles of telecommunication services supported by an ISDN and the means to describe them".
- [6] CCITT Recommendation Q.9 (1988): "Vocabulary of switching and signalling terms".

3 Definitions

For the purposes of this standard, the following definitions apply:

Integrated Services Digital Network (ISDN): See CCITT Recommendation I.112 [2], § 2.3, definition 308.

service; telecommunication service: See CCITT Recommendation I.112 [2], § 2.2, definition 201.

supplementary service: See CCITT Recommendation I.210 [5], § 2.4.

ISDN number: A number conforming to the numbering plan and structure specified in CCITT Recommendation E.164 [3].

Basic Call (procedure): The procedures by which a call (as an instance of a basic telecommunication service) is established and terminated.

multiple subscriber number: A number used to identify one or more terminals connected to an access. This number comprises either the whole ISDN number or part of the ISDN number - i.e. the least significant digit(s).

basic access: See CCITT Recommendation Q.9 [6], § 1, definition 1551.

primary rate access: See CCITT Recommendation Q.9 [6] § 1 definition 1552.

4 Symbols and abbreviations

ISDN	Integrated Services Digital Network
MSN	Multiple Subscriber Number

5 Description

The MSN supplementary service shall apply to the basic access and the primary rate access.

The MSN supplementary service provides the possibility for assigning multiple numbers (not necessarily consecutive) to a single public or private access. This enables the selection of one or multiple distinct terminals attached to the same access.

The service provider shall fix the length of the numbers to be transmitted to the user's installation. They may comprise the least significant digit up to the full ISDN number (see CCITT Recommendation E.164 [3]).

The digit(s) significant for terminal differentiation shall be an integral part of the ISDN numbering scheme.

NOTE 1: Within a private ISDN, multiple subscriber number digits may be different from the digits of the public ISDN number. This additional possibility, if provided, has no impact on the public ISDN.

NOTE 2: More than one multiple subscriber number may be assigned to one terminal.

NOTE 3: The actual method of relating the ISDN number to a particular terminal is outside the scope of this standard.

6 Procedures

6.1 Provision and withdrawal

The MSN supplementary service shall be provided or withdrawn after prior arrangement with the service provider.

The service provider shall allocate a set of ISDN numbers (not necessarily consecutive), to the user interface.

The maximum number of MSNs per access shall be a network option.

NOTE : The user can allocate one ISDN number to one or more terminals. Similarly, one terminal may allow the assignment of one or more than one ISDN numbers. Further, for administrative reasons, a specific digit or sequence of digits may be allocated to enable all terminals in a point-to-multipoint configuration, to react in the same way as if the MSN supplementary service is not subscribed to.

6.2 Normal procedures

6.2.1 Activation, deactivation and registration

Not applicable.

6.2.2 Erasure

Not applicable.

6.2.3 Invocation and operation

Call initiation procedure shall be the same as for basic services. The calling and called user shall perceive the same completion procedures as for the basic service.

The number identifying the called user sent by the calling user shall be analysed by the network of the called user. If the called user subscribes to the MSN supplementary service, the network shall send all or part of the ISDN number. If part of the ISDN number is sent, it shall be the least significant part of the ISDN number: i.e. if one digit is sent, it shall be the last digit of the ISDN number; if n digits are sent, this will be the last n digits of the ISDN number.

In outgoing calls a terminal compatible to the MSN supplementary service can insert a multiple subscriber number in the originating address information of the call request in order to identify itself to the network (see also the calling line identification presentation supplementary service) [4].

6.2.4 Interrogation

Not applicable.

6.3 Exceptional procedures

6.3.1 Activation, deactivation and registration

Not applicable.

6.3.2 Erasure

Not applicable.

6.3.3 Invocation and operation

If the called user is busy or does not answer, the procedures for basic call shall apply.

Terminals not compatible with the MSN supplementary service and receiving a call request containing multiple subscriber number digit(s), shall interpret it as a basic call.

NOTE: If different kinds of terminals are attached to the same interface, e.g. in passive bus configurations, it cannot be guaranteed that the MSN supplementary service will be processed correctly. In particular cases where terminals supporting the MSN supplementary service and terminals which do not are attached to the same interface, those terminals which do not support the MSN supplementary service will react to every incoming call, based only on the check of the requested service indicated. On such an access, the MSN supplementary service may be overridden by the basic call procedures.

6.3.4 Interrogation

Not applicable.

7 Intercommunication considerations

7.1 Interworking with non-ISDNs

As for basic call.

7.2 Interworking with private ISDNs

As for basic call.

In some networks, the MSN supplementary service can apply at an access to a private ISDN (e.g. if the public network does not know what equipment is connected to the access).

8 Interaction with other supplementary services

In case of interaction with other supplementary services, these services may, as a network option, be applicable to the individual multiple subscriber number rather than to the subscriber access.

8.1 Advice of charge services

8.1.1 Charging information at call set-up time

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

8.1.2 Charging information during the call

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

8.1.3 Charging information at the end of the call

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

8.2 Call waiting

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

8.3 Call hold

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

8.4 Call transfer

8.4.1 Explicit call transfer

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

8.4.2 Single step call transfer

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

8.5 Number identification services

8.5.1 Calling line identification presentation

If the MSN supplementary service is applicable to the public network access interface of the calling party, then this party can provide the appropriate calling party multiple subscriber number digits or full ISDN number on outgoing call requests. If no special arrangement has been made with the calling subscriber, then the network shall check the user provided calling party number information for validity on the corresponding access. If the check fails or if no calling number information is provided by the user, then the network shall apply the default ISDN number of the calling party's access (see ETS 300 089 [4]).

If the MSN supplementary service is applicable to the public network access interface of the called party, then neither supplementary service shall affect the operation of the other supplementary service.

8.5.2 Calling line identification restriction

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

8.5.3 Connected line identification presentation

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

8.5.4 Connected line identification restriction

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

8.6 Closed user group

Different closed user groups can be assigned to each multiple subscriber number. The network cannot guarantee that a given closed user group matches beyond the access towards the user. As the closed user group assignment to the multiple subscriber numbers is the full responsibility of the user, this may lead to restricted applicability of a combination of the closed user group and MSN supplementary services.

8.7 Completion of calls to busy subscriber

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

8.8 Conference services

8.8.1 Conference call, add-on

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

8.8.2 Meet me conference

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

8.9 Direct dialling in

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

NOTE 1: Subscription to the direct dialling in and the MSN supplementary service is mutually exclusive. However in some networks, both supplementary services could co-exist on the same access (e.g. for future extension of service provision).

NOTE 2: The information provided by the public ISDN in the DDI supplementary service can be used by the private ISDN in the context of the private ISDN's MSN supplementary service.

8.10 Diversion services

8.10.1 Call forwarding unconditional

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

When the call forwarding unconditional supplementary service applies on a per number basis, if the served user also subscribes to the MSN supplementary service, then in an activation, deactivation or interrogation request, the ISDN number to which the call forwarding unconditional supplementary service relates shall be included.

8.10.2 Call forwarding busy

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

When the call forwarding busy supplementary service applies on a per number basis, if the served user also subscribes to the MSN supplementary service, then in an activation, deactivation or interrogation request, the ISDN number to which the call forwarding busy supplementary service relates shall be included.

8.10.3 Call forwarding no reply

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

When the call forwarding no reply supplementary service applies on a per number basis, if the served user also subscribes to the MSN supplementary service, then in an activation, deactivation or interrogation request, the ISDN number to which the call forwarding no reply supplementary service relates shall be included.

8.10.4 Call deflection

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

8.11 Freephone

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

8.12 Malicious call identification

If the MSN supplementary service is provided to the served user of the malicious call identification supplementary service, malicious call identification invocation shall be provided either globally for the whole access or on a per multiple subscriber number basis, according to access arrangements.

8.13 Multiple subscriber number

Not applicable.

8.14 Subaddressing

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

8.15 Terminal portability

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

8.16 Three party

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

8.17 User-user signalling

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

Annex A (informative): Terminal interchangeability between public and private ISDNs

In private ISDNs, Private Numbering Plans are likely to be used, either as an alternative to, or as an addition to, the ISDN numbering plan according to CCITT Recommendation E.164 [3]. In order to connect terminals to private ISDNs, terminals need to support such number plans. To ensure terminal interchangeability, terminals need to support both kinds of numbering schemes.

Relevant material has been published by the European Computer Manufacturers Association (ECMA), including a standard ECMA-155 : "Addressing in private telecommunications networks".

Annex B (informative): Bibliography

ECMA-155 "Addressing in private telecommunications networks".

History

Document history	
October 1991	First Edition
January 1996	Converted into Adobe Acrobat Portable Document Format (PDF)