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**Integrated Services Digital Network (ISDN);
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Service description**

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Foreword

This draft European Telecommunication Standard (ETS) has been produced by the Network Aspects (NA) Technical Committee of the European Telecommunications Standards Institute (ETSI), and is now submitted for the Public Enquiry phase of the ETSI standards approval procedure.

In accordance with CCITT Recommendation I.130 [2], 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 Message Waiting Indication (MWI) supplementary service. The stage 3 aspects are detailed in ETS 300 745-1 and prETS 300 356-20.

Proposed transposition dates	
Date of latest announcement of this ETS (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

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1 Scope

This draft European Telecommunication Standard (ETS) defines the stage one of the Message Waiting Indication (MWI) supplementary service for the pan-European Integrated Services Digital Network (ISDN) as provided by European public network operators. Stage one is an overall service description from the user's point of view (see CCITT Recommendation I.130 [2]), but does not deal with the details of the human interface itself.

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

Interactions with supplementary services not listed in clause 8 are outside the scope of this ETS.

The MWI supplementary service is applicable to all circuit-switched telecommunication services.

Charging principles are outside the scope of this ETS.

The MWI supplementary service enables a controlling user to indicate to another user, that there is one or more message waiting.

NOTE: The MWI supplementary service is typically used between a mailbox provider (controlling user) and a user of the mailbox service provided (receiving user).

This ETS is applicable to the stage two and stage three standards for the ISDN MWI supplementary service. The terms "stage two" and "stage three" are also defined in CCITT Recommendation I.130 [2]. Where the text indicates the status of a requirement (i.e. as strict command or prohibition, as authorization leaving freedom, or 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 ETS is met by conforming to the stage three standard with the field of application appropriate to the equipment being implemented. Therefore, no method of testing is provided for this ETS.

2 Normative 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 in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] ETS 300 345 (1994): "Integrated Services Digital Networks (ISDN): Interworking between public and private ISDNs for the provisioning of telecommunication services; General aspects".
- [2] CCITT Recommendation I.130 (1988): "Method for the characterisation of telecommunication services supported by an ISDN and network capabilities of an ISDN".
- [3] CCITT Recommendation I.112 (1990): "Definitions relating to national and international numbering plans".
- [4] CCITT Recommendation I.210 (1988): "Principles of telecommunication services supported by an ISDN and the means to describe them".
- [5] CCITT Recommendation E.164 (1991): "Numbering plan for the ISDN era".
- [6] CCITT Recommendation Q.9 (1988): "Vocabulary of switching and signalling terms".
- [7] CCITT Recommendation I.221 (1988): "Common specific characteristics of services".

3 Definitions

For the purposes of this ETS the following definitions apply:

Integrated Services Digital Network (ISDN): See CCITT Recommendation I.112 [3], § 2.3, definition 308.

service; telecommunications service: See CCITT Recommendation I.112 [3], § 2.2, definition 201.

supplementary service: See CCITT Recommendation I.210 [4], § 2.4.

ISDN number: A number conforming to the numbering plan and structure specified in CCITT Recommendation E.164 [5].

receiving user: The user that receives the message waiting indication.

controlling user: The user that activates and deactivates the MWI supplementary service.

NOTE: The controlling user is likely to be a mail box.

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

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

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

network operator: Entity which provides the network operating elements and resources for the execution of the MWI supplementary service.

service provider: Entity which offers the MWI supplementary service. The network operator may be the service provider.

4 Abbreviations

For the purposes of this ETS, the following abbreviations apply:

MWI	Message Waiting Indication
ISDN	Integrated Services Digital Network
PSTN	Public Switched Telephone Network

5 Description

The MWI supplementary service shall be available to users who are connected to the network via a basic access or primary rate access.

The receiving user can receive a message waiting indication. As a subscription option for the receiving user this indication can be given either:

- when the service is activated for a certain basic service and the receiving user makes an outgoing call attempt; or
- as soon as the service has been activated.

NOTE: Having received this indication, the receiving user can subsequently access the mail box, to have the mail delivered.

6 Procedures

6.1 Provision and withdrawal

The MWI supplementary service shall be provided to the controlling user after prior arrangement with the network provider. The MWI supplementary service shall be withdrawn at the controlling user's request, or for administrative reasons.

The MWI supplementary service shall be provided to the receiving user after prior arrangement with the service provider. The MWI supplementary service shall be withdrawn at the user's request, or for administrative reasons. At provisioning, the ISDN number(s) of the controlling user(s) that can activate and deactivate the MWI supplementary service for the receiving user shall be registered. Registration of controlling user numbers shall take place on a per basic service basis. The maximum number of ISDN numbers that can be registered for a receiving user is a network provider's option.

Provision of the MWI supplementary service shall be possible on an access or ISDN number basis.

In addition, the following subscription option shall be made available to the receiving user:

Table 1

Subscription option	Values
Invocation mode:	<ul style="list-style-type: none"> a) invocation when the service is activated and the receiving user makes an outgoing call; b) invocation as soon as the service has been activated.

6.2 Normal procedures

6.2.1 Activation, deactivation and registration

6.2.1.1 Activation

To activate the MWI supplementary service for a specific receiving user, the controlling user shall request this to the network and provide the following parameters:

- the receiving user's ISDN number;
- the applicable basic service; and as a controlling user's option:
 - the number of messages waiting for the indicated receiving user and basic service;
 - the date/time relating to the last message (note); and
 - the ISDN number of the original calling user relating to the last message.

NOTE: The precise meaning of the date/time provided by the controlling user is defined by the controlling user and is outside the scope of this ETS.

If mode a) applies (see subclause 6.2.3) then, if the request to activate the MWI supplementary service for the indicated receiving user is accepted by the network, the network shall inform the controlling user.

If mode b) applies (see subclause 6.2.3), the activation from the controlling user will imply an invocation of the service for the receiving user as specified in subclause 6.2.3. When the request is accepted by the network and the invocation of the service has been confirmed by a receiving user's terminal, the network shall inform the controlling user.

The network shall use the receiving user's ISDN number, the controlling user's ISDN number and the indicated basic service to determine the instance of the MWI supplementary service to be activated.

The controlling user can subsequently activate the service without deactivating the service first. In this case, when mode a) applies, the new activation will replace the existing activation.

NOTE: Subsequent activations are used to update the stored information in the network in case of mode a) or to indicate information about a new message to the receiving user in case of mode b).

6.2.1.2 Deactivation

Deactivation is likely to be requested by the controlling user when all messages for a specific user and basic service have been accessed and treated (e.g. listened to).

To deactivate the MWI supplementary service for a specific receiving user the controlling user shall request this to the network and provide the following parameters:

- the receiving user's ISDN number; and
- the applicable basic service.

If mode a) applies then, if the request to deactivate the MWI supplementary service for the indicated receiving user is accepted by the network, the network shall inform the controlling user.

If mode b) applies then, the deactivation from the controlling user will imply an invocation of the service for the receiving user's specified in subclause 6.2.3, indicating that no messages are available in the mailbox. When the request is accepted by the network and the invocation of the service has been confirmed by a receiving user's terminal, the network shall inform the controlling user.

The network shall use the receiving user's ISDN number, the controlling user's ISDN number and the indicated basic service to determine the instance of the MWI supplementary service to be deactivated.

6.2.1.3 Registration

Not applicable.

6.2.2 Erasure

Not applicable.

6.2.3 Invocation and operation

Two modes of invocation are possible, the selection of which is a receiving user's subscription option (see table 1):

- mode a) invocation when the receiving user makes an outgoing call attempt; or
- mode b) invocation after activation/deactivation of the service.

If mode a) applies, then when the receiving user makes an outgoing call attempt, and the MWI supplementary service has been activated by the controlling user for this receiving user for one or more basic services, the MWI supplementary service shall be invoked and the network shall provide a message waiting indication for each basic service to that user indicating the basic service and the ISDN number associated with the controlling user that activated the service. If available, the indication shall also include the number of messages waiting for the receiving user, the date/time relating to the last message and the ISDN number (subject to presentation restrictions) of the original calling user relating to the last message.

If mode b) applies, then after the MWI supplementary service has been activated by the controlling user for this receiving user, the network shall provide a message waiting indication to that user indicating the basic service and the ISDN number associated with the controlling user that activated the service. The network shall provide this indication independent of the presence of a call. If available, the indication shall include the number of messages waiting for the receiving user, the date/time relating to the last message and the ISDN number (subject to presentation restrictions) of the original calling user relating to the last message. In the case the service has been deactivated the network shall provide a message waiting indication to that user indicating the basic service, the ISDN number associated with the controlling user that deactivated the service and that no messages are available. The network shall provide this indication independent of the presence of a call.

NOTE: The specification of the message waiting indication is outside the scope of this ETS. However, the indication may be, e.g. a visual indication, or alternatively a special dial tone or announcement.

6.2.4 Interrogation

Not applicable.

6.3 Exceptional procedures

6.3.1 Activation, deactivation and registration

6.3.1.1 Activation

If the network cannot comply with the request to activate the MWI supplementary service, the network shall reject the request and indicate the reason. Reasons for rejecting the request are:

- the controlling user has not subscribed to the MWI supplementary service;
- the controlling user provided an invalid receiving user number;
- an interaction with an other supplementary service prohibits the activation of the MWI supplementary service;
- the controlling user indicated an invalid basic service;
- the receiving user has not subscribed to the MWI supplementary service;
- the controlling user is not registered for the indicated receiving user;
- no confirmation from the receiving user has been received (only applicable for mode b)).

6.3.1.2 Deactivation

If the network cannot comply with the request to deactivate the MWI supplementary service, the network shall reject the request and indicate the reason. Reasons for rejecting the request are:

- the controlling user has not subscribed to the MWI supplementary service;
- the controlling user provided an invalid receiving user number;
- an interaction with an other supplementary service prohibits the deactivation of the MWI supplementary service;
- the controlling user indicated an invalid basic service;
- the receiving user has not subscribed to the MWI supplementary service;
- the controlling user is not registered for the indicated receiving user;
- no confirmation from the receiving user has been received (only applicable for mode b)).

6.3.1.3 Registration

Not applicable.

6.3.2 Erasure

Not applicable.

6.3.3 Invocation and operation

Invocation mode a):

Not applicable.

Invocation mode b):

In case of mode b) and the network not having received a confirmation that the message waiting indication has been received, the network shall indicate this to the controlling user in the response to the activation or deactivation request as defined in subclauses 6.3.1.1 and 6.3.1.2.

6.3.4 Interrogation

Not applicable.

7 Intercommunication considerations

7.1 Interworking with non-ISDNs

Receiving users in the Public Switched Telephone Network (PSTN) may receive a message waiting indication by means of, e.g. a special dial tone.

7.2 Interworking with private ISDNs

Public and private ISDNs shall cooperate in the provision of this service. This implies that:

- the receiving user can be a user in a private ISDN; and
- the controlling user can be a user in a private ISDN.

Interworking with private networks shall include the requirements given in ETS 300 345 [1]. Interworking shall take place in a cooperative manner.

NOTE: In case the receiving user resides in a private network and mode a) applies, the service is activated and the storing of information is done within the private network.

8 Interaction with other supplementary services

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 a 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 Explicit 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

No impact, i.e. 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

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

8.7 Call completion services

8.7.1 Completion of calls to busy subscriber

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

8.7.2 Completion of calls on no reply

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.

8.10 Diversion services

8.10.1 Call forwarding unconditional

The message waiting indication shall never be diverted. The indication shall be given to the receiving user at the receiving user's original location.

8.10.2 Call forwarding busy

The message waiting indication shall never be diverted. The indication shall be given to the receiving user at the receiving user's original location.

8.10.3 Call forwarding no reply

The message waiting indication shall never be diverted. The indication shall be given to the receiving user at the receiving user's original location.

8.10.4 Call deflection

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

8.10.5 Selective call forwarding

The message waiting indication shall never be diverted. The indication shall be given to the receiving user at the receiving user's original location.

8.10.6 Call forwarding unconditional to a service centre

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

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

8.13 Multiple subscriber number

If the receiving user is subscribed to the multiple subscriber number supplementary service, the message waiting indication can be activated for each assigned ISDN number individually.

In this case the message waiting indication provided to the receiving user shall in addition contain the relevant receiving user's ISDN number.

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-to-user signalling

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

8.18 In-call modification

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

8.19 Hunting services

8.19.1 Line hunting

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

8.19.2 Trunk hunting

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

8.20 Support of private numbering plans

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

8.21 Outgoing call barring

8.21.1 User controlled outgoing call barring

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

8.21.2 Fixed outgoing call barring

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

8.22 Reverse charging at the start of the call

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

9 Interaction with other NA1 services

9.1 Universal access number

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

9.2 Card calling services

9.2.1 Charge card calling

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

9.2.2 Virtual card calling

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

9.3 Premium rate

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

9.4 Televoting

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

History

Document history	
May 1996	Public Enquiry PE 106: 1996-05-20 to 1996-09-13