

**Telecommunications and Internet converged Services and
Protocols for Advanced Networking (TISPAN);
Fixed network Short Message Service (F-SMS)
for IP networks;
Service description**



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Content

Intellectual Property Rights	5
Foreword.....	5
Introduction	5
1 Scope	6
2 References	6
3 Definitions and abbreviations.....	7
3.1 Definitions	7
3.2 Abbreviations	8
4 Description	8
4.1 Core service features	9
4.1.1 User identification	9
4.1.2 Outgoing message (from the originating SM-TE)	9
4.1.3 Incoming message (to the destination SM-TE).....	9
4.1.4 Message length	10
4.1.5 Character set	10
4.1.6 Terminal memory	10
4.1.7 Service centre time stamp	10
4.2 Optional service features	10
4.2.1 Validity period	10
4.2.2 Destination media	11
4.2.3 Replace short message function.....	11
4.3 Additional service features	11
4.3.1 Anonymous short message	11
4.3.2 SM Sending User Identification Restriction (SMSUIR).....	11
4.3.3 SM Forwarding (SMF)	11
4.3.4 Anonymous SM Rejection (ASMR).....	11
4.3.5 Malicious SM IDentification (MSMID)	12
4.3.6 Outgoing SM White List/Black List (OSMWL/OSMBL).....	12
4.3.7 Incoming SM White List/Black List (ISMWL/ISMBL).....	12
4.3.8 SM Distribution List (SMDL) (Multi Messaging).....	13
5 Procedures	13
5.1 Provision and withdrawal	13
5.1.1 Subscription	13
5.2 Normal procedures	13
5.2.1 Registration and de-registration	13
5.2.1.1 Core requirements	13
5.2.1.2 Optional requirements	13
5.2.2 Activation and deactivation	14
5.2.2.1 Core requirements	14
5.2.2.2 Optional requirements	14
5.2.3 Invocation and operation	14
5.2.3.1 Outgoing message	14
5.2.3.1.1 Core requirements	14
5.2.3.1.2 Optional requirements	14
5.2.3.2 Submit report.....	14
5.2.3.2.1 Core requirements	14
5.2.3.2.2 Optional requirements	14
5.2.3.3 Incoming message.....	15
5.2.3.3.1 Core requirements	15
5.2.3.3.2 Optional requirements	15
5.2.3.4 Deliver report	15
5.2.3.4.1 Core requirements	15
5.2.3.4.2 Optional requirements	15

5.2.3.5	Status report	15
5.2.3.5.1	Core requirements	15
5.2.3.5.2	Optional requirements	15
5.2.4	Interrogation	15
5.2.4.1	Core requirements	15
5.2.4.2	Optional requirements	16
5.3	Exceptional procedures	16
5.3.1	Registration and erasure.....	16
5.3.2	Activation and deactivation	16
5.3.3	Invocation and operation	16
5.3.3.1	Core requirements	16
5.3.3.1.1	Outgoing message	16
5.3.3.1.2	Submit report.....	16
5.3.3.1.3	Incoming message	16
5.3.3.1.4	Deliver report	16
5.3.3.2	Optional requirements.....	16
5.3.4	Interrogation	17
6	Interworking requirements	17
6.1	Interworking between the SMS service provider's equipment and other networks	17
6.2	Interworking with private networks	17
6.3	Interworking with other types of services	17
7	Interaction with supplementary services	17
Annex A (informative): Bibliography.....		18
History		19

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN).

In accordance with ITU-T Recommendation I.130 [1] the following three level structure is used to describe the supplementary telecommunication 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 stand-point;
- 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 Fixed network Short Message Service (F-SMS) for IP networks.

Introduction

The Short Message Service (SMS) is a service that shall make it possible to offer seamless SMS over different networks (e.g. PSTN, ISDN, PLMN, NGN).

The Fixed network Short Message Service follows the philosophy of adopting the existing Short Message Service of the mobile networks as widely as possible, to:

- simplify the interworking with the existing mobile net SMS;
- offer the same user experience for both fixed and mobile net users;
- reduce the fixed network SMS implementation efforts.

In the following of the present document it is assumed that both the sending and receiving Terminal Equipment (TE) have appropriate capabilities to send, receive, store, display and delete short messages.

1 Scope

The present document defines the stage 1 service description of the Fixed network Short Message Service (F-SMS) using IP technology applicable to both NGN with an IMS and other IP networks. Stage 1 is an overall service description, primarily from the user's point of view, but does not deal with the details of the human interface itself.

The present document includes information applicable to service providers and equipment manufacturers. Where the text indicates the status of a requirement, (i.e. a strict command or prohibition, an authorization leaving freedom or, a capability or possibility), this shall be reflected in the text of the relevant stage two and stage three standards.

The present document describes only the Fixed network Short Message Service (F-SMS) between an Short Message Terminal Equipment (SM-TE) and a Short Message Service Centre (SM-SC).

Charging principles are outside the scope of the present document.

The present document contains the core service features, optional service features and also additional service features for the Fixed network Short Message Service. A service may be provided on the basis of the core requirements alone. The present document does not deal with a Short Message Service Broadcast.

Furthermore, additional functionalities not covered in the present document may be implemented. The requirements of which are considered outside of the scope of the present document are consequently outside the scope of the corresponding stage 2 and stage 3 standards. Such additional functionalities may be on a network-wide basis, or particular to one user or a group of users. Such additional functionalities do not compromise conformance to the core requirements of the service.

Personal Identification Number (PIN) security matters are outside the scope of the present document.

Furthermore, conformance to the present document is met by conforming to the stage 3 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 and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <http://docbox.etsi.org/Reference>.

- [1] ITU-T Recommendation I.130: "Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN".
- [2] ETSI TR 102 341: "Access and Terminals (AT); Short Message Service (SMS) for PSTN/ISDN; Control Strings (service codes) for SMS functions and SMS supplementary services".

3 Definitions and abbreviations

3.1 Definitions

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

broadband access: covers access types like xDSL, Cable, Satellite, etc.

NOTE: The MMS communication is independent of the way how this broadband access is provided.

deliver report: response from the destination terminal to the SM-SC indicating that an SM has been accepted or not with the appropriate cause, if rejected

destination SM-TE: terminal with short message functionalities on the receiving user's side, which receives an incoming message

originating SM-TE: terminal with short message functionalities on the sending user's side, connected to the subscriber line which initiates an outgoing message

receiving user: user who receives an incoming message on his/her SM-TE from the SM-SC via the subscriber line

registration: process of registering a terminal to the respective server of the service provider/operator in order to be reachable by the service provider

NOTE: The registration may be performed automatically by the terminal after the terminal has been switched on and established a connection to the IP network.

replace short message function: optional function of the SM-SC and the SM-TE that enables the automatic replacing of a Short Message by a new one

NOTE: The replacement indication is transmitted in conjunction with the Short Message. See replace short message type.

replace short message type: indication to be sent with a short message (in both submission and delivery cases) that the short message is of a particular type allowing the destination SM-TE or SM-SC to replace an existing message of the same type held in the SM-TE or SM-SC provided it comes:

- in SM delivery cases: from the same SM-SC and originating address;
- in SM submission cases: from the same SM-TE.

sending user: user who sends an outgoing message from his/her SM-TE to the SM-SC via the subscriber line

Service Centre Time Stamp (SCTS): information element offering the destination SM-TE of an SM the information of when the message arrived at the SM-SC

Short Message (SM): information that is conveyed from a sending user to a receiving user via an SM-SC

Short Message Service Centre (SM-SC): function unit, which is responsible for the relaying and store-and-forwarding of a short message (SM) between two SM-TEs

NOTE: The SM-SC can functionally be separated from or integrated in the network.

SM-TE: terminal which is able to receive and/or send SMS via IP

status report: information used to inform the originating SM-TE of the status of a short message previously submitted by this SM-TE

EXAMPLE: Whether the SM-SC was able to successfully forward the message or not, or whether the message was stored in the SM-SC for later delivery.

submit report: response from the SM-SC to the originating SM-TE indicating that an SM has been accepted or not with the appropriate cause, if rejected

subscription: process of establishing a business relation between customer and service provider/operator

NOTE: This process includes the provision of appropriate credentials to the user.

Validity Period (VP): information element enabling the originating SM-TE to indicate the time period during which the sending user considers the SM to be valid

3.2 Abbreviations

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

ASMR	Anonymous SM Rejection
GSM	Global System for Mobile communications
IMS	IP Multimedia Subsystem
IP	Internet Protocol
ISDN	Integrated Services Digital Network
ISMBL	Incoming SM Black List
ISMWL	Incoming SM White List
MSMID	Malicious SM IDentification
OSMBL	Outgoing SM Black List
OSMWL	Outgoing SM White List
PIN	Personal Identification Number
PLMN	Public Land Mobile Network
PSTN	Public Switched Telephone Network
SCTS	Service Centre Time Stamp
SM	Short Message
SMDL	SM Distribution List
SMF	SM Forwarding
SMS	Short Message Service
SM-SC	Short Message Service Centre
SM-TE	Short Message Terminal Equipment
SMSUIR	SM Sending User Identification Restriction
TE	Terminal Equipment
UMTS	Universal Mobile Telecommunications System
VP	Validity Period
xDSL	x Digital Subscriber Line

4 Description

The Short Message Service (SMS) enables a sending user to send an SM of a limited size to a receiving user via an SM-SC.

The Short Message Service described in the present document applies to broadband accesses. All transactions are conveyed via IP.

A service registration/de-registration procedure shall be supported.

The user should have the possibility to choose a certain service provider, if available.

A short message can be initiated upon a request of the sending user or by the service provider itself, and shall be sent to the receiving user. An SM is always conveyed via an SM-SC. The SM-SC receives the SM from an originating SM-TE (sending user) and relays the SM to the destination SM-TE (receiving user).

Having received one or more SM, the receiving user can subsequently read, store or delete the messages on their terminal.

If the SM-TE supports the optional Replace Short Message Function, Short Messages with the respective Replace Short Message Type stored in the SM-TE are automatically replaced by received new ones.

The SMS shall support "core service features", available to all SMS users. In addition "optional service features" and "additional service features" as well as features not described in the present document may be provided. In order to ensure compliance with 3GPP SMS the implementation of the core features, optional features and additional service features may supplement, but shall not contradict the respective specifications in 3GPP.

The means by which the receiving user manages these features are outside the scope of the present document.

The preparation of an SM is outside the scope of the present document.

4.1 Core service features

For both, outgoing and incoming messages, the SM-SC acts as a store and forward centre. The SM-SC can be functionally separated from the network although this does not preclude an integrated implementation. More than one SM-SC may be connected to a network. Each SM-SC may have connections to other SM-SCs (e.g. PLMN SM-SC). In case that the sending user has required a status report in conjunction with an outgoing message, a report (positive or negative) shall be sent to the originating SM-TE as soon as this information is available.

4.1.1 User identification

Since the SM-SC does not necessarily get the address (i.e. the E.164 number) of the user from the respective IP Network operator, the user identity is derived from the authentication of the user.

4.1.2 Outgoing message (from the originating SM-TE)

The outgoing message from the originating SM-TE shall be sent to the SM-SC and shall contain the address of the receiving user. The SM-SC shall send a submit report to the originating SM-TE.

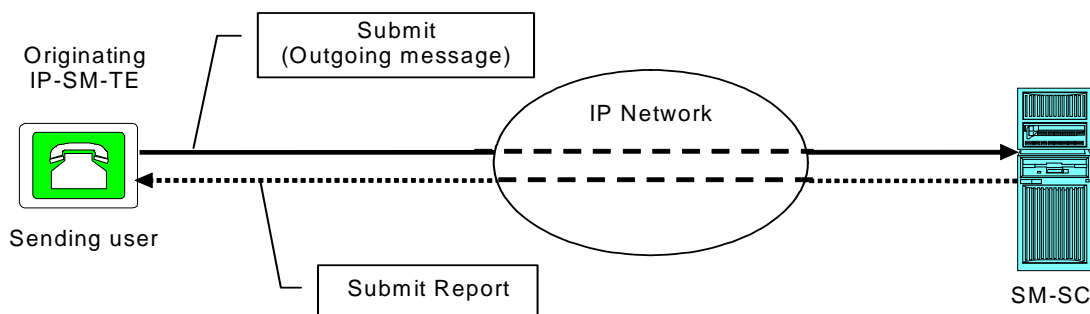


Figure 1: Outgoing message

The submit report is sent from an SM-SC to an SM-TE and may be either a positive report, which confirms the correct submission of an SM to the SM-SC, or a negative report, which informs the SM-TE that the SM was not successfully submitted and gives the reason why.

In case of a negative or no submit report, the SM-TE may re-attempt submission of the SM.

4.1.3 Incoming message (to the destination SM-TE)

The destination SM-TE should store the incoming messages in an appropriate memory. These messages should be displayed, modified and deleted under control of the user. These functions are out of the scope of the present document. The incoming message from the SM-SC shall include the date and time when the SM was submitted to the SM-SC.

The destination SM-TE shall send a deliver report to the SM-SC.

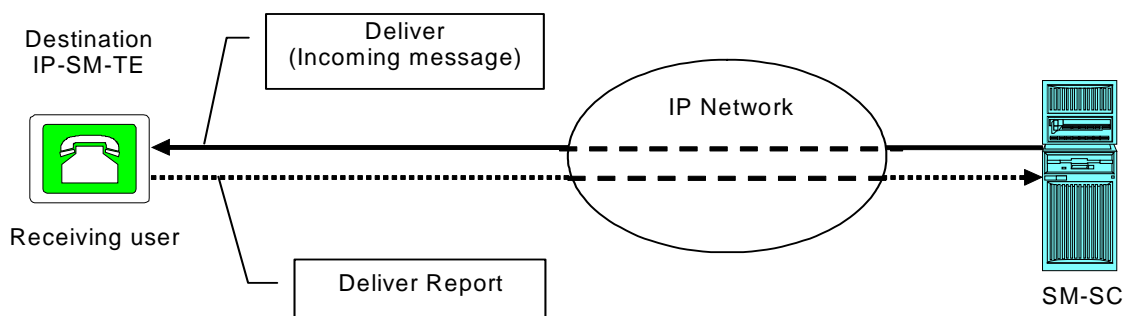


Figure 2: Incoming message

The deliver report is sent from an SM-TE to an SM-SC and may be either a positive report, which confirms the correct delivery of an SM to the destination SM-TE, or a negative report, which informs the SM-SC that the SM was not successfully delivered and gives the reason why.

A positive deliver report confirms the correct reception of an SM at the SM-TE, but not the delivery of the SM to the user.

In case of non-delivery (i.e. in case of negative or missing deliver report), the SM-SC re-attempts delivery. The timing and the number of repetitions are service provider options. The SM-SC may base the point of time of its re-attempts on information from other network elements or services (e.g. re-registration events or presence information, etc.).

When a requested status report has been received by the originating SM-TE, a deliver report shall be sent to the SM-SC to acknowledge the reception.

In case of a negative or no deliver report, the SM-SC re-attempts delivery of the SM. The timing and the number of repetitions are service provider options.

4.1.4 Message length

A message length of up to 140 octets shall be guaranteed. Longer messages may optionally be allowed; in these cases interworking with existing message services should be considered.

4.1.5 Character set

The character set used for the short message service is out of the scope of the present document.

4.1.6 Terminal memory

A terminal that provides SMS capabilities shall be able to store at least one short message with a length of 140 octets.

4.1.7 Service centre time stamp

The SM-SC shall inform the destination SM-TE about the time of arrival of that SM at the SM-SC. The time value shall be included in each short message being delivered to the destination SM-TE.

4.2 Optional service features

4.2.1 Validity period

In conjunction with an outgoing message to an SM-SC the sending user may enter, as an additional information, a specific time period for the validity of the message; i.e. for how long the SM-SC shall guarantee its existence in the SM-SC memory before delivery to the receiving user has been carried out.

4.2.2 Destination media

The sending user may also be able to indicate the kind of media which shall be used on the destination side (e.g. SMS-TE, Fax or Electronic mailbox). In case of Electronic mailbox the subscriber shall provide the email address inside the message itself.

4.2.3 Replace short message function

In conjunction with an outgoing SM, the sending user may indicate that this SM may be replaced by a new SM later.

The Replace Short Message function is optional for the SM-SC and the SM-TE but if implemented it shall be performed as described here.

For SM delivered from the SM-SC to the SM-TE, on reception of a short message from the SM-SC, the SM-TE shall check to see if it contains a Replace Short Message Type code.

If such a code is present, then the SM-TE will check the originating address and replace any existing stored message having the same Replace Short Message Type and originating address with the new short message. If there is no message to be replaced, the SM-TE shall store the message in the normal way. The SM-TE may also check the SM-SC address as well as the originating address.

If such a code is not present then the SM-TE will store the message in the normal way.

For SM submitted to the SM-SC, the SM-SC reacts similarly but only the address of the originating SM-TE or any other source is checked.

4.3 Additional service features

NOTE: The following additional features are not defined in 3GPP service descriptions and are also optional.

4.3.1 Anonymous short message

As a network operator/service provider option anonymous SM are supported. In this case the sending user's number will not be presented to the receiving user; the SM-SC is responsible for the handling of this feature.

4.3.2 SM Sending User Identification Restriction (SMSUIR)

The SMSUIR is an optional SM-SC function which can be activated by the sending user if an outgoing message to the SM-SC is sent as an anonymous SM. In this case the SM-SC must not provide the sending user's identity to the destination TE.

4.3.3 SM Forwarding (SMF)

The SMF is an optional SM-SC function which can be activated, deactivated, modified and interrogated by the SMS user. The necessary control information is conveyed by sending an SM from the SMS user to the SM-SC (according to TR 102 341 [2]). The minimum information sent to the SM-SC are the service code for SMF and the destination number/address (according to TR 102 341 [2]) to which the following incoming SM will be sent to.

The control of this function may also be achieved by using a WEB-Interface.

The result of an interrogation is provided from the SM-SC to the SMS user within an SM.

4.3.4 Anonymous SM Rejection (ASMR)

The ASMR is an optional SM-SC function which can be activated, deactivated and interrogated by the SMS user. After activating the ASMR service any anonymous incoming SM will be discarded by the SM-SC. The necessary control information is conveyed by sending an SM from the SMS user to the SM-SC (according to [2]). The minimum information sent to the SM-SC are the service code for ASMR (according to [2]). After activating the ASMR service any anonymous incoming SM will be discarded by the SM-SC. In this case the SM-SC informs the sending user about the rejection.

The control of this function may also be achieved by using a WEB-Interface.

It may be needed to allow certain SMS sending users to not disclose their identification to the receiving user and to override ASMR. The originating service provider has to check whether the sending user falls in this category. If the sending user is allowed to do so, the service provider shall not reject the SM but shall deliver it to the receiving user.

The result of an interrogation is provided from the SM-SC to the SMS user within an SM.

4.3.5 Malicious SM Identification (MSMID)

The MSMID is an optional SM-SC function which can be provided by the SM-SC (service provider) to the SMS user after prior arrangement with the service provider. This function allows the served user (in this case the receiving user) to identify a malicious SM. Usually, a received SM contains an identification of the sending user which enables the receiver of a malicious SM to take appropriate measures. However, an identification of the sending user may not be contained in a received malicious SM (see also: SMSUIR). In this case, it should also be possible to identify the sender. If the sending user requests that the presentation of his/her identification shall be restricted to the receiving user and if the receiving user has requested the MSMID service, then a special SMS-ID is sent from the SM-SC to the receiving user instead of the sending user's number. The user can provide this special SMS-ID to an appropriate authority, so that the appropriate authority can request the sending user's number/identity from the SM service provider.

NOTE: A feature like ASMR is not a substitute for MSMID, because with ASMR anonymous SMs are rejected, but not all anonymous SMs are necessarily malicious (it may happen that a receiving user, who does not want to receive malicious messages, accepts to receive anonymous SMs).

4.3.6 Outgoing SM White List/Black List (OSMWL/OSMBL)

The OSMWL/OSMBL are optional SM-SC functions which can be installed, de-installed, modified (i.e. adding or deleting numbers in a list, etc.) and interrogated by the SMS user. The necessary control information is conveyed by sending an SM from the SMS user to the SM-SC (according to [2]).

The control of this function may be also achieved by using a WEB-Interface.

After installing and activating an OSMWL/OSMBL, outgoing SM from the SMS user can only be sent to certain destinations (white list) or can not be sent to certain destinations (black list).

In case of an activated OSMWL/OSMBL the SM-SC has to check for each outgoing SM from the SMS user whether the indicated destination is allowed or not. If it is allowed then the SM is forwarded towards the receiving user. If it is not allowed to send an SM to the wanted destination, the SM will be discarded by the SM-SC and the SM-SC informs the sending user about the rejection.

The result of an interrogation is provided from the SM-SC to the SMS user within an SM.

4.3.7 Incoming SM White List/Black List (ISMWL/ISMBL)

The ISMWL/ISMBL are optional SM-SC functions which can be installed, de-installed, modified (i.e. adding or deleting numbers in a list, etc.) and interrogated by the SMS user. The necessary control information is conveyed by sending an SM from the SMS user to the SM-SC (according to [2]).

The control of this function may also be achieved by using a WEB-Interface.

After installing and activating an ISMWL/ISMBL, incoming SM to the SMS user can only be received from certain origins (white list) or can not be received from certain origins (black list).

In case of an activated ISMWL/ISMBL the SM-SC has to check for each incoming SM to the SMS user whether an SM from the indicated sending user is allowed or not. If it is allowed then the SM is forwarded towards the receiving user. If it is not wanted to receive an SM from a particular origin, the SM will be discarded by the SM-SC and the SM-SC informs the sending user about the rejection.

The result of an interrogation is provided from the SM-SC to the SMS user within an SM.

4.3.8 SM Distribution List (SMDL) (Multi Messaging)

The SMDL is an optional SM-SC function which can be installed, de-installed, modified (i.e. adding or deleting numbers in a list, etc.) and interrogated by the SMS user. The necessary control information is conveyed by sending an SM from the SMS user to the SM-SC (according to [2]).

The control of this function may also be achieved by using a WEB-Interface.

After installing an SMDL, outgoing SM from the SMS user addressed to a certain SMDL list will be distributed to all destinations of this distribution list.

The SMS user may have the possibility to interrogate his/her distribution lists, the content of a certain list and/or sending an SMDL to a certain receiving user or to another SMDL.

The result of an interrogation is provided from the SM-SC to the SMS user within an SM.

5 Procedures

5.1 Provision and withdrawal

The SMS shall be provided to the SMS user after prior arrangement with the SMS service provider or, as a service provider option, be generally available. The SMS shall be withdrawn on the SMS user's request or for service provider reasons.

The SMS service provider should provide a possibility (e.g. via a WEB-Interface) to the SMS subscriber to manage the subscription to the Short Message Service.

5.1.1 Subscription

To be able to send or receive an SMS, a subscription process shall be performed. Upon subscription, the service provider shall provide the subscriber with the appropriate credentials. This may be achieved e.g. by using a WEB-Interface.

Optionally, the SMS subscription may be implicitly obtained by subscribing to the IP network operator, e.g. for voice services.

5.2 Normal procedures

5.2.1 Registration and de-registration

5.2.1.1 Core requirements

Before registration can take place, a prior subscription process has to be performed at the relevant SMS service provider (see also clause 5.1.1).

To be able to send or receive SM via an IP network, the SM-TE has first to proceed a registration to the service provider/network operator. The registration may be performed automatically after attachment to the network.

5.2.1.2 Optional requirements

In conjunction with the registration procedure an authentication of the user may take place.

For authentication of the user during registration, the respective server of the service provider/network operator may refer to the authentication of the user performed when the SM-TE has connected to the IP network operator (bundled authentication).

5.2.2 Activation and deactivation

5.2.2.1 Core requirements

None.

5.2.2.2 Optional requirements

As a service provider option it should be possible to activate and deactivate the reception of short messages temporarily by the SMS user. This procedure shall cause no other changes in the user profile.

NOTE 1: To be able to activate or deactivate the reception of SM via an IP network, the SM-TE has first to be registered to the service provider/network operator.

The service provider may offer the user the possibility to activate and deactivate an SM forwarding to another destination. In this case the service provider should support procedures for activation, deactivation and interrogation of SMF (short message forwarding).

Any activation or deactivation operation in the SM-SC may be realized by means of procedures (e.g. control codes inside an SM according to TR 102 341 [2]). In this case as a service provider option the SMS user may have to supply a password (e.g. PIN) when requesting the activation or deactivation of the SMS.

Activation and deactivation may also be achieved by other means (e.g. by using a WEB-Interface). Security implications of such means are outside the scope of the present document.

NOTE 2: During a deactivation period any SM should be stored at the SM-SC for a limited time. This time should follow the validity period if the validity period has been specified by the sending user. The maximum number of stored messages is a service provider option.

5.2.3 Invocation and operation

5.2.3.1 Outgoing message

5.2.3.1.1 Core requirements

The procedure for sending an outgoing message includes the following operations:

- transfer an SM (optionally including a request for a status report) from the originating SM-TE to the SM-SC;
- return a submit report from the SM-SC to the originating SM-TE.

Since the SM-SC does not necessarily get the address (i.e. the E.164 number) of the user from the respective IP Network operator, the user identity is derived from the authentication of the user.

NOTE: To be able to send an SM via an IP network, the SM-TE has first to be registered to the service provider/network operator.

5.2.3.1.2 Optional requirements

The user authentication may be implicitly obtained by registering to the IP network operator, e.g. for voice services.

5.2.3.2 Submit report

5.2.3.2.1 Core requirements

As a result of an outgoing message, a submit report shall be sent from the SM-SC to the originating SM-TE.

5.2.3.2.2 Optional requirements

None.

5.2.3.3 Incoming message

5.2.3.3.1 Core requirements

The procedure for receiving an incoming message includes the following operations:

- 1) transfer an SM from the SM-SC to the destination SM-TE;
- 2) return a deliver report from the destination SM-TE to the SM-SC.

NOTE: To be able to receive an SM via an IP network, the SM-TE has first to be registered to the service provider/network operator.

5.2.3.3.2 Optional requirements

None.

5.2.3.4 Deliver report

5.2.3.4.1 Core requirements

As a result of an incoming message or a status report, a deliver report shall be sent from the destination SM-TE to the SM-SC.

5.2.3.4.2 Optional requirements

None.

5.2.3.5 Status report

5.2.3.5.1 Core requirements

The status report is sent from the SM-SC to the originating SM-TE. It indicates the status of a previously submitted SM. This information is only sent if requested by the originating SM-TE when the SM is submitted.

More than one status report may be sent to the originating SM-TE in the event of the SM not being immediately delivered.

The procedure for transmitting a status report includes the following operations:

- 1) transfer of a status report from the SM-SC to the originating SM-TE, containing the delivery result of the message transfer attempt(s); the result is either positive or negative. It may also indicate that the message has been stored for further delivery attempts;
- 2) transfer of a deliver report from the originating SM-TE back to the SM-SC.

NOTE: To be able to receive an SM status report via an IP network, the SM-TE has first to be registered to the service provider/network operator.

5.2.3.5.2 Optional requirements

None.

5.2.4 Interrogation

5.2.4.1 Core requirements

None.

5.2.4.2 Optional requirements

As a service provider option it could be possible to give the SMS user knowledge of some or all the data in their service profile and to define the limit of interrogation and modification procedures. In this case the service profile of a registered SM-TE may be interrogated and partially modified by the SMS user (e.g. by sending control procedures within an SM according to 2). The requested information should be sent back within one or more SM to the SMS user. An interrogation of the service profile may be achieved also e.g. by using a WEB-Interface.

The SMS user may have the possibility to interrogate the status of the SMS. In response to interrogation the SMS user shall be given either an indication that the SMS is currently activated or not.

No PIN is required in the interrogation request. If a PIN is provided, it shall be ignored.

Since the SM-SC does not necessarily get the address (i.e. the E.164 number) of the user from the respective IP network operator, the user identity is derived from the authentication of the user.

The user authentication may be implicitly obtained by registering to the IP network operator, e.g. for voice services.

5.3 Exceptional procedures

5.3.1 Registration and erasure

Interactions, other than registration, from an unauthenticated entity shall be discarded.

5.3.2 Activation and deactivation

None.

5.3.3 Invocation and operation

5.3.3.1 Core requirements

5.3.3.1.1 Outgoing message

None.

5.3.3.1.2 Submit report

None.

5.3.3.1.3 Incoming message

Stored messages at the user's terminal shall be deleted under user control. If the SM-TE supports the optional Replace Short Message Function, Short Messages with the respective Replace Short Message Type indication held in the SM-TE are automatically replaced by received new ones.

If the memory capacity of the terminal is exceeded, the message store overflow indicator shall be activated, and the terminal shall reject any further SM deliveries. An appropriate specific rejection message may be returned. An undelivered SM may be transmitted after the terminal has confirmed back to the SM-SC that further messages can be received again. The SM-SC may also retry to send the message to the destination SM-TE.

5.3.3.1.4 Deliver report

None.

5.3.3.2 Optional requirements

None.

5.3.4 Interrogation

None.

6 Interworking requirements

6.1 Interworking between the SMS service provider's equipment and other networks

SMS service provider's equipment is required to interwork with existing deployments in other networks (e.g. PSTN, ISDN, PLMN, GSM, UMTS, xDSL, IP, 3GPP/3GPP2- based deployments).

6.2 Interworking with private networks

Public and private PSTN/ISDN/IP Networks shall co-operate in the provision of this service. This implies that:

- the originating and/or the receiving user can be a user in a private PSTN/ISDN/ IP Network; and
- the SM-SC can be a user in a private PSTN/ISDN/IP Network.

Interworking shall take place in a co-operative manner.

6.3 Interworking with other types of services

The SMS may interwork with other types of services; examples are listed below:

- telex;
- group 3 telefax; (i.e. conversion to fax);
- group 4 telefax; (e.g. conversion to fax);
- voice telephone (i.e. conversion to and from speech);
- ERMES (European Radio Messaging System);
- National Paging system (known to the SM-SC);
- UCI (Universal Computer Interface, ETSI DE/PS 3 01 3);
- any public X.400 based message handling system;
- TETRA (Terrestrial Trunked Radio);
- Internet Electronic Mail.

7 Interaction with supplementary services

For the F-SMS solution there are no interactions with supplementary services since the Short Message Service is an independent service.

Annex A (informative): Bibliography

ETSI ES 201 986: "Services and Protocols for Advanced Networks (SPAN); Short Message Service (SMS) for PSTN/ISDN; Service description".

ETSI ES 201 912: "Access and Terminals (AT); Short Message Service (SMS) for PSTN/ISDN; Short Message Communication between a fixed network Short Message Terminal Equipment and a Short Message Service Centre".

ETSI TS 100 901: "Technical Specification; Digital cellular telecommunications system (Phase 2+); Technical realization of the Short Message Service (SMS); Point-to-Point (PP) (3GPP TS 03.40)".

History

Document history		
V1.1.1	March 2006	Publication