



# SLOVENSKI STANDARD

## SIST ES 202 060-5 V1.1.1:2005

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Glavni cilj tega standarda je opredeliti zahtevane funkcije in postopke za zagotovitev kakovosti storitve kratkih sporočil (SMS) v fiksni omrežni strukturi. Standard opisuje rešitev, ki temelji na omrežni strukturi, ki omogoča dostop do storitve SMS preko omrežja.

Short Message Service (SMS) for fixed networks; Network Based Solution (NBS); Part 5: Network access protocol

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# ETSI ES 202 060-5 V1.1.1 (2003-05)

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*ETSI Standard*

## **Short Message Service (SMS) for fixed networks; Network Based Solution (NBS); Part 5: Network access protocol**

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## Reference

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## Keywords

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SMS, PSTN, protocol, SS7**ETSI**

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## Foreword

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

The present document is part 5 of a multi-part standard covering the Short Message Services (SMS) for fixed networks; Networks Based Solution (NBS), as described below:

- Part 1: "Overview";
- Part 2: "Architecture and functional entities";
- Part 3: "Integrated Services Digital Network (ISDN) access protocol";
- Part 4: "Interworking between Signalling System No.7 (SS7) and Digital Subscriber Signalling System No. one (DSS1)";
- Part 5: "Network access protocol".**

NOTE: The choice of a multi-part format for this deliverable is to facilitate maintenance and future enhancements.

In accordance with ITU-T Recommendation I.130 [6], the following three level structure is used to describe the supplementary telecommunication services as provided by European public telecommunications operators under the pan-European ISDN:

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

The present document details the stage 3 aspects (signalling system protocols and switching functions) needed to support the SMS. The stage 1 aspects are detailed in ETS 201 986 [10]. The stage 2 aspects of the SMS have not been specified.

The present version updates the references to the basic call specification.

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## Introduction

The Short Message Service (SMS) is a service providing the served user the ability to send and receive Short Messages (SM). The Short Messages (SM) are exchanged between the sending and receiving user via a Short Message Service Centre (SM-SC).

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# 1 Scope

The present document specifies the stage three of the Short Message Service (SMS) for the pan-European Integrated Services Digital Network (ISDN) as provided by the European public telecommunications operators by means of the Signalling System No.7 Transaction Capabilities (TC) application protocol. The stage three identifies the protocol procedures and switching functions needed to support a telecommunication service (see ITU-T Recommendation I.130 [6]).

The SMS is provided independently of a call.

Charging principles are outside the scope of the present document.

Testing and maintenance requirements are outside the scope of the present document.

The SMS enables the originating SMS user to send Short Messages (SMs) to the receiving SMS user via a Short Message Service Centre (SM-SC), belonging to the network of the SMS originating user or separated from the network of the SMS originating user.

NOTE: The SMS is typically used between a Short Message service provider and a user of the Short Message service provided.

The SM-SC can be connected to the network by SS#7 or behind a NE-SC with DSS1 or other protocols.

---

# 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] ETSI ETS 300 009 (1991): "Integrated Services Digital Network (ISDN); Signalling System No.7; Signalling Connection Control Part (SCCP) [connectionless service] to support international interconnection".
- [2] ETSI ETS 300 196-1 (1993): "Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [3] ETSI ETS 300 287 (1993): "Integrated Services Digital Network (ISDN); Signalling System No.7; Transaction Capabilities Application Part (TCAP) version 2".
- [4] ITU-T Recommendation E.164 (1993): "The international public telecommunication numbering plan".
- [5] ITU-T Recommendation I.112 (1993): "Vocabulary of terms for ISDNs".
- [6] ITU-T Recommendation I.130 (1988): "Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN".
- [7] ITU-T Recommendation I.210 (1993): "Principles of telecommunication services supported by an ISDN and the means to describe them".
- [8] ITU-T Recommendation X.680: "Information technology - Abstract Syntax Notation One (ASN.1) Specification of basic notation".



- [9] ITU-T Recommendation X.680 | ISO/IEC 8824-1 (1994) including amendment 1 (1995): "Information Technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation".
- [10] ETSI ES 201 986 (V1.1.2): "Services and Protocols for Advanced Networks (SPAN); Short Message Service (SMS) for PSTN/ISDN; Service description".
- [11] ETSI ES 201 912 (V1.1.1): "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".
- [12] ETSI EN 300 195: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Supplementary service interactions".
- [13] ITU-T Recommendation X.208: "Specification of Abstract Syntax Notation One (ASN.1)".

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## 3 Definitions and abbreviations

### 3.1 Definitions

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

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

**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 local exchange:** local exchange where the receiving SMS user is connected to

**Integrated Services Digital Network (ISDN):** See ITU-T Recommendation I.112 [5].

**ISDN number:** number conforming to the numbering plan and structure

NOTE: See ITU-T Recommendation E.164 [4].

**Network Element Service Centre (NE-SC):** network element where the SM-SC is connected to

**originating SMS user:** user that originates and sends the SM

**originating local exchange:** local exchange where the originating SMS user is connected to

**Protocol Data:** NBS protocol parameter where the access protocol (UBS1, UBS2) is encapsulated

**receiving SMS user:** user that receives the Short Message and who may also deactivate the reception of SMs and reactivate the reception later on

**Service; Telecommunication Service:** See ITU-T Recommendation I.112 [5].

**Short Message (SM):** information, that may be conveyed by means of the SMS described in the present document

**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-TE

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

**Short Message Terminal (SM-TE):** terminal which may send or receive short messages

**Status Report:** information used to inform the originating SM-TE of the status of a short message previously submitted by this SM-TE, e.g. 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

**Supplementary Service:** See ITU-T Recommendation I.210 [7].

## 3.2 Abbreviations

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

ASE	Application Service Element
ASN.1	Abstract Syntax Notation one
ISDN	Integrated Services Digital Network
DLE	Destination Local Exchange
GT	Global Title
OLE	Originating Local Exchange
MTP	Message Transfer Part
NBS	Network Based Solution
NE-SC	Network Element Service Centre
PL	Physical Layer
RL	Relay Layer
SCCP	Signalling Connection Control Part
SMs	Short Messages
SMS	Short Message Service
SM-SC	Short Message Service Centre
SM-TE	Short Message Terminal
TC	Transaction Capabilities
TCAP	Transaction Capabilities Application Part
TL	Transfer Layer
UBS	User Based Solution

## 4 Description

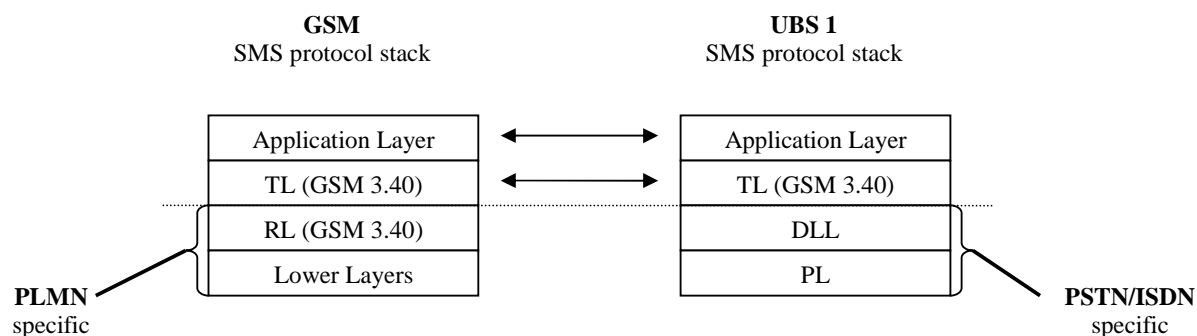
The Short Message Service (SMS) provides a means for sending a message of a limited size to and from a terminal equipment.

The SMS can be realised in two ways, either as a User Based Solution (UBS) or as a Network Based Solution (NBS).

NOTE 1: For recall, the User Based Solution is provided as part of a function within the end-user equipment, which does not require any specific short message transfer function inside the public network. Only the basic call procedures within the public network and the CLI supplementary service are used.

Two UBS protocols (UBS1 and UBS2) are available and described in the AT document (see ES 201 912 [11]).

**Protocol 1:** Transfer and application layers are fully compliant with the GSM SMS service, and with the DSS1 SM payload.



**Figure 1: Relationship between SMS protocol stacks for GSM and for UBS 1 (See ES 201 912 [11])**

**Protocol 2:** This protocol is specifically focused on the residential fixed network environment.

NOTE 2: The Network Based Solution is provided as part of a function within the public network and does not require a voice-band communication path between the SM-TE and SM-SC.

For compatibility with UBS and the access NBS protocol solution, UBS1 or UBS2 transfer layer is encapsulated within the NBS network protocol messages.

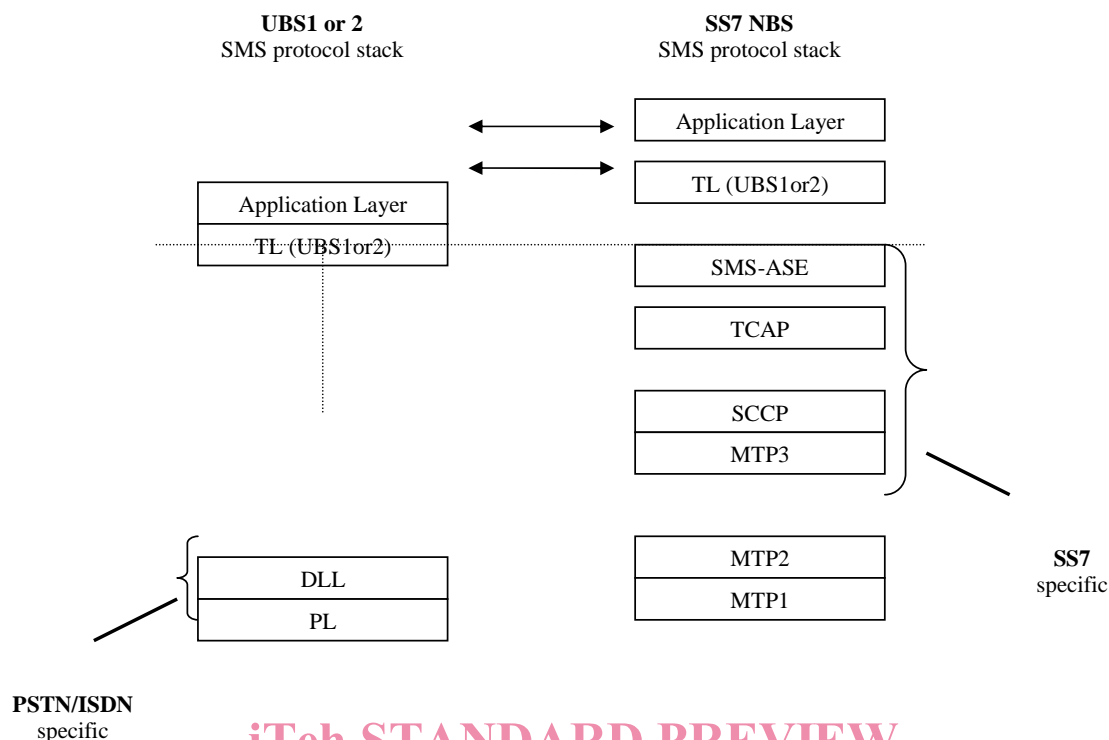


Figure 2: Relationship between SMS protocol stacks for UBS1 or UBS2 and for SS7

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## 5 Operational requirements

### 5.1 Provision and withdrawal

See ES 201 986 [10] for provision or withdrawal conditions of the service.

### 5.2 Requirements on OLE

The OLE needs the capabilities of Signalling Connection Control Part (SCCP) (see ETS 300 009 [1]) and TC (see ETS 300 287 [3]) with an SMS-ASE.

### 5.3 Requirements on intermediate exchanges

The intermediate exchanges involved in the transmission of the SMS operation need the capability of SCCP (see ETS 300 009 [1]).

### 5.4 Requirements on DLE

The receiving user's exchange needs the capabilities of SCCP (see ETS 300 009 [1]) and TC (see ETS 300 287 [3]) with an SMS-ASE.