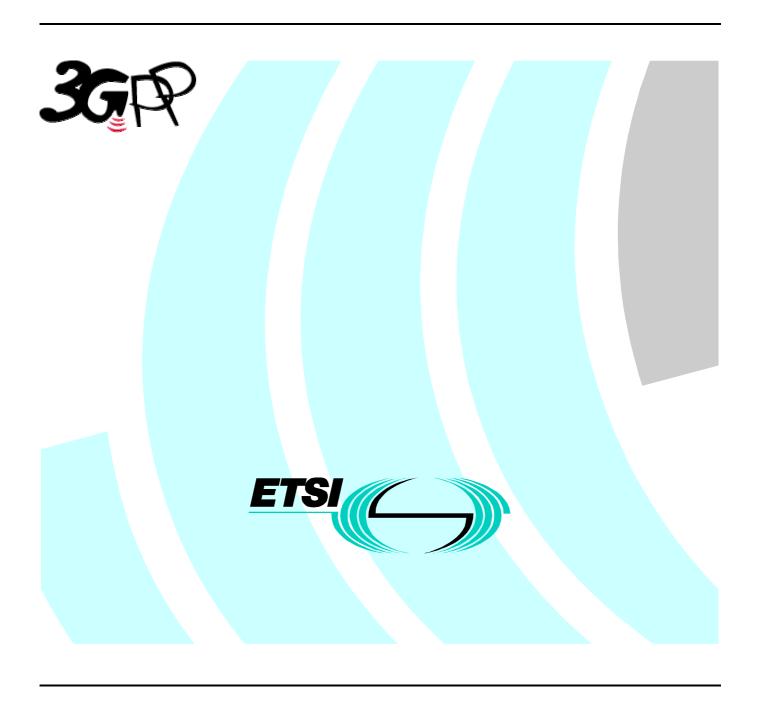# ETSI TS 122 140 V3.1.0 (2000-06)

Technical Specification

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Foreword

This Technical Specification (TS) has been produced by the ETSI 3rd Generation Partnership Project (3GPP).

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under www.etsi.org/key .

Contents

Foreword

This Technical Specification has been produced by the 3GPP.

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of this TR, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

x   the first digit:

1   presented to TSG for information;

2   presented to TSG for approval;

3 or greater   indicates TSG approved document under change control.

y   the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z   the third digit is incremented when editorial only changes have been incorporated in the specification.

Introduction

SMS has been very successful in the GSM second generation system, as all mobiles have supported the application level and it is possible to send to any GSM handset without the need to check for individual support. This easy to use service for non realtime text transmission between GSM users shall be succeeded to in third generation mobile systems by a non real-time Multimedia Message Service, MMS. The MMS will allow users to send and receive messages exploiting the whole array of media types available today e.g. text, images, audio, video while also making it possible to support new content types as they become popular.

3GPP shall not standardise new services themselves, but instead uses the standardised set of service capabilities features on which the new services will be built.

Multimedia technology a rapidly developing allowing new capabilities, such as multimedia messages, games, presentations and services that are now considered to be a part of every day life. Multimedia consists of one or more media elements (such as text, voice, image and video), and it is the combination of these media elements in a ordered synchronised manner that creates a multimedia presentation.

A non-realtime multimedia message as observed by the user is a combination of one or more different media elements in a multimedia presentation, that can be transferred between users without the requirement for the need to be transferred in realtime. The non-real-time multimedia messaging service shall be capable of supporting current and future multimedia messaging services, and exploit the advances being made in the world multimedia community, with additional mobile requirements.

1   Scope

This Technical Specification defines the stage one description of the non real-time Multimedia Messaging Service, MMS. Stage one is the set of requirements which shall be supported for the provision of non real-time multimedia messaging service, seen primarily from the subscriber's and service providers' points of view.

This TS includes information applicable to network operators, service providers, terminal and network manufacturers.

This TS contains the core requirements for the Multimedia Messaging Service, which are sufficient to provide a complete service.

Additional functionalities not documented in this TS may implement requirements which are considered outside the scope of this TS. Such additional functionality may be on a network-wide basis, nation-wide basis or particular to a group of users. Such additional functionality shall not compromise conformance to the core requirements of the service.

This TS defines the requirements for MMS to be understood as a framework to enable non real-time transmissions for different types of media including such functionality as:-

- multiple media elements per single message

- negotiate different terminal and network MM capabilities

- notification and acknowledgement of MM related events (e.g. delivery, deletion, ...)

- handling of undeliverable MM

- flexible charging

The above list is not exhaustive.

Thus the MMS enables a unified application which integrates the composition, storage, access, and delivery of different kinds of media, e.g. text, voice, image or video in combination with additional mobile requirements.

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.

[1]   3G TS 22.101 (V3.6.0 onwards): "Service Principles"

[2]   3G TS 22.121 (V3.0.0 onwards): "The Virtual home Environment"

[3]   3G TS 21.133 (V3.0.0 onwards): "3G Security; Security Threats and Requirements"

[4]   3G TS 22.975 (V3.0.0 onwards): "Advanced Addressing"

3 Definitions and abbreviations

3.1 Definitions

Recipient : the recipient is the entity to which a MM has been sent.

Sender : the sender is the entity that sent a MM.

User : the user is the MM sender or the MM recipient.

message element : a message element is a part of a MM consisting of only one media type.

multimedia message : a multimedia message is a message composed of one or more message elements.

multimedia message service : A multimedia message service allows transfer of multimedia messages between users without the requirement for the multimedia messages to be transferred in real-time.

media types: a media type refers to one form of presenting information to a user, e.g. voice or fax.**media formats**: within one media type different media formats are applicable for the media presentation, e.g. a picture can be GIF or JPEG format.

network : for the purposes of supporting multimedia messaging, the term network shall be considered to include the mobile operator's network and any functionality which may exist outside the mobile operator's network (i.e.fixed, internet and multimedia technologies etc.), and the support provided by that functionality for multimedia messaging.

service capabilities features : see Reference [2].

3.2 Abbreviations

For the purposes of this document the following abbreviations apply:

MM	Multimedia Message
MMS	Multimedia Message Service
SMS	Short Message Service

4 High level Requirements

The following list gives the high level requirements of the MMS. These are requirements which are independent of the user's perception of the service:-

- Forward compatible multimedia messaging

    Multimedia messaging mechanisms shall provide the capability to support current and evolving multimedia messaging by re-using existing standards as far as possible and proposing extensions (as necessary) to existing standards (i.e. the multimedia messaging service shall support the evolution of multimedia messaging technologies).

- Consistent messaging

    Regardless of the message type / format, MMS shall be capable of supporting integration of all types of messaging (e.g. fax, SMS, Multimedia , voicemail, e-mail etc.) in a consistent manner.

- Interoperability

    The MMS shall support a minimum set of functionality to ensure interoperability. (e.g. deletion of MM, identified standardised message notification, message media types and message content formats)

5 General Requirements

Network operators have many differing requirements, and MMS shall be supported in the network in a manner which allows network operators to consider different configurations depending on their network and commercial requirements. Thus, an identified set of functionalities and formats shall be standardised to ensure interoperability across networks and terminals to support MMS.

However, some network operators may wish to design and configure networks in different ways, and the subsequent requirements are identified to allow flexibility in how the MMS functionality is supported. For example in some networks the network operators may wish to implement the MMS functionality within the core network, whereas other may wish to place the MMS functionality on the periphery of the core network (e.g. a centralised network model instead of a distributed architecture). Further, some network operators may wish to support a limited set of MMS functionality, while others may require extensive and elaborate MMS support according to their business models (e.g. basic MMS instead of advanced MMS). Interoperability shall always be maintained within this flexible architecture.

The following sub-clauses use the term "*The MMS shall be able to support a request for ...*" and similar phrases to allow network operators to consider these different network models and business requirements, to permit flexible architectures and ensure MMS interoperability.

The following sub-clauses use the term *"This requirement shall be supported at the application layer in the terminal (and/or the network), and will not be further elaborated."* and similar phrases to identify those service requirements that shall be supported by MMS but do not require standardisation.

The criterion for identifying these types of requirements is as follows:

If the requirement corresponds to an interaction and/or command between the terminal and the network applications from the same Service Provider (e.g. between the recipient's terminal resident messaging application and the recipient's network resident application. The same applies for the sender), then this requirement shall be supported by MMS but does not require standardisation.

The following general requirements shall be supported via the use of service capability features.

5.1 Multimedia message management

- Terminal-sensitive MM management

    The MMS shall be able to support the capability for the terminal and network to take account of the capability of the user's terminal (e.g. deliver a MM / notification in a manner compatible with the terminals capability).

- User status-sensitive MM Management

    The MMS shall be able to support the capability for the terminal and network to take account of the availability, changes of the state of availability of the user (e.g. store messages if the recipient is not available).

- MMS Control by the operator

    The MMS shall be able to support a request from the operator to enable/disable MM delivery and submission.

    This requirement shall be supported at the application layer in the network, and will not be further elaborated.

- MMS Control by the user

    The MMS shall be able to support a request from the user to enable/disable MM delivery and submission.

    This requirement shall be supported at the application layer in the terminal, and will not be further elaborated.

- Personalise multimedia messaging

    The MMS shall be able to support a request by the user to manage the Service Preferences of his User Service Profile (e.g. customise his MM environment within the capabilities of the terminal, network and MM application. This could be unconditional or conditional e.g. depending on roaming conditions or operator restrictions).

- MM creation

The MMS shall be able to support the request to create a MM by the user or an application.

This requirement shall be supported at the application layer in the terminal, and will not be further elaborated.

- Multiple Media

Multimedia messages may be composed of either a single medium (e.g. voice) or multi-media (e.g. Voice and video). The MMS shall be able to support a request for media synchronisation / sequencing.

- Media Type Conversion

The MMS shall be able to support a request to convert between media types (e.g. Fax to image).

This requirement shall be supported at the application layer in the network, and will not be further elaborated.

- Media Format Conversion

The MMS shall be able to support a request by the user or the application to convert between MM media formats (e.g. JPEG to GIF).

This requirement shall be supported at the application layer in the terminal and/or in the network, and will not be further elaborated.

- Message forwarding

The MMS shall be able to support a request to forward multimedia messages or multimedia message elements without having to first download the MM to the terminal.

This requirement shall be supported at the application layer in the network, and will not be further elaborated

- Storage of Multi-Media Messages

The MMS shall be able to support a request for multimedia messages or message elements to be stored until delivered to the recipient's terminal, until they expire, or until they are deleted by the user (unless configured differently). The MMS shall be able to support a request to store and manage all MMs in a network based repository rather than on the mobile terminal.

This requirement shall be supported at the application layer in the network, and will not be further elaborated.

Note: There is no requirement for the MMS to be responsible for the processing/presentation of the MM message, after it has been delivered to the terminal.

- Prioritisation of Messages

The MMS shall be able to support a request for MM prioritisation subject to the capabilities of the network (e.g. the sender of the MM may request to prioritise the importance of the multimedia messages).

- Screening of Messages

The MMS shall be able to support a request for MM screening subject to the capabilities of the network (e.g. automatically delete "junk mail" without delivery to the recipient's terminal)

This requirement shall be supported at the application layer in the network, and will not be further elaborated.

- Validity Period

The MMS shall be able to support a request to define validity periods for message delivery (e.g. if a message can not be delivered within a certain time it will be deleted).

5.2 Multimedia message delivery and submission

- Submission mechanism

    The MMS shall support multimedia messages or messages elements to be submitted to the recipient's terminal.

- Push Mechanism

    The MMS shall be able to support a request for multimedia messages or messages elements to be automatically delivered to the recipient's terminal.

- Pull Mechanism

    The MMS shall be able to support a request for multimedia messages or messages elements to be delivered to the recipient's terminal on request by the recipient.

- Concurrency

    The MMS shall be able to support MM delivery to and from the user's terminal not be restricted during other active services (subject to the capabilities of the terminal and the network).

5.3 Notification and Acknowledgement

The MMS shall be able to support a request to send generic notification and acknowledgement capability to inform the user in an appropriate manner of MMS events. Examples may include:-

- notify the recipient about received messages (including a description of the message, e.g. content, size, type).

- acknowledge the sender about successful or failed MM or storage of a MM.

- acknowledge the sender about successful or failed MM submission

- acknowledge the sender about successful or failed MM delivery to the recipient terminal.

- acknowledge the sender about successful or failed MM deletion.

- acknowledge the sender, upon request, about the status of a submitted MM (i.e. delivered / not delivered).

5.4 Addressing

The MMS shall support different addressing formats to identify the sender and recipient as specified in 22.975 [4] where applicable. It shall be possible to submit one message to multiple recipients.

6 Profile

The MMS shall be able to support the ability to create, update, store, transfer, interrogate, manage and retrieve a user's multimedia messaging profiles.

The multimedia messaging profiles shall allow a user to configure and personalise his multimedia messaging environment with the multimedia messaging profiles (e.g. which media types and notifications that shall be delivered to the recipient , such as voice only or text only).

The multimedia messaging profiles shall form part of the user's virtual home environment.

7 Security

The user shall be able to use and access MM in a secure manner. It shall be possible for the contents of MMs to be read only by the intended recipient(s). A recipient shall be informed of the reliability of the identity of the sender in case the sender has authorised his identity to be transmitted.

The integrity of MMs during transit shall be assured to extent of the network capabilities.

The MMS shall be intrinsically resistant to attempts of malicious or fraudulent use.

The "Security Threats and Requirements" specified in 22.133 [3] shall not be compromised.

8 Charging

The MMS shall be able to support various charging mechanisms. The following charging characteristics may be considered:-

- message types, length, storage time in the network, etc

- delivering time, upload / download method,

- MM-sender / -recipient

- number of messages sent

- number of messages received.

- roaming conditions

- location conditions

9 External Interface

The support of xternal interfaces for controlling and delivering MM between the terminal and an external device e.g. portable computer is left for future releases.

10 Interworking

The standard shall permit interworking with other or existing messaging technologies, messaging services, intelligent network services and supplementary services, either located within or outside a mobile network.

Annex A (informative): Change history

V. 0.0.1	June 1999	First Draft (Presented at TSG-T-WG2 SWG3 14th – 16th June 99)
V. 0.0.2	June 1999	Interim Draft for SWG3 discussion
V. 0.0.3	July 1999	Draft version to be submitted to TSG-SA-WG1, 5th – 9th July 99
V. 0.0.4	July 1999	2nd draft for submission to TSG-SA-WG1, 5th – 9th July 1999
V. 0.1.0	July 1999	Version to be submitted to TSG-SA-WG1, 5th – 9th July 99
V. 0.2.0	September 1999	Presented at TSG-T-WG2#5 6th – 9th September 99
V. 0.2.2	September 1999	Version after post TSG-T-WG2#5 discussion / Presentation to S1
V. 0.3.0	September 1999	Version after TSG-SA-WG1 MMS ad-hoc
V 0.3.1	September 1999	"3G" and "UMTS" removed to indicate availability to 2G systems Proposed version 1.0.0 Version sent to SA for information
V 1.1.0	November 1999	Version after TSG-SA-WG1 MMS AdHoc #2
V 1.2.0	November 1999	Version to be submitted to S1#6 for R`99 approval
V 2.0.0	December 1999	Version to be submitted to SA #6 for R`99 approval
V 3.0.0	December 1999	Approved at SA #6 for R`99

Change history										
TSG SA#	SA Doc.	SA1 Doc	Spec	CR	Rev	Rel	Cat	Subject/Comment	Old	New
SP-08	SP-000208	S1-000424	22.140	002		R99	F	R99 alignment to stage 2	3.0.0	3.1.0

History

Document history		
V3.0.0	January 2000	Publication
V3.1.0	June 2000	Publication