*Technical Specification*

# 3rd Generation Partnership Project;
# Technical Specification Group Services and System Aspects
# Service aspects;
# Stage 1
# Multimedia Messaging Service
# (3G TS 22.140 version 1.0.0)

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*3GPP*

| Postal address |
| --- |

| 3GPP support office address |
| --- |
| 650 Route des Lucioles - Sophia Antipolis |
| Valbonne - FRANCE |
| Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16 |

| Internet |
| --- |
| http://www.3gpp.org |

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# 2 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 3.y.z

where:

x the first digit:

1 presented to TSG for information;

2 presented to TSG for approval;

3 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 realtime Multi Media Service, MMS, which meets the requirements to transmit multimedia data.

Currently developed mobile systemsprovides the opportunity to introduce new services exploiting the new functionalities of both networks and terminals. 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 is a rapidly developing capability, with multimedia messages, games, presentations and services now virtually 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-realtime 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.

# 3 Scope

This Technical Specification defines the stage one description of the non realtime Multimedia Messaging Service, MMS. Stage one is  the set of requirements which shall be supported for the provision of non realtime 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 realtime transmissions for different types of media including such functionalities as:-

- multiple media elements per single message

- individual handling of message elements

- different delivery methods for each message element

- negotiate different terminal and network MM capabilities

- notification and acknowledgement of MM messages

-  handling of undeliverable MM messages

- personalised MMS configuration

- 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.

# 1 4 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.

- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[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"

# 15        Definitions and abbreviations

## 5.1        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 realtime.

media types:

media formats:

**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]

## 5.2        Abbreviations

For the purposes of this document the following abbreviations apply:

MM          Multimedia Message

MMS          Multimedia Message Service

SMS          Short Message Service

# 6 High level Requirements

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

- Forward compatible multimedia messaging

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

- 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.

- Universal messaging access

  Within the capabilities of networks and terminals, the user shall be able to enjoy consistent MMS support.

  For example the user should be capable of accessing her multimedia messages through a number of different access points, which should include 3G and 2G networks, fixed networks, the Internet etc..

- Reliability of MMS

  The MMS shall be supported in a reliable manner, e.g. support end to end notification between users to confirm delivery of multimedia messages

- Interoperability

- The MMS shall support a minimum set of functionality to ensure interoperability. (e.g. identified standardised message notification, message media types and message content formats)Minimum set of supported formats according to the level of service

  Terminals which support MMS shall provide a minimum set of supported formats to ensure full interoperability between different terminals and networks from the very beginning of service provisioning (e.g. JPEG for pictures, MP3 for audio, MPEG for motion pictures, etc.).
  Editors note: not finished

- The MMS shall comply with the Virtual Home Environment specified in 22.121[2]

  The non-realtime multimedia messaging service shall be supported using the standardised set of service capabilities features.

# 7 General Requirements

Different network operators have 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 MMS functionality is supported. For example in some networks the network operators may wish to have the MMS functionality within the core network, whereas other network

operators may wish to have the MMS functionality on the periphery of the core network (e.g. a core network model instead of a distributed architecture). Further, some network operators may wish to support a limited set of MMS functionality, whereas other network operators 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 subclauses 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 general requirements shall be supported via the use of service capability features.

# 7.1 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 availability, changes of the state of availability and capability of the user's terminal (e.g. store messages if the recipient is not available or deliver a MM / notification in a manner compatible with the terminals capability).

- MMS control

  The MMS shall be able to support a request to enable/disable MM delivery or submission. .

- Personalise multimedia messaging

  The MMS shall be able to support a request by the user to manage his multimedia messaging (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.

- MM deletion

  The MMS shall be able to support the request to delete a MM once submitted (e.g. recalling a message).

- 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).

- 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).

- Message content retrieval by the network messaging application

  The MMS shall be able to support a request by the messaging application to retrieve MM elements.

- Message forwarding

  The MMS shall support the capability to forward multimedia messages or multimedia message elements without having to first download the MM to the terminal.

- Storage of Multi-Media Messaging

  The MMS shall support 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 not be responsible for the processing/presentation of the MM message, after it has been delivered to the terminal.

- Prioritisation and Screening of Messages

  The MMS shall support a request for MM prioritisation and MM screening subject to the capabilities of the network or operator (e.g. the sender and recipient of the MM may request to prioritise the importance of the multimedia messages or automatically delete "junk mail" without delivery to the recipient's terminal).

  Regarding the prioritised delivery and message screening the recipient shall have ultimate control subject to any MM screening which is imposed by the network.

  Editors Note: There might be situations where the user should NOT have ultimate control to MM  screening, e.g. at network borders where the operator specifies general filters to protect his domain.

## 7.2      Multimedia message delivery

- Push Mechanism

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

- Pull Mechanism

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

- Concurrency

  The MMS shall 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).

- Delivery delay

  The MMS shall support minimum delay for message delivery (e.g. for a telemetric service). The MMS shall provide the capability to support a validity period for a message (e.g. if a message can not be delivered within a certain time it will be deleted).

- MM streaming

  ffs.

## 7.3 Notification

The MMS shall support generic notification capability to inform the user in an appropriate manner.Possible examples of such notifications may include:-

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

- inform the recipient about actions taken by the MMS, (e.g. due to profile settings like automatic MM forwarding, deletion, etc.)

- inform the sender about successful or failed MM delivery or storage of MM.

## 7.4 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.

# 8 Profile

The MMS shall 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).

# 9 Security

The user shall be able to use and access MM in a secure manner. The "Security Threats and Requirements" specified in 22.133 [3] shall not be compromised.

# 10 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

# 11 External Interface

External interfaces for controlling and delivering MM between the terminal and an external device e.g. portable computer should be supported.

# 12 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.

# History

| Document history | | |
|---|---|---|
| V. 0.0.1 | June 1999 | First Draft (Presented at TSG-T-WG2 SWG3 14$^{th}$ – 16$^{th}$ 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, 5$^{th}$ – 9$^{th}$ July 99 |
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| V. 0.2.0 | September 1999 | Presented at TSG-T-WG2#5 6$^{th}$ – 9$^{th}$ 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<br><br>Proposed version 1.0.0<br><br>Version sent to SA for information |

Rapporteur for 3G TS 22.140 is:

Gunnar Schmidt

Bosch Telecom GmbH

Tel. : +49 5341 285 853
Fax : +49 5341 285 140
Email : gunnar.schmidt@fr.bosch.de

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