Technical Specification Group Services and System Aspects Meeting #11, Palm Springs, CA, USA, 19-22 March 2001

TSGS#11(01) 0062

Source: **SA1**

Title: **Various CRs to 22.140**

Document for: **Approval**

Agenda Item: **7.1.3**

Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New
22.140	004		Rel-4	Alignment of Stage 1 MMS to Stage 2 MMS	C	4.0.1	4.1.0
22.140	005		Rel-4	Support for Streaming in MMS	C	4.0.1	4.1.0
22.140	006		Rel-4	MM Forwarding	F	4.0.1	4.1.0
22.140	007		Rel-4	New features in MMS R'4	B	4.0.1	4.1.0

3GPP TSG-S1 #12 *S1-010265*
Helsinki
3GPP TSG-T2 #12 *T2-010167*
Los Angeles, California, USA
12th - 16th February 2001
3GPP TSG-T2 SWG3 MMS Adhoc #6 *T2M010059*
Düsseldorf, Germany
January 8th - 12th 2001

CR-Form-v3

CHANGE REQUEST

⌘ **22.140** **CR** **004** ⌘ rev **-** ⌘ Current version: **4.0.1** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Alignment of Stage 1 MMS to Stage 2 MMS
Source:	⌘	SA1
Work item code:	⌘	MMS
Date:	⌘	06/02/2001
Category:	⌘	**C**
Release:	⌘	REL-4

Use one of the following categories:
F *(essential correction)*
A *(corresponds to a correction in an earlier release)*
B *(Addition of feature),*
C *(Functional modification of feature)*
D *(Editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
REL-4 *(Release 4)*
REL-5 *(Release 5)*

Reason for change:	⌘	During the ongoing work of TSG T2 on 23.140 (Stage 2 MMS) it has been found that some sections in 22.140 require further clarification. Additionally, the need for a few minor editorial corrections have been identified. TSG T2 has also identified that there is a need to align stage 1 with the functionality of stage 2 for release 4
Summary of change:	⌘	Apart from changes which are editorial / clarification there is one addition to the functionality (Charging Indicator) and one deletion (MM Recall)
Consequences if not approved:	⌘	With regard to the addition of a Charging Indicator, without such a change, MMS may well come under criticism by users and business developers with regard to billing. With regard to the deletion of MM recall, if this requirement remains in stage 1 for release 4 then it is highly unlikely that there will be sufficient time to complete this work in Stage 2 for release 4 and so Stage 2 may be viewed as being non compliant with Stage 1. (see comments below)
Clauses affected:	⌘	5.1, 6, 7, 8, 11
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	It is proposed that MM recall be reviewed for inclusion in release 5. It is the view of TSG T2 that the concept of MM recall will need broadening in the stage 1 description for release 5.

	Note that in section 5.2 under Pull Mechanism, there is an editors note. This note has not been added by this CR and has in fact already been proposed for deletion by an earlier CR.

3G TS 22.140 V4.0.1 (2000-0

Technical Specifica

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Technical Specification Group Services a
System Aspects;
Service aspects;
Stage 1
Multimedia Messaging Service
(Release 2000)

Keywords

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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~~3~~.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 ~~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
- individual handling of message elements
- different delivery methods for each message element
- negotiate different terminal and network MM capabilities
- notification and acknowledgement of MM related events (e.g. delivery, deletion, ...)
- handling of undeliverable MM
- 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.

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.

- 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".

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.

- **Universal messaging access**

  Within the capabilities of networks and terminals, the user shall be able to experience consistent access to the MMS regardless of the access point.

  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.

- **Interoperability**

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

  The 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.).

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

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

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~~**Terminal status-sensitive MM Management**

  The MMS shall be able to support the capability of~~for~~ the ~~terminal and~~ network to take account of the availability, changes of the state of availability of the terminal~~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.

- **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 related to this MMS [2](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.

- ~~**MM recall**~~

~~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).

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 by the originator of a message to define validity periods for message delivery (e.g. if a message can not be delivered within a certain time it will be automatically deleted). The MMS service provider shall be able to set the MAXIMUM allowable validity period for any message.

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.

  For Release 99, streaming will be considered only in the case of the pull mechanism.

Editor's Note: push and pull delivery mechanisms could be identical; the criteria which decide on the type of mechanism (push / pull) are either described in the User Services Profile or out of the scope of this specification.

- **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).

- **Streaming**

  The MMS shall be able to support streaming for both MM delivery from the MMS Server to the terminal, and MM upload from the terminal to the MMS Server.

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).
- notify the recipient about actions taken by the MMS, (e.g. due to profile settings like automatic MM forwarding, deletion, etc.).
- 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 User 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 2122.133 [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.
- Indication of charging

  The MMS indicates to the recipient prior to the recipient downloading a multi media message whether the sender has paid or the recipient is expected to pay for the message.

- Prepaid subscriptions

9 External Interface

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

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.

11 Roaming

Roaming between network operators shall be supported.

Annex A (informative): Change history

Change history										
TSG SA#	**SA Doc.**	**SA1 Doc**	**Spec**	**CR**	**Rev**	**Rel**	**Cat**	**Subject/Comment**	**Old**	**New**
SP_06	PP-99529		22.140	-		R99	-	Approved at SA#08 as version 3.0.0	2.0.0	3.0.0
SP_08	SP-000214	S1-000347	22.140	001		R00	B	Introduction of streaming for MMS	3.0.0	4.0.0
-	-	-	22.140	-		R00	-	Corrected implementation of CR001 by MCC, re-introducing the R00 text deleted by implementation of CR002 to R99 version (see SP-000208). Some editorial clean-up.	4.0.0	4.0.1
								Updated in line with 23.140 for MMS Release 4		

TSG-SA WG 1 (Services) meeting #11
Capetown, SA 6th to 9th February 2001

TSG S1 (01) 0016
Agenda Item: 8.2

3GPP TSG-T2 #11
Shin Yokohama, JAPAN
November 27th - December 1th 2000

T2-000776

CR-Form-v3

CHANGE REQUEST

⌘ **22.140** **CR** **005** ⌘ rev ⌘ Current version: **4.0.1** ⌘

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Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network ☐ Core Network ☐

Title:	⌘	Modification of Support for Streaming in MMS
Source:	⌘	SA1
Work item code:	⌘	MMS R'4
Date:	⌘	06/02/2001
Category:	⌘	**C**
Release:	⌘	REL-4

Use one of the following categories:
F *(essential correction)*
A *(corresponds to a correction in an earlier release)*
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D *(Editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The present SA4 work on streaming is limited to downlink streaming (with a terminal as a streaming client). Uplink streaming (terminal originating the stream) has not been considered so far. This CR is to reflect the restriction to downlink streaming only in the requirements for MMS.
Summary of change:	⌘	This CR aligns MMS stage 1 with SA4's current working assumption.
Consequences if not approved:	⌘	MMS Stage 1 would not be able to support the streaming upload feature for streaming upload itself is not yet available for R'4

Clauses affected:	⌘	5.2		
Other specs Affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	None
Other comments:	⌘	This CR is intended for submission to and approval at S1#11.		

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http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

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.

~~For Release 99, streaming will be considered only in the case of the pull mechanism.~~

Editor's Note: push and pull delivery mechanisms could be identical; the criteria which decide on the type of mechanism (push / pull) are either described in the User Services Profile or out of the scope of this specification.

- **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).

- **Streaming**

  The MMS shall be able to support streaming for ~~both~~ MM delivery from the MMS system~~Server~~ to the terminal~~, and MM upload from the terminal to the MMS Server.~~

  Support for streaming for MM upload from the terminal to the MMS system will be considered for future releases.

3GPP TSG-T2 #11
Shin Yokohama, JAPAN
November 27th - December 1th 2000

T2-000775

CR-Form-v3

CHANGE REQUEST

⌘ **22.140** **CR** **006** ⌘ rev **-** ⌘ Current version: 4.0.1 ⌘

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Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	MM Forwarding
Source:	⌘	SA1
Work item code:	⌘	MMS R'4
Date:	⌘	06/02/2001
Category:	⌘	**F**
Release:	⌘	*REL-4*

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R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	Change to allow Message Forwarding be standardised
Summary of change:	⌘	This CR proposes a change to MMS stage 1 description of the Message Forwarding feature to allow the Message Forwarding feature be standardised.
Consequences if not approved:	⌘	This feature requires that information be passed on the interface between the User Agent and the MMS system. If this information is not standardised then this in effect would mean that interworking between a particular Vendor's MMS offering and another Vendor's MMS Mobile Terminal offering would not be possible for this feature unless each implemented the same proprietary solution. Thus having purchased an MMS system which implemented this feature in a proprietary way, Operators would have no guarantee of interworking with standard MMS terminals. If Vendor Proprietary solutions abound, Carriers would be faced with purchasing MMS systems and Mobile Terminals from the same Vendor, hardly a practicable open interworking model.

Clauses affected:	⌘	Section 5.1
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications
	⌘	
Other comments:	⌘	This is for submission to S1#10

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.

- **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 related to this MMS [2](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.

- **MM recall**

  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).

  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).

TSG-SA WG 1 (Services) meeting #11
Capetown, SA 6th to 9th February 2001

TSG S1 (01) 0015
Agenda Item: 8.2

3GPP TSG-T2 #11
Shin Yokohama, JAPAN
November 27th - December 1th 2000

T2-000774

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

22.140	CR	007	Current Version:	4.0.1.

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	S1#11	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [X] UTRAN / Radio [ ] Core Network [ ]

Source: SA1 **Date:** 06/02/2001

Subject: New features in MMS R'4

Work item: MMS R'4

Category: *(only one category shall be marked with an X)*

F	Correction	
A	Corresponds to a correction in an earlier release	
B	Addition of feature	X
C	Functional modification of feature	
D	Editorial modification	

Release:

Phase 2	
Release 96	
Release 97	
Release 98	
Release 99	
Rel-4	X

Reason for change:

The recent working assumption in T2 for MMS stage 2, 23.140 and the WAP implementation of MMS support features of MMS that are not yet covered in the MMS stage 1, 22.140.

This CR identifies these features and proposes to align MMS stage 1.

Clauses affected: 4, 5

Other specs affected:

Other 3G core specifications		→ List of CRs:
Other GSM core specifications		→ List of CRs:
MS test specifications		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

help.doc

<--------- double-click here for help and instructions on how to create a CR.

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.

- **Universal messaging access**

  Within the capabilities of networks and terminals, the user shall be able to experience consistent access to the MMS regardless of the access point.

  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.

- **Interoperability**

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

  The 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.).

  The MMS shall support version management by indicating a version number in the MM for interoperability purpose.

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

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

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.

- **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 related to this MMS [2](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.

- **MM Time Stamping**

  The MMS shall be able to support the request to include a reliable time value in an MM, a notification and an acknowledgement as appropriate.

- **MM recall**

  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**

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  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).

- **Message qualification**

  The MMS shall be able to support a request for MM qualification (e.g. subject) for the purpose of advanced user experience and awareness.

- **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", anonymous messages without delivery to the recipient's terminal).

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

- **Validity Period**

  The MMS shall be able to support a request to define validity periods (earliest and latest desired time) 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.

  For Release 99, streaming will be considered only in the case of the pull mechanism.

Editor's Note: push and pull delivery mechanisms could be identical; the criteria which decide on the type of mechanism (push / pull) are either described in the User Services Profile or out of the scope of this specification.

- **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).

- **Streaming**

  The MMS shall be able to support streaming for both MM delivery from the MMS Server to the terminal, and MM upload from the terminal to the MMS Server.

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).
- notify the recipient about actions taken by the MMS, (e.g. due to profile settings like automatic MM forwarding, deletion, etc.).
- 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 (subject to the recipient permitting such an acknowledgement).
- acknowledge the sender about the MM being read/handled at the recipient terminal (subject to the recipient permitting such an acknowledgement).
- 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.

The MMS shall be able to support the request to hide the sender's address from the recipient.