



Rich Communication Suite 7.0 Endorsement of OMA CPM 2.2 Conversation Functions

Version 6.0

28 June 2017

This is a Non-binding Permanent Reference Document of the GSMA

Security Classification: Non-confidential

Access to and distribution of this document is restricted to the persons permitted by the security classification. This document is confidential to the Association and is subject to copyright protection. This document is to be used only for the purposes for which it has been supplied and information contained in it must not be disclosed or in any other way made available, in whole or in part, to persons other than those permitted under the security classification without the prior written approval of the Association.

Copyright Notice

Copyright © 2017 GSM Association

Disclaimer

The GSM Association ("Association") makes no representation, warranty or undertaking (express or implied) with respect to and does not accept any responsibility for, and hereby disclaims liability for the accuracy or completeness or timeliness of the information contained in this document. The information contained in this document may be subject to change without prior notice.

Antitrust Notice

The information contained herein is in full compliance with the GSM Association's antitrust compliance policy.

Table of Contents

1	Introduction	7
1.1	Overview	7
1.2	Scope	7
1.3	Definition of Terms	7
1.4	Document Cross-References	8
2	References	9
3	Terminology and Conventions	9
4	Introduction	9
4.1	CPM Version 1.0	13
4.2	CPM Version 2.0	13
4.3	CPM Version 2.1	13
4.4	CPM Version 2.2	13
5	Format of CPM Conversation Items	13
5.1	CPM Standalone Message	13
5.2	CPM Session	14
5.2.1	SDP Contents for CPM Sessions	14
5.3	CPM Conversation Identification	14
5.4	Disposition Notifications	14
5.4.1	Generate Delivery Notification	14
5.4.2	Generate Read Report	14
5.4.3	Receive Delivery Notification	14
5.4.4	Receive Read Report	15
5.4.5	Multidevice handling	15
5.4.6	Generate Interworking Notification	15
5.4.7	Receive Interworking Notification	15
5.5	“isComposing” Notifications	15
5.6	CPM Service IDs	15
6	Common Procedures	15
6.1	Authenticated Originator’s CPM Address	15
6.1.1	Identifying the sending user and device in SIP requests and responses	15
6.1.2	Identifying the recipient device in SIP requests and responses	16
6.2	SIP/IP Core	16
6.3	Display Name and Anonymity	16
6.4	SIP Warning Header Field	16
6.4.1	General	16
6.4.2	Warning Texts	16
6.5	Communicating With the ISF and IWF	16
6.5.1	Interworking Response handling	16
6.6	Suitable CPM Clients	16
6.7	CPM Event Reporting Framework	16
6.7.1	Service Identification	16
6.7.2	Supported Event Reporting Scenarios	17

6.7.3	Handling of the CPM Event Reporting requests and responses	17
6.7.4	CPM Event Reporting Data Definition	17
6.7.5	CPM Defined Events	17
6.8	CPM Group Session Data Management	18
6.8.1	Data Structure of the CPM Group Session Data Management	18
7	Procedures at CPM Client	18
7.1	Registering at the SIP/IP Core	18
7.2	CPM Standalone Message Handling	18
7.2.1	Sending CPM Standalone Messages	19
7.2.2	Receiving CPM Standalone Messages	19
7.2.3	Deferred CPM Message Handling	19
7.3	CPM Session Handling	20
7.3.1	Initiating New CPM Sessions	20
7.3.2	Receiving a CPM Session Invitation	21
7.3.3	Extending a CPM 1-1 Session to a CPM Group Session	21
7.3.4	Closing a CPM Session	22
7.3.5	Invite other Principals to existing CPM Group Session	22
7.3.6	Remove Participants from a CPM Group Session	22
7.3.7	Modifying a CPM Session	22
7.3.8	Handling a Received CPM Session Modification Request	22
7.3.9	Media Plane Handling for CPM Sessions	23
7.3.10	Participant Information	23
7.3.11	Handling Deferred CPM 1-1 Session Message Delivery	23
7.3.12	Handling Deferred CPM Group Session Message Delivery	24
7.4	CPM File Transfer	24
7.4.1	CPM File Transfer Session Initiation	24
7.4.2	Receiving a CPM File Transfer Request	24
7.4.3	CPM File Transfer Session Release	24
7.4.4	Fetching a Deferred CPM File Transfer file(s)	24
7.4.5	Resuming an interrupted CPM File Transfer	24
7.5	Handling of Denoted Messages	24
8	Procedures at CPM Participating Function	24
8.1	Registration	24
8.1.1	Receive SIP REGISTER Notification	24
8.1.2	Receive Registration Event Information Notifications	25
8.1.3	Terminating the Subscription to Registration Event Information	25
8.1.4	Using the Registration Event Information	25
8.1.5	Core Network Registration	25
8.2	Procedures in the Originating Network	25
8.2.1	CPM Standalone Message Handling	25
8.2.2	CPM Session Handling	26
8.2.3	CPM File Transfer Handling	27
8.2.4	Sending a Disposition Notification	27
8.3	Procedures in the Terminating Network	27

8.3.1	CPM Standalone Message Handling	27
8.3.2	CPM Session Handling	30
8.3.3	CPM File Transfer Handling	32
8.3.4	Sending a Disposition Notification	32
8.3.5	Delivery of Disposition Notifications	32
8.3.6	Delivery Policies in Terminating CPM Participating Function	32
8.3.7	Interworking Results Handling in the CPM Participating Function	32
8.4	User Preferences	32
8.4.1	Retrieving User Preferences	32
8.5	Record CPM Conversation History	32
8.5.1	Record CPM Standalone Message	32
8.5.2	Record CPM Session	32
8.5.3	Record CPM File Transfer	32
8.5.4	Record Interworked Deliveries	32
8.6	Media Plane Handling	33
8.6.1	Procedures upon Receiving MSRP	33
8.6.2	Procedures to Send MSRP	33
8.6.3	Recording MSRP for CPM Sessions	33
8.7	Termination of all CPM Sessions of a CPM User due to Administrative Trigger	33
9	Procedures at CPM Controlling Function	33
9.1	CPM Standalone Message Handling	33
9.1.1	Pager Mode CPM Standalone Message Handling	33
9.1.2	Large Message Mode CPM Standalone Message Handling	33
9.2	CPM Group Session Handling	33
9.2.1	CPM Group Session Initiation	34
9.2.2	Session Cancellation Request	34
9.2.3	Participant Joining a CPM Group Session for a CPM Pre-defined Group	34
9.2.4	Rejoining CPM Group Session Request	34
9.2.5	Adding Participants Request	34
9.2.6	Removing Participant Request	34
9.2.7	Session Leaving Request	34
9.2.8	CPM Group Session Modification	34
9.2.9	Group Session Ending Request	34
9.2.10	Create Session with a Participant	34
9.2.11	Participant Removing Request	35
9.2.12	Media Plane Handling	35
9.2.13	Pseudonyms in a CPM Group Session	36
9.2.14	Participant Information	36
9.2.15	Disposition Notification	36
9.3	CPM File Transfer Handling	36
Appendix A.	Change History	36
Appendix B.	Static Conformance Requirements	36
Appendix C.	CPM-Defined Header Fields	37

C.1. Header Field Definitions	37
C.1.1. Conversation-ID	37
C.1.2. Contribution-ID	37
C.1.3. InReplyTo-Contribution-ID	37
C.1.4. Session-Replaces	37
C.1.5. Message-Expires	37
C.1.6. Message-UID	37
C.1.7. Contact Header field values	37
C.1.8. SDP attributes and values	37
C.1.9. Message-Direction	37
C.1.10. Message-Context	37
C.1.11. Message-Correlator	37
C.1.12. IW-Number	37
C.1.13. CPM namespace for headers extensions	37
C.1.14. Payload-Type	38
C.2. ABNF for the CPM-defined SIP Headers	38
C.3. ABNF for the CPM extensions to SIP Headers	38
C.4. ABNF for the CPM-defined SDP parameter	38
Appendix D. Release Version in User-Agent and Server Headers (Normative)	38
D.1. CPM Version 1.0	38
D.2. CPM Version 2.0	38
D.3. CPM Version 2.1	38
Appendix E. Examples of CPM-Based Services	38
Appendix F. The Parameters to be Provisioned for CPM Service	38
Appendix G. Interoperability With OMA Simple IM Clients	38
Appendix H. CPM Feature Tags	38
H.1. CPM Feature Identifiers	38
H.2. CPM Client Behaviour	39
H.3. Proposed Formats for CPM Feature Identifiers	39
H.4. Client CPM-based Service Identification	39
H.5. P-Asserted-Service Header Field	39
Appendix I. CPM Notification Formats	39
I.1. Deferred CPM Message Notification Format	39
I.1.1. Out-of-band Deferred CPM Message Notification Format	39
I.1.2. In-band Deferred CPM Message Notification Format	39
I.2. Notification Format of Deferred CPM Message After Expiry	39
Appendix J. Deferred Messages Event Package Definition	39
Appendix K. Format Of Notification For Deferred CPM Message After Expiry	39
Appendix L. Emoticons (Normative)	39
L.1. List of supported emoticons	39
L.2. Emoticon processing by the CPM Clients	40
L.2.1. Emoticons in composed/sent instant messages	40
L.2.2. Emoticons in received/displayed instant messages	40

Appendix M. Example of Event Reporting body (Normative)	40
Appendix N. Algorithm for Correlating SMS messages with Objects from the CPM Message Store (Normative)	40
N.1. Correlation algorithm	40
N.2. Dealing with Collisions	40
Appendix O. CPM Extensions for IMDN (Normative)	40
O.1. ABNF Update	40
O.2. The RelaxNG Schema	40
Appendix P. The CPM Group Session Data Management (Normative)	40
P.1. Schema Description	40
P.2. CPM Extensions to the Conference Event Package	41
Q.1. CPM Controlling Function Policy	41
Q.1.1. Participant Removal Policy	41
Q.1.2. CPM User Roles	41
Document Management	42
Document History	42
Other Information	42

1 Introduction

1.1 Overview

This document describes which sections of the Open Mobile Alliance Converged IP (Internet Protocol) Messaging (OMA CPM) 2.2 Conversation Functions specification (see [CPMCONVFUNC]) are supported by RCS (Rich Communications Suite) 7.0.

For details on how this fits technically in the RCS 7.0 scope, please see [RCS 7.0].

For easier reference, this document follows the same structure as [CPMCONVFUNC]. For that reason the headings of the sections are citations of the headings used in [CPMCONVFUNC], within the sections they describe what part the equivalent section in [CPMCONVFUNC] is supported by RCS. For sections that are not applicable in their entirety, this is mentioned at the top level of the section and the subsections are not mentioned explicitly thereafter. For sections in which no difference with [CPMCONVFUNC] is introduced however, also the subsections are mentioned to state explicitly that they are applicable as well.

This specification lists differences and clarifications for RCS compared to [CPMCONVFUNC]. The former category includes both differences in expected behaviour compared to [CPMCONVFUNC] as well as corrections in behaviour, which should disappear over time when bug fixes will be applied to [CPMCONVFUNC]. The latter category describes what options are chosen for RCS in case [CPMCONVFUNC] provides multiple possibilities and provides clarifications on how the provided functionality is expected to be used.

1.2 Scope

This document provides the details of the messaging technology used in this release of RCS.

1.3 Definition of Terms

Term	Description
3GPP	3rd Generation Partnership Project
3GPP2	Third Generation Partnership Project 2
ABNF	Augmented Backus–Naur Form
B2BUA	Back to back user agent
CPIM	Common Presence and Instant Messaging
CPM	Converged IP Messaging
GRUU	Globally Routable User Agent URI
HTTP	Hyper-Text Transfer Protocol
IARI	IMS Application Reference Identifier
ICSI	IMS Communication Service Identifier
IETF	Internet Engineering Task Force
IM	Instant Messaging
IMDN	Instant Message Disposition Notification. See [RFC5438].

Term	Description
IMS	IP Multimedia Subsystem
IP	Internet Protocol
ISF	Interworking Selection Function
IWF	Interworking Function
MMS	Multimedia Messaging Service
MSRP	Message Session Relay Protocol
OMA	Open Mobile Alliance
RCS	Rich Communication Suite
RFC	Request For Comments
RTCP	RTP Control Protocol
RTP	Real-time Transport Protocol
SDP	Session Description Protocol
SIMPLE	SIP for Instant Messaging and Presence Leveraging Extensions
SIP	Session Initiation Protocol
SLA	Service Level Agreement
SMS	Short Message Service
SVG	Scalable Vector Graphics
TCP	Transmission Control Protocol
UA	User Agent
UAC	User Agent Client
UAS	User Agent Server
URI	Uniform Resource Identifier
XDM	XML Document Management
XDMS	XML Document Management Server
XML	eXtensible Markup Language

1.4 Document Cross-References

Ref	Document Number	Title
1	[RCS 7.0]	Rich Communication Suite 7.0 Advanced Communications: Services and Client Specification Version 8.0, 28 June 2017 http://www.gsma.com/rcs/
2	[CPMCONVFUNC]	CPM Conversation Functions, Open Mobile Alliance Ltd. OMA-TS-CPM_Conv_Funct-V2_2-20170612-D http://member.openmobilealliance.org/ftp/Public_documents/COM/CO-M-CPM/Permanent_documents/OMA-TS-CPM_Conversation_Function-V2_2-20170612-D.zip
3	[RFC4028]	Session Timers in the Session Initiation Protocol (SIP), IETF, April 2005 http://www.ietf.org/rfc/rfc4028.txt

2 References

See chapter 1.4.

3 Terminology and Conventions

The same conventions, terminology, definitions and abbreviations used in chapter 3 of [CPMCONVFUNC] are valid for RCS. Additional abbreviations and terms specific for this document are in chapter 1.3.

4 Introduction

RCS supports the following modes of CPM-based communication

- One-to-One and One-to-Many Pager Mode Standalone messaging including interworking
- One-to-One and One-to-Many Large Message Mode Standalone Messaging including interworking
- Deferred Messaging
- Receiving a CPM File Transfer for Geolocation Push during a call as described in [RCS 7.0], meaning that
 - per session only one location shall be transferred
 - the transfer is to only one other user (i.e. not to a group),
 - a thumbnail isn't used,
 - disposition notifications are not requested,
 - CPIM wrapping is not used and
 - the requesting the transmission of the file or resuming a File Transfer is not in scope.
 - Deferral of the File Transfer is not in scope
 - Recording of the File Transfer is not in scope
- One-to-one session (including interworking) and Ad-hoc session mode messaging

RCS does not support the following modes of CPM-based communication

- Pre-defined group messaging
- Interworking of CPM Group Sessions
- Closed CPM Group Messaging
- Initiating a File Transfer and using File Transfer for use cases other than Geolocation Push.
- Interoperability of different MSRP session matching algorithms.

RCS also does not support or make use of following CPM Concepts:

- The CPM Client requesting anonymity when sending a CPM Standalone Message or setting up a CPM Session.
For RCS a client shall not request Privacy and the CPM Controlling and Participating Functions shall apply a Service Provider Policy where privacy is not allowed when handling incoming requests and responses.
- User Preferences managed by the user through XML (extensible Markup Language) Document Management (XDM).
For RCS, preferences shall be the same for all users and therefore set by the network either as fixed policies in the CPM Participating Function or by pre-provisioning XDM documents on behalf of the user:
 - Recording shall always be applied for RCS based on Service Provider policies i.e. equivalent to a rule with the <allow-offline-storage> sub-element of the action element set to “true”
 - Delivery policies in the terminating CPM Participating Function shall be as follows:
 - Deliver and interwork if the user has a non-CPM capable primary device when handling a message (e.g. a device with only CS/SMS connectivity) the equivalent of a <allow-delivery-and-interwork> sub-element of the action element set to “true”
 - Regular delivery for users of which the primary device is currently CPM capable or when handling a disposition notification
 - The CPM rules to always reject invites (i.e. an ‘<allow-reject-invite>’ sub-element set to “true”), do not disturb (i.e. an ‘<allow-do-not-disturb>’ sub-element set to “true”), direct interworking (i.e. an ‘<allow-interwork>’ sub-element set to “true”), direct delivery to the Message Store (i.e. an ‘<allow-store>’ sub-element set to “true”), forwarding of incoming messages (i.e. an ‘<allow-forward>’ sub-element set to “true”) and direct deferral of incoming (i.e. ‘<allow-defer>’ sub-element set to “true”) is thus not used for RCS.
 - A client-based blacklist shall be used. The CPM Participating Function shall thus not have to compare the Authenticated Originator CPM Address against a list stored in the XMDS.
 - There will be no rules to exclude CPM clients from delivery. All clients registered for the corresponding CPM Service shall be considered suitable to receive the SIP INVITE or MESSAGE request.
 - Expired Deferred Messages shall always be discarded and shall thus not be delivered to the CPM Message Store
- The verification of the User-Agent header to require support of a specific User Agent Version
- CPM Clients requesting “negative-delivery” disposition notifications when sending a message
- Support for CPM Clients that do not support IMDN
- Support for GRUU.
When the CPM Participating Function needs to address a specific client, for RCS this

shall always be done using a sip.instance parameter as described in section 6.1.2 and [RCS 7.0]

- The CPM participating Function requesting event(s) to the CPM client and therefore also CPM Activity Events
- Interworking of File Transfers. For RCS a File Transfer shall never be sent to the ISF.
- Interoperability with OMA SIMPLE IM Clients
- Client CPM-based Service Identification. RCS has its own extension identification format which can be used beyond CPM-based services as described in [RCS 7.0].
- Aggregation of IMDNs
For RCS, the CPM Participating and Controlling Functions will never aggregate IMDNs
- Denoting Messages in CPM Standalone Group Conversations and CPM Group Sessions
- For CPM Sessions:
 - The functioning of the CPM Participating Function as a Proxy. For RCS the Participating Function shall always work as a Back-to-Back User Agent (B2BUA) and shall always stay in the media path.
 - Using multiple media streams in a session
For RCS, there shall be only one media stream in a CPM session and it will be an MSRP stream.
For RCS the CPM Participating Function shall thus also not have to handle cases where only part of the media streams have been accepted and at most one IWF will be involved in a session. Therefore, if an IWF indicates closure of the CPM session, Service Provider policy shall thus always be to close the CPM session completely.
 - The use of real-time continuous media, using RTP (Real Time Protocol) / Real Time Control Protocol) RTCP (in combination with CPM that is).
 - The modification of an ongoing CPM session.
For RCS a client shall not request to add or remove media streams in an ongoing session and the handling of incoming requests requesting such modifications is thus out-of-scope for RCS. For RCS the only use case for sending a SIP INVITE request in an ongoing dialog for a CPM Session shall be to refresh the SIP Session timer as described in [RFC4028].
The CPM Participating Function shall therefore reject any CPM Session Modification Requests with a SIP 488 Not Acceptable Here response.
 - The extension of a CPM 1-to-1 Session to a CPM Group Session.
Instead, an RCS client shall set up a new CPM Group Session without referring to the CPM 1-to-1 session in the SIP INVITE for that CPM Group Session.
 - Temporarily declining a session with a SIP 480 response
 - Redirecting an incoming session with a SIP 302 response
 - Rejecting an incoming invitation for a 1-to-1 session with a SIP 603 response
 - Sending regular Messages to only one other participant in a CPM Group Chat conversation.
The functionality is used only for sending disposition notifications.

- CPM Group Sessions that are not CPM Long-Lived Group Sessions.
For RCS all CPM Group Sessions will be considered to be long-lived and a CPM client will always be allowed to restart it provided that the CPM User is considered to be a participant in the CPM Group Session. Service Provider policy in the CPM Participating Function will thus always allow the user to restart the CPM Long-lived Group Session
- The Terminating CPM Participating Function establishing the Chat Session with only the first CPM Client that answered 200 OK or establishing the Chat Session with all the CPM user's CPM Clients until a message or "isComposing" notifications
For RCS the Terminating CPM Participating Function shall establish Chat Session with all the CPM user's clients and keep those sessions established for the duration of the Chat Session or until the client loses connectivity.
- Not storing the SDP in attributes associated with the media streams in the Session Info Object.
For RCS, the SDP shall always be stored.
- Recording the Chat at the end of the session.
For RCS, the content shall always be recorded live.
- Releasing a CPM Ad-hoc Group Session when the initiator leaves
- Not buffering the MSRP messages exchanged by the other Participants in the CPM Group Session until a 2xx final response is received from the pending Participant.
For RCS, messages exchanged while a SIP INVITE request is pending towards a participant shall always be buffered until a final SIP response is received from that participant.
- The "all Participants" Participant Removal Policy.
For RCS, the CPM Controlling Function shall indicate the "Administrator only" Participant Removal Policy and if no policy was indicated, RCS clients shall assume that the "no Participant Removal policy" applies.
- Setting the icon in a Group Chat using the <icon-uri> element in the Group Session Data Management
RCS clients shall set icons for CPM Group Sessions only by use of the "file-info" element in the set icon request.
- Support for updating the bulletin in CPM Group Session Data Management and Participant Notifications. The bulletin shall not be used for RCS.
- For CPM Standalone Messages:
 - Including stored data without downloading it to the client (i.e. referring to external bodies) when sending a CPM Standalone Message.
An RCS client shall always send the content as part of the message itself and RCS Clients and Participating Functions shall not download external content referred to from a CPM Standalone Message.
 - Conversion in the network from a Pager Mode CPM Standalone Message to a Large Message Mode CPM Standalone Message.
It is assumed that since the body is not changed, a message that can be delivered to the CPM Participating Function as Pager Mode, can be sent onwards as such

even if the total size would have gotten be above the 1300 bytes limit due to inclusion of additional SIP header fields.

- Pulling of deferred CPM Standalone Messages is not applicable for RCS. The network shall always push deferred messages when a client of the user comes online. An RCS client shall thus not subscribe to the “deferred-messages” event package.
- Furthermore, the policy shall be such that if the participating function has information that a user did not come online, but can receive a message provided that it is interworked, the participating function can decide to push the deferred messages to the ISF. How the participating function obtains this information is out of the scope of this document. The participating function can do this as soon as the message is deferred or later on when it finds out that the user’s capability for receiving a message that is interworked has changed.
- In-band and Out-of-Band Notifications on availability and expiry of Deferred CPM Standalone Messages.
For RCS a Participating Function shall not send such notifications and the handling when receiving them is thus not applicable for RCS clients
- Addressing a CPM Standalone Message to a destination address that is neither SIP URI address nor TEL URI address
- Using the “TO” and “CC” qualifiers in the recipient list when sending a multi-party CPM Standalone Message. For RCS only “BCC” shall be used.

4.1 CPM Version 1.0

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

4.2 CPM Version 2.0

No differences with [CPMCONVFUNC].

4.3 CPM Version 2.1

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

4.4 CPM Version 2.2

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

5 Format of CPM Conversation Items

5.1 CPM Standalone Message

No differences with [CPMCONVFUNC].

5.2 CPM Session

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

5.2.1 SDP Contents for CPM Sessions

5.2.1.1 SDP Contents when Initiating or Modifying a CPM Session

No differences with [CPMCONVFUNC], after taking into account the use cases and technology choices for RCS that are described in section 4

5.2.1.2 SDP Handling at Intermediate Nodes

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

5.2.1.3 SDP Handling at Terminating Nodes

No differences with [CPMCONVFUNC], after taking into account the use cases and technology choices for RCS that are described in section 4.

5.2.1.4 Handling of Media connection parameters for MSRP

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

5.2.1.4.1 Legacy MSRP session matching

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4

5.3 CPM Conversation Identification

No differences with [CPMCONVFUNC].

5.4 Disposition Notifications

Following differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4:

- the length of the generated values for the IMDN.Message-ID shall not exceed 36 characters.

5.4.1 Generate Delivery Notification

No differences with [CPMCONVFUNC].

5.4.2 Generate Read Report

No differences with [CPMCONVFUNC].

5.4.3 Receive Delivery Notification

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- For RCS, a CPM client may receive disposition notifications from a legacy client (e.g. SIMPLE IM) with a different Conversation-ID and/or Contribution-ID than the 1-to-1 Chat in which the message to which the notification applies was sent. An RCS client should therefore match received notifications to the messages sent based only on the IMDN Message-ID.

5.4.4 Receive Read Report

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- For RCS, a CPM client may receive disposition notifications from a legacy client (e.g. SIMPLE IM) with a different Conversation-ID and/or Contribution-ID than the 1-to-1 Chat in which the message to which the notification applies was sent. An RCS client should therefore match received notifications to the messages sent based only on the IMDN Message-ID.

5.4.5 Multidevice handling

No differences with [CPMCONVFUNC].

5.4.6 Generate Interworking Notification

No differences with [CPMCONVFUNC].

5.4.7 Receive Interworking Notification

No differences with [CPMCONVFUNC].

5.5 “isComposing” Notifications

No differences with [CPMCONVFUNC].

5.6 CPM Service IDs

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- older CPM version values may be received in the service capabilities exchange via OMA Presence (e.g. version=2.0),

6 Common Procedures

6.1 Authenticated Originator’s CPM Address

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

6.1.1 Identifying the sending user and device in SIP requests and responses

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- If multiple URIs are available, the TEL URI shall be used, following the procedure in section 2.5 of [RCS 7.0].
- The value used for the instance identifier shall be determined as specified in section 2.4.2 of [RCS 7.0].

6.1.2 Identifying the recipient device in SIP requests and responses

No differences with [CPMCONVFUNC].

6.2 SIP/IP Core

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- The SIP/ Internet Protocol (IP) core shall always correspond to Third Generation Partnership Project (3GPP/3GPP2) (IP Multimedia Subsystem) IMS

6.3 Display Name and Anonymity

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

6.4 SIP Warning Header Field

6.4.1 General

No differences with [CPMCONVFUNC].

6.4.2 Warning Texts

No differences with [CPMCONVFUNC].

6.5 Communicating With the ISF and IWF

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

6.5.1 Interworking Response handling

No differences with [CPMCONVFUNC].

6.6 Suitable CPM Clients

No differences with [CPMCONVFUNC].

6.7 CPM Event Reporting Framework

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

6.7.1 Service Identification

No differences with [CPMCONVFUNC].

6.7.2 Supported Event Reporting Scenarios

No differences with [CPMCONVFUNC].

6.7.2.1 CPM Client reported event(s) to CPM Participating Function

No differences with [CPMCONVFUNC].

6.7.2.2 CPM Participating Function requesting event(s) to CPM Client

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4

6.7.2.3 CPM Enabler as a Transport for Other Applications/Enablers

No differences with [CPMCONVFUNC].

6.7.2.4 CPM Event Reporting for Multi-device

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4.

6.7.3 Handling of the CPM Event Reporting requests and responses

6.7.3.1 Sending One Time CPM Events

No differences with [CPMCONVFUNC].

6.7.3.2 Receiving One Time CPM Events

No differences with [CPMCONVFUNC].

6.7.3.3 Initiating bi-directional Session for CPM Events

No differences with [CPMCONVFUNC].

6.7.3.4 Receiving a Bi-directional Session for CPM Events invitation

No differences with [CPMCONVFUNC].

6.7.3.5 Closing a Session for CPM Events

No differences with [CPMCONVFUNC].

6.7.3.6 Checking CPM Events requests

No differences with [CPMCONVFUNC].

6.7.4 CPM Event Reporting Data Definition

No differences with [CPMCONVFUNC].

6.7.4.1 Data Semantics and Validation Constraints

No differences with [CPMCONVFUNC].

6.7.5 CPM Defined Events

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

6.7.5.1 CPM IMAP Events

No differences with [CPMCONVFUNC].

6.7.5.2 CPM Interworking Events

No differences with [CPMCONVFUNC].

6.7.5.2.1 Interworking Events Structure

No differences with [CPMCONVFUNC].

6.7.5.3 CPM ACTIVITY Events

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4.

6.8 CPM Group Session Data Management

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

6.8.1 Data Structure of the CPM Group Session Data Management

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

7 Procedures at CPM Client

No differences with [CPMCONVFUNC].

7.1 Registering at the SIP/IP Core

Registration will be done as described in [RCS 7.0]. This means the following differences with [CPMCONVFUNC]:

- In step 4, the feature tags, ICSIs and IARIs (IMS Application Reference Identifier) for the other RCS use cases and enablers will be included.

As a clarification for RCS:

- In Step 3 and Note 1: The value used for the instance identifier shall be determined as specified in section 2.4.2 of [RCS 7.0].
- RCS devices supporting Standalone Messaging shall never be configured to pull Deferred CPM Standalone Messages and shall thus not subscribe to the “deferred-messages” event package.

7.2 CPM Standalone Message Handling

No differences with [CPMCONVFUNC].

7.2.1 Sending CPM Standalone Messages

7.2.1.1 Sending a Pager Mode CPM Standalone Message

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

As clarifications for RCS:

- Multiple authenticated originators' CPM addresses may be received (see [RCS 7.0]). The address used when sending a reply shall be based on the provisioning setting described in [RCS 7.0].

7.2.1.2 Sending a Large Message Mode CPM Standalone Message

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

As clarifications for RCS:

- Multiple authenticated originators' CPM addresses may be received (see [RCS 7.0]). The address used when sending a reply shall be as described in [RCS 7.0].

7.2.1.3 Generate a CPM Standalone Message

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

7.2.1.4 Forwarding/Including Stored Data without Downloading to the CPM Client

Not applicable for RCS as clarified in section 4.

7.2.2 Receiving CPM Standalone Messages

7.2.2.1 Receiving a Pager Mode CPM Standalone Message and SIP IMDNs

No differences with [CPMCONVFUNC].

7.2.2.2 Receiving a Large Message Mode CPM Standalone Message

No differences with [CPMCONVFUNC].

7.2.2.3 CPIM Handling of Received CPM Standalone Messages and SIP IMDNs

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

7.2.3 Deferred CPM Message Handling

7.2.3.1 Subscribe to Deferred CPM Message Info

Not applicable for RCS (device settings shall not be to pull Deferred CPM Standalone Messages) as clarified in section 4.

7.2.3.2 Handling Deferred CPM Message(s)

7.2.3.2.1 Handling Deferred CPM Standalone Message(s) before Having Received an Expiry Notification

Not applicable for RCS (device settings shall not be to pull Deferred CPM Standalone Messages) as clarified in section 4.

7.2.3.2.2 Retrieving CPM Standalone Message(s) after Receiving a Notification for Expiry of Deferred CPM Message(s)

Not applicable for RCS as clarified in section 4

7.2.3.3 Receiving a notification for Expiry of Deferred CPM Standalone Message

Not applicable for RCS as clarified in section 4

7.2.3.4 Notification Handling

7.2.3.4.1 Out-of-band Notifications

Not applicable for RCS as clarified in section 4

7.2.3.4.2 In-band Notifications

Not applicable for RCS (device settings shall not be to pull Deferred CPM Standalone Messages) as clarified in section 4.

7.3 CPM Session Handling

7.3.1 Initiating New CPM Sessions

7.3.1.1 Initiating a CPM 1-1 Session

No difference with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

As clarifications for RCS:

- When a 200 OK response is received on an INVITE request from a user with whom a one-to-one CPM session is established already, an RCS client will terminate the existing session by sending a SIP BYE request.
- When a response is received to the INVITE request that differs from 200 OK or 486 Busy Here, the user will be informed that the session could not be set-up
Note as described in chapter 7.3.2 of this document re-direction is not supported in RCS.

7.3.1.2 Initiating a CPM Group Session for a CPM Ad-hoc Group

Following difference with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4:

- For RCS in step 10 the CPM Client shall set the Contribution-ID to the same value as the Conversation-ID since in RCS there is only one Group Chat within a conversation.

As a clarification for RCS:

- In step 3, when supporting File Transfer in a Group Chat, File Transfer via HTTP (Hyper-Text Transfer Protocol) and/or Geolocation PUSH the client shall take into account the differences and clarifications provided in [RCS 7.0].
- When a response is received to the INVITE request that differs from 200 OK, the user will be informed that the session could not be set-up

7.3.1.3 Initiating a CPM Group Session for a CPM pre-defined Group

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4.

7.3.1.4 Joining a CPM Group Session for a Join-in Group

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4.

7.3.1.5 Re-joining a CPM Long-lived Group Session

Following difference with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4:

- Step 5 shall be done as described in the addressing section in [RCS 7.0].
- The option for the client to continue the CPM Group Session for the CPM user on reception of a SIP 404 or SIP 403 response is not applicable for RCS.

As clarifications for RCS:

- When a response is received to the INVITE request other than the ones defined above, the user will be informed that the session could not be set-up

NOTE: as described in chapter 7.3.2 of this document re-direction is not supported in RCS.

7.3.2 Receiving a CPM Session Invitation

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

Following clarifications are given for RCS:

- In step 6 c, an RCS client shall correlate the CPM Address of the inviting user with the client's address book in order to derive a display name for the user
- The display of the CPM User list as defined in step 6 d is not applicable for RCS.

7.3.3 Extending a CPM 1-1 Session to a CPM Group Session

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4.

7.3.4 Closing a CPM Session

7.3.4.1 Closing a CPM 1-1 Session

No differences with [CPMCONVFUNC].

7.3.4.2 Leaving a CPM Group Session

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4

7.3.4.3 Receiving a CPM Session Closing Request

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- For RCS no specific behaviour will be provided in case a Reason Header is included with the protocol set to "SIP" and the protocol-cause set to "200".

7.3.4.4 Receiving a CPM Session Cancellation

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- For RCS as described in section 2.10 of [RCS 7.0], when a Reason Header is included with the protocol set to "SIP" and the protocol-cause set to "200", a group chat or File Transfer session for which an explicit invitation was shown to the user as a result of the configuration described in [RCS 7.0] will not be indicated to the user appropriately and therefore not as a "missed call" or similar.

7.3.5 Invite other Principals to existing CPM Group Session

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

7.3.6 Remove Participants from a CPM Group Session

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- An RCS client shall only offer the user the removal of participants if the "CPM Controlling Function Policy", the "Participant Removal Policy" and the user's "CPM User Role" as defined in Appendix Q of this document permit it.

7.3.7 Modifying a CPM Session

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4

7.3.8 Handling a Received CPM Session Modification Request

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4.

7.3.9 Media Plane Handling for CPM Sessions

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- An RCS client will support the emoticons defined in Appendix L

7.3.9.1 MSRP-based Media Streams

Following difference with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4:

- RCS clients will send isComposing Messages as described in [CPMCONVFUNC] chapter 5.5.

Following clarifications are given for RCS:

- In step 1 b, the CPIM To header will be set to sip:anonymous@anonymous.invalid.
- In 1-to-1 sessions, the CPIM From header will be set to *sip:anonymous@anonymous.invalid*.
- In ad-hoc group sessions, the CPIM From header will be set to the sending user's identity including the display name as Formal Name.
- All RCS clients shall send text with *text/plain* content type inside the cpim wrapper.

7.3.9.2 RTP/RTCP-based Media Streams

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4.

7.3.10 Participant Information

7.3.10.1 Subscribe to Receiving CPM Group Session Participant Information

No differences with [CPMCONVFUNC].

7.3.10.2 Receive Participant Information Notification

No difference with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

7.3.11 Handling Deferred CPM 1-1 Session Message Delivery

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

As a clarification for RCS:

- In step 2, for forwarding stored disposition notifications to a client, the session is set up as sendonly and will be identified by the user part of the URI in the P-Asserted-Identity header being rcse-standfw. This session shall only be used to deliver stored IMDNs and an RCS client shall automatically accept this session

7.3.12 Handling Deferred CPM Group Session Message Delivery

Following difference with [CPMCONVFUNC]:

- As described in [RCS 7.0], an RCS client that lost connectivity shall automatically attempt to rejoin when regaining connectivity. The CPM recommendation for the client to rejoin only when there are user messages to send is therefore not applicable for RCS.

7.4 CPM File Transfer

As a clarification for RCS: please note the use cases and technology choices for RCS that are described in section 4.

7.4.1 CPM File Transfer Session Initiation

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4.

7.4.2 Receiving a CPM File Transfer Request

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

7.4.3 CPM File Transfer Session Release

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

7.4.4 Fetching a Deferred CPM File Transfer file(s)

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4

7.4.5 Resuming an interrupted CPM File Transfer

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4

7.5 Handling of Denoted Messages

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4

8 Procedures at CPM Participating Function

8.1 Registration

No differences with [CPMCONVFUNC].

8.1.1 Receive SIP REGISTER Notification

No differences with [CPMCONVFUNC].

8.1.2 Receive Registration Event Information Notifications

No differences with [CPMCONVFUNC].

8.1.3 Terminating the Subscription to Registration Event Information

No differences with [CPMCONVFUNC].

8.1.4 Using the Registration Event Information

No differences with [CPMCONVFUNC].

8.1.5 Core Network Registration

No differences with [CPMCONVFUNC].

8.2 Procedures in the Originating Network

No differences with [CPMCONVFUNC].

8.2.1 CPM Standalone Message Handling

8.2.1.1 Handle a Pager Mode CPM Standalone Message and SIP IMDNs

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4:

As a clarification for RCS:

- For RCS, if a delivery notification and/or read report was requested, the originating participating function will not add its address in an IMDN-Record-Route header
- If a CPM Standalone Message request is about to be routed through a border element to a network with which no CPM Standalone Message interworking agreement exists, that border element will have to reject the request with one of the error responses described in step 8 A) iii in order to allow for a fallback to other means of delivering the message.

8.2.1.2 Handle a Large Message Mode CPM Standalone Message

Following differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4:

- For RCS, the same handling as for a SIP BYE will apply when a SIP BYE was received from the controlling or terminating participating function in which case step 3 of the handling of a SIP BYE request will be executed in the dialog towards the originating client.

As a clarification for RCS

- In case an error response is received from the ISF or an involved IWF (Interworking Function) on a SIP or MSRP request, the response will be forwarded to the client
- If a CPM Standalone Message request is about to be routed through a border element to a network with which no CPM Standalone Message interworking agreement exists, that border element will have to reject the request with one of the

error responses described in [CPMCONVFUNC] as error responses from the SIP/IP to initiate the interworking to the ISF .

- If a MSRP error response is received, no interworking will be attempted for RCS

8.2.2 CPM Session Handling

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

8.2.2.1 Handle a CPM Session Invitation

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

As a clarification for RCS

- If a CPM Session request is about to be routed through a border element to a network with which no CPM Session interworking agreement exists, that border element will have to reject the request with one of the error responses described in [CPMCONVFUNC] as error responses from the SIP/IP to initiate the interworking to the ISF .

8.2.2.2 Handle a Cancel Request

No differences with [CPMCONVFUNC].

8.2.2.3 Handle a SIP BYE Request

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

8.2.2.4 SIP Session Timer Expiry

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

8.2.2.5 Handle a CPM Session Modification Request

Not Supported for RCS following the use cases and technology choices for RCS that are described in section 4.

8.2.2.6 Handling of Participants Information

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- For RCS, as an optimisation if there is no established session with the Controlling Function (which should only be the case when forwarding content), the CPM Participating Function may decide not to forward a SIP SUBSCRIBE request received from the client to the Controlling Function. Instead it may return a SIP 200 OK response and generate an initial NOTIFY request to the client containing the conference state information based on the stored participant information from the chat.

8.2.2.6.1 Receive Participant Information Notification

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

8.2.2.7 CPM Group Session Re-join Requests

8.2.2.7.1 General Re-join Handling

Following differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4:

- If there was already, a SIP INVITE request for the same Group Chat sent to the client, the Participating Function shall handle the situation as described in [RCS 7.0].

8.2.2.7.2 CPM Long-lived Group Session

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4:

8.2.2.8 Handling of Failed Deferred Delivery of Chat Messages

No differences with [CPMCONVFUNC].

8.2.3 CPM File Transfer Handling

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4

8.2.4 Sending a Disposition Notification

No differences with [CPMCONVFUNC].

8.2.4.1 Sending a Disposition Notification on behalf of a Served CPM User

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4.

8.3 Procedures in the Terminating Network

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

8.3.1 CPM Standalone Message Handling

8.3.1.1 Handle a Pager Mode CPM Standalone Message and SIP IMDNs

Following differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4:

- For RCS, if a delivery notification and/or read report was requested, the terminating participating function will not add its address in an IMDN-Record-Route header
- For RCS, in step 7 an equivalent rule with only the <allow-offline-storage> sub-element of the action element is not considered to have matched in step 4

8.3.1.2 Handle a Large Message Mode CPM Standalone Message

Following differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4:

- In step 7 b of the handling of an INVITE also any recipient-list-history body of the original INVITE request will be included in the generated INVITE request as well as any Subject, Conversation-ID, Contribution-ID and InReplyTo-Contribution-ID headers from the original INVITE request. Next to those the INVITE request will also include a Supported header with the option tag 'timer' and a 'recipient-list-invite' tag if included in the original INVITE request.
- In the handling of a 200 OK response for RCS, in step 4 a BYE will only be generated after one was received from the originating side and all chunks received far on the user plane has been transmitted towards the sender of the 200 OK response.
- In case a BYE is received from a terminating client, the media plane resources to that recipient will be released and a 200 OK response will be sent to that client.
- For RCS, step 5 is not applicable.
- In Step 3 of the handling of a 200 OK response, for RCS the timing of the forwarding will depend on Local Server Policy¹. For RCS this policy will as well as allowing the complete re-assembly of the received message before starting the forwarding also allow to forward in step 3 all chunks that have been received so far in case all CPIM headers have been received already. Otherwise, with this setting of the policy forwarding should begin as soon as all CPIM headers are received. Again, with this policy all further chunks will be forwarded as soon as the MSRP headers have been completely received.
- For RCS, if a delivery notification and/or read report was requested, the terminating participating function will not add its address in an IMDN-Record-Route header

8.3.1.3 Applying delivery policies

No differences with [CPMCONVFUNC].

8.3.1.4 Replacing Media with a Reference

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4

8.3.1.5 Establish MSRP Session for Receiving Large Message Mode CPM Standalone Message

Following differences with [CPMCONVFUNC]:

¹ Several policies can be available depending on operator requirements: the specified behaviour is highly recommended when there are no screening requirements: it minimizes buffering delays on the Participating Function.

- For RCS step 1 of receiving a MSRP SEND will be subject to Local Server Policy². For RCS this policy will also offer to forward immediately any received chunks to any terminating entity. That is either the ISF or a CPM client to which a session was setup for the transmission of this standalone message. This policy would allow this as soon as all CPIM headers have been received and from then on as soon as the MSRP headers are received for a certain chunk.

As a clarification for RCS:

- For RCS, if a delivery notification and/or read report was requested, the terminating participating function will not add its address in an IMDN-Record-Route header

8.3.1.6 Defer CPM Standalone Messages

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

8.3.1.6.1 Storing a Deferred CPM Message in the Deferred CPM Message Queue

No differences with [CPMCONVFUNC].

8.3.1.6.2 Pushing Deferred CPM Messages

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

8.3.1.6.3 Sending Notifications and Awaiting CPM Client Action

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4.

8.3.1.6.4 Delivering Deferred CPM Messages to the Message Storage Server

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4

8.3.1.6.5 Handle a Deferred CPM Message Information Request

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4.

8.3.1.6.6 Sending a Pager Mode Deferred CPM Message

Following differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4:

- In step 6, if a delivery notification and/or read report was requested, the participating function will not add its address in an IMDN-Record-Route header

² Several policies can be available depending on operator requirements: the specified behaviour is highly recommended when there are no screening requirements: it minimizes buffering delays on the Participating Function.

8.3.1.6.7 Sending a Large Message Mode Deferred CPM Message

Following differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4:

- In step 6, if a delivery notification and/or read report was requested, the participating function will not add its address in an IMDN-Record-Route header

8.3.1.6.8 Handling Deferred CPM Messages on Expiry Time

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

8.3.2 CPM Session Handling

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

8.3.2.1 Handle a CPM Session Invitation

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

8.3.2.1.1 Handling of CPM Session responses from CPM Clients

Following differences for RCS after taking into account the use cases and technology choices for RCS that are described in section 4:

- For RCS when in a Group Session there is an INVITE request for the same Group Chat sent to the Conference Focus, the case shall be handled as described in [RCS 7.0].

8.3.2.1.2 MSRP Media Stream with one CPM Client

Not applicable to RCS following the use cases and technology choices for RCS that are described in section 4.

8.3.2.1.3 Multiple MSRP Media Streams

No differences with [CPMCONVFUNC].

8.3.2.2 Handle a Cancel Request

No differences with [CPMCONVFUNC].

8.3.2.3 Handle a SIP BYE Request

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

8.3.2.4 SIP Session Timer Expiry

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

8.3.2.5 Handle a CPM Session Modification Request

Not supported for RCS following the use cases and technology choices for RCS that are described in section 4.

8.3.2.6 Handling of Participants Information

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- The differences and clarifications provided in section 8.2.2.6 apply for the terminating Participating Function as well.

8.3.2.7 Receive Participant Information Notification

No differences with [CPMCONVFUNC].

8.3.2.8 CPM Group Session Re-join Requests

No differences with [CPMCONVFUNC].

8.3.2.9 Deferred CPM Session handling

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

8.3.2.9.1 Deferred delivery initiated by the CPM Participating Function

8.3.2.9.1.1 The 1-1 CPM Session delivery

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4:

8.3.2.9.1.2 CPM Group Session delivery

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- For RCS, when the CPM Participating Function has knowledge that the CPM client lost connectivity while the session was active (e.g. because it received a SIP BYE request from the client side carrying a Reason header field with the protocol set to SIP and with the protocol_cause being a value different from 200), the CPM Participating Function may delay the deferred delivery of CPM Group Session data until after an implementation dependent timeout to avoid the race condition between this deferred delivery and the automatic rejoin performed by the client.

8.3.2.9.1.3 Deferred delivery performed upon CPM Client re-join

No differences with [CPMCONVFUNC].

8.3.2.9.1.4 Deferred delivery race conditions

Not applicable for RCS. In RCS the CPM Participating Function will accept the rejoin and rely on the client handling for managing multiple sessions described in [RCS 7.0].

8.3.3 CPM File Transfer Handling

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4

8.3.4 Sending a Disposition Notification

No differences with [CPMCONVFUNC].

8.3.5 Delivery of Disposition Notifications

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

8.3.6 Delivery Policies in Terminating CPM Participating Function

No differences with [CPMCONVFUNC].

8.3.7 Interworking Results Handling in the CPM Participating Function

No differences with [CPMCONVFUNC].

8.4 User Preferences

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

8.4.1 Retrieving User Preferences

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

8.5 Record CPM Conversation History

No differences with [CPMCONVFUNC].

8.5.1 Record CPM Standalone Message

No differences with [CPMCONVFUNC].

8.5.2 Record CPM Session

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

8.5.3 Record CPM File Transfer

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4.

8.5.4 Record Interworked Deliveries

No differences with [CPMCONVFUNC].

8.6 Media Plane Handling

8.6.1 Procedures upon Receiving MSRP

No differences with [CPMCONVFUNC].

8.6.2 Procedures to Send MSRP

No differences with [CPMCONVFUNC].

8.6.3 Recording MSRP for CPM Sessions

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

8.7 Termination of all CPM Sessions of a CPM User due to Administrative Trigger

No differences with [CPMCONVFUNC].

9 Procedures at CPM Controlling Function

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

9.1 CPM Standalone Message Handling

9.1.1 Pager Mode CPM Standalone Message Handling

Following differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

- For RCS, if a delivery notification and/or read report was requested, the CPM Controlling Function will not add its address in an IMDN-Record-Route header in the CPIM headers of the outgoing SIP MESSAGE requests generated in step 5

9.1.2 Large Message Mode CPM Standalone Message Handling

Following differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4:

- In the processing of an MSRP SEND request, the forwarding of the request won't start until the MSRP headers have been received completely and for the initial request(s) also the CPIM headers
- For RCS, if a delivery notification and/or read report was requested, the controlling function will not add its address in an IMDN-Record-Route header in the CPIM headers of the outgoing MSRP SEND requests generated in step 2 of the handling of an MSRP SEND request

9.2 CPM Group Session Handling

The CPM Group Session Identity is the focus Session Identity in RCS.

9.2.1 CPM Group Session Initiation

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

9.2.2 Session Cancellation Request

No differences with [CPMCONVFUNC].

9.2.3 Participant Joining a CPM Group Session for a CPM Pre-defined Group

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4

9.2.4 Rejoining CPM Group Session Request

Following differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4:

- For RCS the CPM Controlling Function shall also check whether the rejoining user is part of the session already or being invited. If either is the case, the Controlling Function shall handle the situation as described in section 3.2.4.10 of [RCS 7.0].

9.2.5 Adding Participants Request

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

9.2.6 Removing Participant Request

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

9.2.7 Session Leaving Request

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

9.2.8 CPM Group Session Modification

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4

9.2.9 Group Session Ending Request

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

9.2.10 Create Session with a Participant

Following differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4:

- In step 13,
 - If the Controlling Function has a "subject" attribute stored in the participant information of the Group Chat and the session with a new participant is created as result of the handling of a request to add a participant as per section 9.2.5, then it shall add a Subject header containing the stored value in the INVITE request.
 - In all other cases where the Controlling Function has a "subject" attribute stored in the participant information, it may add a Subject header field with the stored value in the INVITE request for backward compatibility reasons, based on service provider policy.
 - In cases where the Controlling Function has no "subject" attribute stored in the participant information of the Group Chat, the Subject header field shall be absent in the INVITE request to the participant.
- After step 2 upon receiving a 200 "OK" response , the participant is considered to be in "connected" state and notifications will be sent as specified in section 9.2.14.3 to notify other participants about it. After that, the session timer handling will be initiated to monitor the new session.

9.2.11 Participant Removing Request

No differences with [CPMCONVFUNC].

9.2.12 Media Plane Handling

No differences with [CPMCONVFUNC].

9.2.12.1 Media Plane Handling for MSRP Sessions

Following differences with [CPMCONVFUNC]:

As a clarification for RCS:

- Step 2 c in "Upon receiving an MSRP SEND request" will be executed as soon as the CPIM headers have been received
- The following clarifies existing OMA CPM functionality and are added as steps 4 and 5 respectively in [CPMCONVFUNC] in the steps under "Upon receiving an MSRP SEND request":
 - SHALL temporarily queue any messages sent from a participant during the conference start-up phase until there is a final response from all invited participants;
 - As each 200 OK is received, SHALL send to that participant all the messages temporarily queued up to that point

9.2.12.2 Media Plane Handling for RTP Sessions

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4

9.2.13 Pseudonyms in a CPM Group Session

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

9.2.14 Participant Information

9.2.14.1 CPM Group Session Participant Information Request

Following differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4:

- In step 8, the contact header will be set to the CPM group session identity

As a clarification for RCS:

- Some throttling controlled by local server policy should be applied to the notifications sent during the initial and final phases of the group session

9.2.14.2 Long-lived CPM Group Session

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

9.2.14.3 Sending Participant Information Notifications

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

9.2.14.4 Terminating the Subscription

No differences with [CPMCONVFUNC].

9.2.15 Disposition Notification

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

9.3 CPM File Transfer Handling

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4

APPENDIX A. Change History

Appendix not relevant for RCS: as with the other RCS documents the history table is at the end of the document.

APPENDIX B. Static Conformance Requirements

Appendix not relevant for RCS

APPENDIX C. CPM-Defined Header Fields

C.1. Header Field Definitions

C.1.1. Conversation-ID

No differences with [CPMCONVFUNC].

C.1.2. Contribution-ID

No differences with [CPMCONVFUNC].

C.1.3. InReplyTo-Contribution-ID

No differences with [CPMCONVFUNC].

C.1.4. Session-Replaces

No differences with [CPMCONVFUNC].

C.1.5. Message-Expires

No differences with [CPMCONVFUNC].

C.1.6. Message-UID

No differences with [CPMCONVFUNC].

C.1.7. Contact Header field values

No differences with [CPMCONVFUNC].

C.1.8. SDP attributes and values

No differences with [CPMCONVFUNC].

C.1.9. Message-Direction

No differences with [CPMCONVFUNC].

C.1.10. Message-Context

No differences with [CPMCONVFUNC].

C.1.11. Message-Correlator

No differences with [CPMCONVFUNC].

C.1.12. IW-Number

No differences with [CPMCONVFUNC].

C.1.13. CPM namespace for headers extensions

No differences with [CPMCONVFUNC].

C.1.14. Payload-Type

No differences with [CPMCONVFUNC].

C.2. ABNF for the CPM-defined SIP Headers

No differences with [CPMCONVFUNC].

C.3. ABNF for the CPM extensions to SIP Headers

No differences with [CPMCONVFUNC].

C.4. ABNF for the CPM-defined SDP parameter

No differences with [CPMCONVFUNC].

APPENDIX D. Release Version in User-Agent and Server Headers (Normative)

No differences with [CPMCONVFUNC].

D.1. CPM Version 1.0

Not applicable for RCS

D.2. CPM Version 2.0

No differences with [CPMCONVFUNC].

D.3. CPM Version 2.1

No differences with [CPMCONVFUNC].

APPENDIX E. Examples of CPM-Based Services

Appendix not relevant for RCS because it is an informative annex.

APPENDIX F. The Parameters to be Provisioned for CPM Service

Appendix is not relevant for RCS. Provisioning parameters are described in [RCS 7.0].

APPENDIX G. Interoperability With OMA Simple IM Clients

Appendix not applicable for RCS following the use cases and technology choices for RCS that are described in section 4.

APPENDIX H. CPM Feature Tags

No differences with [CPMCONVFUNC]

H.1. CPM Feature Identifiers

No differences with [CPMCONVFUNC].

H.2. CPM Client Behaviour

No differences with [CPMCONVFUNC].

H.3. Proposed Formats for CPM Feature Identifiers

No differences with [CPMCONVFUNC].

H.4. Client CPM-based Service Identification

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4.

H.5. P-Asserted-Service Header Field

No differences with [CPMCONVFUNC].

APPENDIX I. CPM Notification Formats

I.1. Deferred CPM Message Notification Format

I.1.1. Out-of-band Deferred CPM Message Notification Format

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4.

I.1.2. In-band Deferred CPM Message Notification Format

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4.

I.2. Notification Format of Deferred CPM Message After Expiry

Not applicable for RCS following the use cases and technology choices for RCS that are described in section 4.

APPENDIX J. Deferred Messages Event Package Definition

Appendix not relevant for RCS following the use cases and technology choices for RCS that are described in section 4

APPENDIX K. Format Of Notification For Deferred CPM Message After Expiry

Appendix not relevant for RCS following the use cases and technology choices for RCS that are described in section 4

APPENDIX L. Emoticons (Normative)

L.1. List of supported emoticons

No differences with [CPMCONVFUNC].

L.2. Emoticon processing by the CPM Clients

No differences with [CPMCONVFUNC].

L.2.1.Emoticons in composed/sent instant messages

No differences with [CPMCONVFUNC].

L.2.2.Emoticons in received/displayed instant messages

No differences with [CPMCONVFUNC].

APPENDIX M. Example of Event Reporting body (Normative)

No differences with [CPMCONVFUNC].

APPENDIX N. Algorithm for Correlating SMS messages with Objects from the CPM Message Store (Normative)

No differences with [CPMCONVFUNC].

N.1. Correlation algorithm

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- In addition, the section 4.1.9 of [RCS 7.0] applies.

N.2. Dealing with Collisions

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- In addition, the section 4.1.10 of [RCS 7.0] applies.

APPENDIX O. CPM Extensions for IMDN (Normative)

O.1. ABNF Update

No differences with [CPMCONVFUNC].

O.2. The RelaxNG Schema

No differences with [CPMCONVFUNC].

APPENDIX P. The CPM Group Session Data Management (Normative)

P.1. Schema Description

No differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4.

P.2. CPM Extensions to the Conference Event Package

No differences with [CPMCONVFUNC].

APPENDIX Q. CPM Ad-hoc Group Policy (Normative)

No differences with [CPMCONVFUNC].

Q.1. CPM Controlling Function Policy

No differences with [CPMCONVFUNC].

Q.1.1. Participant Removal Policy

Following differences with [CPMCONVFUNC] after taking into account the use cases and technology choices for RCS that are described in section 4:

- The CPM Client shall apply the “no Participant Removal” policy (i.e. rem-nobody) if none of the well-known-keyword values is present.

Q.1.2. CPM User Roles

No differences with [CPMCONVFUNC].

Document Management

Document History

Version	Date	Brief Description of Change	Approval Authority	Editor / Company
1.0	13 Aug 2012	First version for RCS 5.1 Based on the document for RCS 5.0 Approved by DAG and PSMC	PSMC	Tom Van Pelt / GSMA
1.0	26 Sep 2012	Added RCC.11 number		Tom Van Pelt / GSMA
1.0	18 Sep 2013	Converted to Infocentre2 PRD template		Tom Van Pelt / GSMA
2.0	25 Sep 2013	RCS 5.1 Maintenance#2: Include agreed CR1001	RCC TF	Tom Van Pelt / GSMA
3.0	07 May 2014	First version of the document for RCS 5.2: Include approved CR1002	GSG	Tom Van Pelt / GSMA
4.0	28 Feb 2015	First version of the document for RCS 5.3: Include approved CR1003	PSMC	Tom Van Pelt / GSMA
5.0	21 Mar 2016	First version of the document for RCS 6.0: Include approved CR1004	PSMC	Tom Van Pelt / GSMA
6.0	28 Jun 2017	First version of the document for RCS 7.0: Include approved CR1005	TG	Tom Van Pelt / GSMA

Other Information

Type	Description
Document Owner	Future Networks Programme, Global Specification Group
Editor / Company	Tom Van Pelt, GSM Association

It is our intention to provide a quality product for your use. If you find any errors or omissions, please contact us with your comments. You may notify us at prd@gsma.com

Your comments or suggestions & questions are always welcome.