RCS Test Case Guidelines
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1 Introduction

1.1 Overview

This document defines the test cases for terminals using RCS Universal Profile features. Terminal RCS testing includes field testing, lab testing, performance testing and special regional test cases. For this document, most of the test cases are related to field testing, and GCF/PTCRB could use them as part of their existing certification program. Therefore, for the field test cases the document will refer to TS.11 Annex D RCS section directly. This document also defines RCS test cases for the industry and provides standardized guidance for RCS lab testing, performance testing and other special test cases that are not covered by GCF & PTCRB.

1.2 Scope

The RCS Universal Profile features are defined by GSMA RCC.71. The main features include: RCS P2P messages, RCS A2P/P2A messages, Enriched calling, Green Button and voice & IP video. Further expansion of the scope requires further study.

This document includes test cases for the RCS P2P messages, the use of Chatbots and Enriched calling. The Chatbot requirements and related field network configuration parameters are also included. For future versions, Green Button, voice & IP video test cases will be added.

1.3 Definitions

Term	Description
Chatbot	An RCS-based service provided to users whose output is presented in a conversational form and which provide users with answers/options to common questions. Often a piece of software interfacing with one or more users aiming to simulate intelligent human conversation.

1.4 Abbreviations

Term	Description
CNN	Convolutional Neutral Network
CPIM	Common Profile for Instant Messaging
CSS	Cascading Style Sheets
DUT	Device Under Test
JSON	JavaScript Object Notation
MSRP	Message Session Relay Protocol
MSISDN	Mobile Subscriber Integrated Services Digital Number, i.e., mobile phone number.
MaaP	Message as a Platform, A system that provides a mechanism for Chatbot developers to create and register Chatbots, which can then be exposed to the users connected to the platform through a messaging system.
MNO	Mobile Network Operator
NLG	Natural Language Generation
RCS	Rich Communication Services

Term	Description
T&C	Terms and conditions
TTS	Text to Speech
UP	Universal Profile
URI	Uniform Resource Identifier
URL	Uniform Resource Locator

1.5 References

Ref	Doc Number	Title
[1]	GSMA RCC.71	RCS Universal Profile Service Definition Document.
[2]	GSMA RCC.07	Rich Communication Suite -- Advanced Communications Services and Client Specification
[3]	GSMA TS.11	Device Field and Lab Test Guidelines-Annex D RAT INDEPENDENT
[4]	GSMA RCC.17	End to End Test Specification, RCS Universal Profile
[5]	GSMA IR.64	IMS Service Centralization and Continuity Guideline
[6]	GSMA NG.114	IMS Profile for Voice, Video and Messaging over 5GS
[7]	GSMA IR.90	IMS Profile for Voice and SMS RCS Interworking Guidelines
[8]	GCF FTP-V3330 Annex B.5	IMS Specific server/ network information
[9]	3GPP TS24.229	IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP)

2 Chatbot Test Cases

Chatbot and MaaP service are new features that were defined in RCS UP2.x and modified gradually in the next few UP releases. It provides message services for industry customers. Message types include text, audio, video, pictures, vCard, geographic location and rich media card messages (Rich Card). The message can also contain suggested actions and suggested replies. Chatbot and MaaP service also support individual users to actively send messages, reply messages and search Chatbots.

2.1 Capability Discovery towards Chatbot

Test topic	Related test case number
RCS Capability Discovery towards Chatbot by Tel-Number	TS.11 58-2.10.1.1
RCS Capability Discovery towards Chatbot by SIP URI	TS.11 58-2.10.1.2
RCS Capability Discovery towards Chatbot by Deeplink-a Link from the Webpage	TS.11 58-2.10.1.3
RCS Capability Discovery towards Chatbot by Deeplink-QR Code	TS.11 58-2.10.1.4
RCS Capability Discovery towards Chatbot by Deeplink- APP	TS.11 58-2.10.1.5

Test topic	Related test case number
RCS Discovery 1-to-1 Chatbot by Chatbot Short Code in TO field	TS.11 58-2.10.1.6
RCS Discovery 1-to-1 Chatbot by Searching a Key Word	TS.11 58-2.10.1.7
Finding Several Chatbots	TS.11 58-2.10.1.8
RCS Chatbot Searching with a not Matching Keyword	TS.11 58-2.10.1.9
RCS Capability Discovery towards Chatbot by Searching a Key Word with Geolocation	TS.11 58-2.10.1.10

2.2 Chatbot information

Test topic	Related test case number
Chatbot Information Display	TS.11 58-2.10.2.1
RCS Chatbot Verification	TS.11 58-2.10.2.2
Chatbot Information Retrieval - Cache-control Max-age has not Expired	TS.11 58-2.10.2.4

2.3 Chatbot Management

Test topic	Related test case number
Block the Chatbot on DUT	TS.11 58-2.10.3.1
Discover the Blocked Chatbot List Set by the Network Side	TS.11 58-2.10.3.2
Critical Chatbot Identification and cannot be Blocked	TS.11 58-2.10.3.4
Mute Notifications of Individual Chatbot	TS.11 58-2.10.3.5

2.4 Chatbot A2P Message

Test topic	Related test case number
A2P Chatbot Message from a Known Chatbot	TS.11 58-2.10.4.1
1-to-1 Chatbot Message with a Suggested Chip List	TS.11 58-2.10.4.2
1-to-1 Chatbot Message with Rich Card	TS.11 58-2.10.4.3
1-to-1 Chatbot Message with Suggested Chip List	TS.11 58-2.10.4.4
1-to-1 Chatbot Multipart CPIM Message- File Transfer with Suggested Chip List	TS.11 58-2.10.5.5

Test topic	Related test case number
1-to-1 Chatbot Multipart CPIM Message- Geolocation Push Message with Suggested Chip List	TS.11 58-2.10.4.6
1-to-1 Chatbot Multipart CPIM Message- Richcard with Suggested Chip List	TS.11 58-2.10.4.7
1-to-1 Chatbot Carousel Message	TS.11 58-2.10.4.8
1-to-1 Chatbot Message with Suggested Actions	TS.11 58-2.10.4.9
User Privacy Control	TS.11 58-2.10.4.10
Chatbot Message CSS Functions- Predefined CSS Template is Referred in Chatbot Info	TS.11 58-2.10.4.11-1
Chatbot Message CSS Functions- CSS Template is Included in the Rich Card Message	TS.11 58-2.10.4.11-2

2.5 Chatbot P2A Message

Test topic	Related test case number
DUT Sends P2A Message to Chatbot	TS.11 58-2.10.5.1
DUT Sends message to Chatbot (Fail)	TS.11 58-2.10.5.2

2.6 Anti-Spam

Test topic	Related test case number
A Single Message is Reported as Spam (Optional)	TS.11 58-2.10.6.1
A Chatbot is Reported as Spam (Mandatory)	TS.11 58-2.10.6.2

2.7 Chatbot Conversation Management

Test topic	Related test case number
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P2A Message Statues Display- ‘Delivered’ IMDN on DUT	TS.11 58-2.10.7.2
P2A Message Statues Display - Chatbot is Unavailable	TS.11 58-2.10.7.3
A2P Message Statues Display	TS.11 58-2.10.7.4
The Maximum Size of a PostBack Data Element is 1024bytes	TS.11 58-2.10.7.5
Maximum A2P Message Size：DUT can Receives a 250KB JSON Payload	TS.11 58-2.10.7.6

Test topic	Related test case number
Select a Conversation to Pin it to the Top of the List	TS.11 58-2.10.7.7
Select and Flag Messages as Important	TS.11 58-2.10.7.8
Search for a Chat Record	TS.11 58-2.10.7.9
Chatbot Conversation - Messages ordered by Timestamp	TS.11 58-2.10.7.10

2.8 Chatbot Performance Test for Local Scenarios

2.8.1 RCS Capability Discovery towards Chatbot by Deep Link - More than one QR code

Description

When searching for a Chatbot by scanning QR codes, there are multiple QR codes available close to each other within the scan area.

Related core specifications

GSMA RCC.71 UP 2.5 R15-4-12 and R15-4-15

Reason for test

It has to be verified that DUT can inform the user properly when scanning more than one QR code.

Initial configuration

1. DUT is RCS Provisioned - Registered (Online)
2. DUT and Chatbot platform are ready to handle capability requests via Options
3. Two Chatbot deep links have been constructed. The deep links are embedded in QR codes:

The deep link of QR code A contains the SIP URI of Chatbot A.

The deep link of QR code B contains the SIP URI of Chatbot B.

Test procedure

-	Test procedure	Expected behaviour
1	Two QR codes are displayed or printed close to each other and ensure the DUT camera can capture them together. Apply the messaging client scanner to scan the QR codes	On DUT screen, the DUT should use arrows or other obvious instructions to prompt the user that there are several QR codes, please select one QR code for identification.
2	Tap one of the QR code. For example, the QR code A.	The 1-to-1 chat with Chatbot A can be established on DUT.

2.8.2 RCS Capability Discovery towards Chatbot by Deep Link - The QR code is not Chatbot related

Description

Scanning one QR code that is not Chatbot related.

Related core specifications

GSMA RCC.71 UP2.5 R15-4-12 and R15-4-15

Reason for test

It has to be verified that DUT can inform the user properly when scanning one QR code that doesn't contain a Chatbot SIP URI.

Initial configuration

1. DUT is RCS Provisioned - Registered (Online)
2. DUT is ready to handle capability requests via Options
3. Produce a QR code that is not Chatbot related.

Test procedure

-	Test procedure	Expected behaviour
1	Appy the messaging client scanner to scan the QR code.	The DUT should inform the user this is not a Chatbot or display the string parsed by the QR code.

2.8.3 RCS Capability Discovery towards Chatbot by Deep Link - the QR code includes the parameter of SMS-recipient

Description

The deep link of QR includes the sms-recipient field. When the DUT is RCS offline, the DUT should initiate the regular messaging interface (for example P2P RCS or any type of SMS) and apply the SMS number as the recipient after scanning the QR code.

Related core specifications

GSMA RCC.71 UP2.5 R15-4-12 and R15-4-15

Reason for test

The deep link of QR includes the sms-recipient parameter. It has to be verified that DUT can connect using an appropriate SMS message service under the RCS offline scenario.

Initial configuration

1. DUT is RCS Provisioned - unregistered (Offline for example turn off the data connection).
2. DUT and Chatbot platform are ready to handle capability requests via Options.
3. Construct one Chatbot deep link including a non-RCS capable short code or telephone number as sms-recipient part and a service_id parameter

Test procedure

-	Test procedure	Expected behaviour
1	DUT scans the QR code, which embeds the sms-recipient parameter of a Chatbot.	Since DUT is RCS offline, the DUT should initiate the regular messaging interface and apply the SMS number as the recipient.
2	Turn on the data connection of DUT.	DUT is RCS registered.
3	Set the Chatbot information query as failed. (This can be simulated)	The regular messaging interface should not be initiated on DUT. DUT should inform the user that the Chatbot is not reachable or display the string parsed by the QR code.

2.8.4 Chatbot Concurrent Test

Description

DUT sends and receives Chatbot messages during voice call

Related core specifications

GSMA RCC.71 UP-SDD

Reason for test

To verify the DUT can concurrently process Chatbot messages during voice call

Initial configuration

1. DUT is RCS Provisioned - Registered (Online)
2. DUT and Chatbot platform are ready to handle capability requests via Options
3. DUT and Chatbot have interacted previously
4. Cache-Control max-age validity for the Chatbot Info has not expired.

Test procedure

-	Test procedure	Expected behaviour

1	DUT makes a voice call to Reference 1 and Reference 1 answered the call. Hold the call until this test case is finished.	The voice call is established.
2	DUT sends a message to the Chatbot.	The message delivery status shows the message was sent successfully on DUT.
3	After checking the message, go back to the voice call interface on DUT.	The voice call remains active.
4	Chatbot sends message to DUT.	In the voice call interface, DUT receives the new message notifications. When checking the received new messages, the message can be displayed correctly on DUT. The notification can be icon notification or acoustic notification.

2.8.5 Reject Exceptional Message from Chatbot with 606 Response

Description

DUT handles 1-to-1 Chatbot exceptional request from a Chatbot and reply 606 for Chatbot feature tag missing.

Related core specifications

GSMA RCC.17 ID_RCS_RBM_2, RCC.07v12 3.6.8.4

Reason for test

It has to be verified that the DUT is able to reject an exceptional message from Chatbot with 606 response.

Initial configuration

1. DUT is RCS Provisioned - Registered (Online)
2. DUT and Chatbot platform are ready to handle capability requests via Options
3. Cache-Control max-age validity for the Chatbot Info has not expired
4. This test can be done using a simulator.

-	**Test procedure**	**Expected behaviour**
1	Chatbot sends DUT a request message which contains Chatbot application feature tag but no Chatbot role tag.	DUT receives the request message from Chatbot and responds with 606 NOT Acceptable.

2.9 Requirement for Chatbots

Below are the requirements for a standard Chatbot that is used for the test cases referred to in section 2. The network RCS UP version is UP2.0 or above. Several standard Chatbots should be prepared since some test cases require for a message from an unknown Chatbot.

No.	Requirement
1	The Chatbot information page shall contain the Profile Information: - an alphanumeric Service Name (mandatory)

No.	Requirement
	- a non-animated thumbnail picture as the Service Icon - an alphanumeric Service Description - a Call-back Phone Number - a Service Website - a link to Chatbot-specific Terms & Conditions (mandatory) - a Service Email Address - a SMS (long or short code) number - Background images - a Chatbot provider's name - an Address (business location) - Color (Optional) The category or keyword includes: food, restaurant, shop, park, hospital and so on.
2	Verification certificate: Chatbot 1 within test case 58-2.10.2.2 has a valid verification certificate, Chatbot 2 within test case 58-2.10.2.2 doesn't.
3	The Chatbot should support CSS and the template can be set on Chatbot Platform by the MNOs.
4	The Cache-Control max-age should be set.
5	The Chatbot shall send or reply a suggested chip list message when implementing test case 58-2.10.4.2. The suggested chip list includes at least 2 suggested replies and 2 suggested actions.
6	The Chatbot shall be able to send or reply Rich Card Messages when implementing test case 58-2.10.4.3. The Rich Card media shall cover different medias: Image (not animated), Video, Audio, Map views (based on coordinates). The Chatbot shall have several media images prepared with different sizes: SHORT_HEIGHT images: 3:1, MEDIUM_HEIGHT images: 1.56:1, TALL_HEIGHT images: 9:10.
7	The Chatbot shall be able to send or reply RCS FT Message and suggested chip list message when implementing test case 58-2.10.4.5. The suggested chip list includes at least 2 suggested replies and 2 suggested actions. The file format can be pdf, text, picture, audio, video, vCard.
8	The Chatbot shall be able to send or reply an RCS Geolocation Push Message and suggested chip list message when implementing test case 58-2.10.4.6. The suggested chip list includes at least 2 suggested replies and 2 suggested actions.
9	The Chatbot shall be able to send or reply a RichCard message and suggested chip list message when implementing test case 58-2.10.4.7. The suggested chip list includes at least 6 suggested replies and 5 suggested actions.
10	The Chatbot shall support carousels when implementing test case 58-2.10.4.8: Chatbot shall firstly send or reply a Carousel of 2 Rich Cards to DUT. The Rich Card No.2 of the Carousel includes suggested replies. Chatbot shall secondly send or reply a Carousel of 12 Rich Cards to DUT. There are 4 suggested replies within each of the Rich Cards.
11	The Chatbot shall reply suggested actions when implementing test case 58-2.10.4.9. The suggested actions can trigger the following actions on DUT: - Open a web URL - Open a "WebView" - Initiate a voice call to a defined destination - Initiate a video call to a defined destination - Initiate an Enriched Call to a defined destination - Initiate the recording and sending of a video message or an audio message to a defined destination - Send a message to a defined destination - Send and share a geolocation push back to the Chatbot - Open the user's default mapping app - Open the user's default calendar app to the new event page, with start time, end time, title, and description pre-filled

No.	Requirement
12	The Chatbot can be temporary disabled from receiving messages
13	The Chatbot shall be able to reply or send a message with suggested action that includes PostBack data of 1024KB in size.
14	The Chatbot shall be able to reply or send a message with a Rich Card Carousel message when implementing test case 58-2.10.7.6. The Carousel should contain at least 10 Rich Cards with the maximum number of suggested Replies and Actions, text, image and each action shall have a PostBack Data of 1024KB length. The total size of the JSON should be around 250KB.

Requirement for Critical Chatbot:

No.	Requirement
1	The critical Chatbot can be discovered by users. The information page of critical the Chatbot indicates to the user that this is a critical Chatbot.

2.10 FQNW Configuration Parameters

2.10.1 RCS - Enabling Restrictions

Client Approved Listing: Does the RCS Client/MSISDN have to be registered with the auto-configuration server (or any other network element) first to be accepted? If so, please provide a contact person (Name, email address) for activation?	Yes/No – Please specify Contact:

2.10.2 RCS - Regular Internet APN

RCS APN detail	Value
APN	
USERNAME	
PASSWORD	
PROXY SERVER ADDRESS	
PROXY PORT	

2.10.3 RCS - Network configuration information

Network Timer	The RCS UP version	Value
Autoconfiguration server available	UP 1.0 and above	Yes/No
Options AS available	UP 1.0 and above	Yes/No
End-User confirmation AS available	UP 1.0 and above	Yes/No

Chatbot Platform server available	UP 2.0 and above	Yes/No

2.10.4 RCS - Network timeouts

Network Timer	Value
Timeout value for not accepting a file	Please specify
Timeout value for not answering Video share session	Please specify
Timeout value for not answering Image share session	Please specify

2.10.5 RCS - Server feature support

Feature	RCS UP version	Value
1-to1 Chat	UP 1.0 and above	Yes/No
Group Chat	UP 1.0 and above	Yes/No
File Transfer	UP 1.0 and above	Yes/No
File Transfer Resume (upload/download)	UP 1.0 and above	Yes/No
Seamless vs. Integrated messaging	UP 1.0 and above	Seamless/Integrated
First registration over Wi-Fi	UP 1.0 and above	Yes/No
Network triggered provisioning (Provisioning by SMS push)	UP 1.0 and above	Yes/No
Enriched Calling	UP 1.0 and above	Yes/No
RCS Messaging Alias	UP 1.0 and above	Yes/No
Green button promise for Voice Call	UP 1.0 and above	Yes/No
Green Button promise for IP voice and video call	UP 1.0 and above	Yes/No
Chatbot capability discovery by Tel-Number	UP 2.0 and above	Yes/No
Chatbot capability discovery by SIP-URI	UP 2.0 and above	Yes/No
Chatbot capability discovery by Deep Link-QR Code	UP 2.0 and above	Yes/No
Chatbot capability discovery by Deep Link-APP	UP 2.0 and above	Yes/No
Chatbot spam report	UP 2.0 and above	Yes/No
Chatbot spam: Block the Chatbot on Network side	UP 2.0 and above	Yes/No
Network send the Blocked Chatbot List to Client	UP 2.0 and above	Yes/No

2.10.6 RCS - Client configuration parameters

Parameter	Description	RCS UP version	Value
IM CONFERENCE FACTORY URI	This is the parameter containing the URI for the IM server. The parameter is optional and if not configured, means that the MNO is not deploying an IM server. Consequently, features requiring IM server (such as Group Chat)	UP 1.0 and above	Please specify

	will not be available to those customers.		
FT MAX SIZE	This is a file transfer size limit in Kilobyte (KB). If a file is bigger than FT MAX SIZE, the transfer will be cancelled automatically. Please note that if it is set to 0, this limit will not apply.	UP 1.0 and above	Please specify
FT MAX SIZE INCOMING	This parameter provides a file transfer size limit in Kilobyte (KB). If a file to be transferred is bigger than FT MAX SIZE, then the client shall not initiate procedures to send the file via the File Transfer sender procedures. The configuration parameter is not applicable for the File Transfer receiver procedures. If it is set to **0**, then no limit shall apply.	UP 1.0 and above	Please specify
FT WARN SIZE	This is a file transfer size limit in KB to warn the user that a file may end up in significant charges. Please note that if it is set to 0, the user will not be warned.	UP 1.0 and above	Please specify
CAPABILITY INFO EXPIRY	When using the OPTIONS discovery mechanism and with the aim of minimizing the traffic, an expiry time is set in the capability information fetched using SIP OPTIONS. When performing a whole address book capability discovery (i.e. polling), an OPTIONS exchange takes place only if the time since the last capability update took place is greater than this expiration parameter	UP 1.0 and above	Please specify
END USER CONF REQ ID	This is identity that is used for sending the end user confirmation requests	UP 1.0 and above	Please specify
RE-REGISTRATION TIMER	Timer indicating the required re-registration period.	UP 1.0 and above	Please specify
CHAT INACTIVITY TIMER	The server will close the IM session once this timer expires.	UP 1.0 and above	Please specify
FT AUT ACCEPT	This parameter controls whether the client automatically accepts incoming File Transfer invitations (1) or whether acceptance depends on the user explicitly accepting (0). The parameter is only used if the file to be	UP 1.0 and above	Please specify

	transferred is smaller than the limit configured in FT WARN SIZE. For files that are larger, the invitation will always require manual acceptance. Automatic accept should only be used in a single device environment or if session forking on the AS is used.		
CONF-FCTY-URI	This parameter controls the SIP URI for setting up a Group Chat or an extending 1-1 Chat session. Presence of a dummy URI ("sip:foo@bar") in this parameter implies that the RCS client is not allowed to start a Group Chat.	UP 1.0 and above	Please specify
MAX_AD-HOC_GROUP_CHAT	This parameter controls the maximum number of participants allowed in an Ad-hoc Group Chat session. It is optional unless parameter CONF-FCTY-URI is set to a different value than "sip:foo@bar".	UP 1.0 and above	Please specify
FT HTTP CS URI	This parameter configures the URI of the HTTP content server where files will be uploaded by the originated side in case the destination cannot accept within the validity period. This parameter is optional since it is not mandatory for a service provider to have this originating solution based on an HTTP server.	UP 1.0 and above	Please specify
CHATBOT DIRECTORY	This parameter provides the URL from where a list of Chatbots can be retrieved. The URL shall contain the "https" scheme to enforce use of secure connections for the client's Chatbot Directory retrieval requests.	UP 2.0 and above	Please specify
BOTINFO FQDN ROOT	This parameter provides the root part of the FQDN to be used by the client to compose the Bot info URL.	UP 2.0 and above	Please specify
SPECIFIC CHATBOTS LIST	This parameter provides a URL from which a list of Chatbots requiring specific management can be retrieved. Default behavior if not provided: the procedures related to the Chatbots requiring specific management are not applicable	UP 2.0 and above	Please specify
IDENTITY IN ENRICHED SEARCH	This parameter determines whether the i query parameter is included in the client to Service Provider Chatbot Directory requests when	UP 2.0 and above	Please specify

	the user setting to enrich the search is enabled. 0 (default): the i query parameters are included 1: the i query parameter is not included		
PRIVACY DISABLE	This parameter determines whether a user is allowed to request anonymization for Chatbot sessions. When set to 0, anonymization of Chatbot sessions is enabled (default). When set to 1, anonymization of Chatbot sessions is disabled.	UP 2.0 and above	Please specify
CHATBOT MSG TECH	This parameter controls the messaging technology for Chatbot messaging. **0**: the Chatbot Services is disabled **1** (default): the Chatbot Service is enabled with support only for 1-to-1 Chatbot sessions **2**: the Chatbot Service is enabled with support for both 1-to-1 Chatbot sessions and 1-to-1 Chatbot Standalone Messages whereby for communication to a Chatbot the message technology selection described in section **Error! Reference source not found.** applies **3**: the Chatbot Service is enabled with support only for 1-to-1 Chatbot Standalone Messaging.	UP 2.0 and above	Please specify
PROVIDE GEOLOC PUSH	This parameter allows enabling (**1**) or disabling (**0**) the Geolocation PUSH service.	UP 1.0 and above	Please specify
Device Management over PS data off roaming exemption	This parameter indicates whether client configuration for Chatbots is a cellular data off exempt service when roaming. The following values are defined: 0: the device management services are not defined as a cellular data off exempted services when roaming. 1: the device management services are defined as a cellular data off exempted services when roaming (default value).	UP 2.0 and above	Please specify

3 1-to-1 Message Test Cases

3.1 1-to-1 Message Field Trial Test Cases

Test topic	Related test case number
MO 1-to-1 Chat (Integrated Messaging) - Simultaneous Conversations (With Reference RCS Provisioned - Registered (Online) and Reference Not Provisioned)	TS.11 58-2.3.1
MO 1-to-1 Chat (Integrated Messaging) - Reference RCS Provisioned - Not Registered (Offline) - Client Fallback to SMS	TS.11 58-2.3.2
MO 1-to-1 Chat (Integrated Messaging) - DUT RCS Provisioned – Not Registered (Offline) - Sent when back online	TS.11 58-2.3.3
MO 1-to-1 Chat (Integrated Messaging) - DUT RCS Provisioned - Not Registered (Offline) - Sent as SMS	TS.11 58-2.3.4
MO 1-to-1 Chat (Integrated Messaging) - Reference RCS Provisioned - Not Registered (Offline) - Network Fallback to SMS	TS.11 58-2.3.5
MO 1-to-1 Chat (Seamless Messaging) - Simultaneous Conversations (Messages and Files)	TS.11 58-2.3.6
MO 1-to-1 Chat (Seamless Messaging) - DUT RCS Provisioned - Not Registered (Offline) - File Transfer queued	TS.11 58-2.3.7
MO 1-to-1 Chat (Seamless Messaging) - DUT RCS Not Provisioned - File Transfer via MMS	TS.11 58-2.3.8
MO 1-to-1 Chat - DUT RCS Provisioned - Registered (Online) – Emoji	TS.11 58-2.3.9
MT 1-to-1 Chat - DUT RCS Provisioned - Registered (Online) - Visual and Audio notifications	TS.11 58-2.3.10
1-to-1 Chat - Backup & Restore server	TS.11 58-2.3.12
MO Standalone Messaging - Simultaneous Conversations (Short and Long messages)	TS.11 58-2.3.15
MO Standalone Messaging - To RCS Reference (DUT only attached to CS network - File Transfer queued)	TS.11 58-2.3.16
MO Standalone Messaging - To RCS Reference (DUT Online but without RCS Registration - File Transfer via MMS)	TS.11 58-2.3.17
MO Standalone Messaging - To RCS Reference (Emoji)	TS.11 58-2.3.18
MT Standalone Messaging - Visual and Audio notification of new messages	TS.11 58-2.3.19
Standalone Messaging - Successful handling of Simultaneous Conversations (Concurrently)	TS.11 58-2.3.21
Standalone Messaging - Backup & Restore server	TS.11 58-2.3.22
Standalone Messaging - During Voice Call	TS.11 58-2.3.23
Standalone Messaging - Display Status (Display Setting)	TS.11 58-2.3.24
1-to-1 Chat - Successful handling of Simultaneous Chats (Concurrently)	TS.11 58-2.3.25
1-to-1 Chat - Successful Display Status (Display Setting Enabled)	TS.11 58-2.3.26
MO 1-to-1 Chat (Seamless Messaging)-DUT is not connected to cellular	TS.11 58-2.3.27
MT 1-to 1 Chat-the unread messages notification display	TS.11 58-2.3.28
1-to-1 Chat-Control multiple conversations in parallel	TS.11 58-2.3.29
1-to-1 Chat: share location and tag locations with text field	TS.11 58-2.3.30

Test topic	Related test case number
1-to-1 Chat: Manually change the location and legacy user can receive the location through a link or a map image	TS.11 58-2.3.31
1-to-1 Message with multiple recipients	TS.11 58-2.3.32
1-to-1 Chat multiple recipient maximum number control	TS.11 58-2.3.33
1-to-1 message: Select and flag messages as important	TS.11 58-2.3.34
1-to-1 messaging: Select a conversation to pin it to the top of the list	TS.11 58-2.3.35

3.2 1-to-1 Message Concurrent Test

3.2.1 Receive 1-to-1 RCS Messages During Voice Call

Description

Receive 1-to-1 RCS messages during voice call

Related core specifications

GSMA RCC.71 UP-SDD

Reason for test

This test verifies the DUT can concurrently process 1-to-1 RCS messages during voice call

Initial configuration

DUT is RCS Provisioned - Registered (Online,connected via cellular or Wi-Fi)

Reference 1 is RCS Provisioned - Registered (Online, connected via cellular or Wi-Fi)

Test Procedure

-	Test procedure	Expected behaviour
1	DUT makes a voice call to Reference 1 and Reference 1 answered the call. Hold the call until this test case is finished.	The voice call is established.
2	Reference 1 sends a 1-to-1 RCS message. The message contains text and emoji.	In the voice call interface, DUT receives the new message notification. When checking the received new message, the text and emoji are displayed correctly on DUT. (The notification can be icon notification or acoustic notification.)
3	After checking the message, go back to the voice call interface on DUT.	The voice call remains active.
4	Repeat test step 2 and 3: Reference 1 sends 1-to-1 RCS messages. The	In the voice call interface, DUT receives the new message notifications. When checking the

	messages contain picture, audio, video, geolocation information and V-card respectively.	received new messages, the picture, audio, video, geolocation information and V-card can be displayed correctly on DUT. The notification can be icon notification or acoustic notification.

3.2.2 Send 1-to-1 Messages During Voice Calls

Description

Send 1-to-1 RCS messages during voice call

Related core specifications

GSMA RCC.71 UP-SDD

Reason for test

This test verifies the DUT can concurrently process 1-to-1 RCS messages during voice call

Initial configuration

DUT is RCS Provisioned - Registered (Online,connected via cellular or Wi-Fi)

Reference 1 is RCS Provisioned - Registered (Online,connected via cellular or Wi-Fi)

Test Procedure

-	**Test procedure**	**Expected behaviour**
1	DUT makes a voice call to Reference 1 and Reference 1 answered the call. Hold the call until this test case is finished.	The voice call is established.
2	DUT sends a 1-to-1 RCS message to Reference 1. The message contains text and emoji.	DUT sends the new message succesfully. When checking the received new message on Reference 1, the text and emoji are displayed correctly.
3	After checking the message, go back to the voice call interface on DUT.	The voice call remains active.
4	Repeat test step 2 and 3: DUT sends 1-to-1 RCS messages to Reference 1. The messages contain picture, audio, video, geolocation information, V-card respectively.	DUT sends the new message successfully. When checking the received new messages on Reference 1, the picture, audio, video, geolocation information, V-card can be displayed correctly.

3.2.3 Receive 1-to-1 RCS Messages During Call Waiting

Description

Receive 1-to-1 RCS messages during voice call waiting process

Related core specifications

GSMA RCC.71 UP-SDD

Reason for test

This test verifies the DUT can concurrently process 1-to-1 RCS messages during call waiting process

Initial configuration

As referred to 3.2.1

No call forwarding is activated on the DUT and the Reference 1

Test Procedure

-	**Test procedure**	**Expected behaviour**
1	DUT makes a voice call to Reference 1. Reference 1 doesn't answer the call nor rejects the call.	The voice call is in call waiting process.
2	Before the call is being ended by the network automaticlly, the Reference 1 sends a 1-to-1 RCS message. The message contains text and emoji.	In the call waiting interface, DUT receives the new message notification. When checking the received new message, the text and emoji are displayed correctly on DUT. (The notification can be icon notification or acoustic notification.)
3	After checking the message, go back to the call waiting interface on DUT.	The voice call is held in a waiting state.
4	Before the call is being ended by the network automaticlly, repeat test step 2 and 3: Reference 1 sends 1-to-1 RCS messages. The messages contain picture, audio, video, geolocation information, V-card respectively.	In the call waiting interface, DUT receives the new message notifications. When checking the received new messages, the picture, audio, video, geolocation information, V-card can be displayed correctly on DUT. (The notification can be icon notification or acoustic notification)

3.2.4 Send 1-to-1 RCS Messages During Call waiting

Description

Send 1-to-1 RCS messages during call waiting process

Related core specifications

GSMA RCC.71 UP-SDD

Reason for test

This test verifies the DUT can concurrently process 1-to-1 RCS messages during call waiting process

Initial configuration

As referred to 3.2.3

No call forwarding is activated on the DUT and the Reference 1

Test Procedure

As referred to 3.2.3. DUT makes a voice call to Reference 1 but Reference 1 doesn't answer the call nor rejects the call.

Expected result

As referred to 3.2.3. In the call waiting interface, DUT sends the new message successfully.

3.2.5 Receive 1-to-1 RCS Messages During Video Call

Description

Receive 1-to-1 RCS messages during video call. Applicable only if the video call is avaliable as a basic feature on DUT and the Reference 1.

Related core specifications

GSMA RCC.71 UP-SDD

Reason for test

This test verifies the DUT can concurrently process 1-to-1 RCS messages during video call

Initial configuration

As referred to 3.2.1

Test Procedure

As referred to 3.2.1. Establish the video call between the DUT and Reference 1. DUT receives the 1-to-1 RCS messages sent by Reference 1. 1-to-1 RCS messages are sent from DUT to Reference 1.

Expected result

As referred to 3.2.1. In the video call interface, DUT receives the new message notifications and the messages can be displayed correctly on DUT.

3.2.6 Send 1-to-1 RCS Messages During Video Call

Description

Send 1-to-1 RCS messages during video call. Applicable only if the video call is avaliable as a basic feature on DUT and the Reference 1.

Related core specifications

GSMA RCC.71 UP-SDD

Reason for test

This test verifies the DUT can concurrently process 1-to-1 RCS messages during video call

Initial configuration

As referred to 3.2.2

Test Procedure

As referred to 3.2.2. Establish the video call between the DUT and Reference 1. The 1-to-1 RCS messages are sent from DUT to Reference 1.

Expected result

As referred to 3.2.2. In the video call interface, DUT sends the new message successfully.

3.2.7 Receive 1-to-1 RCS Messages when browsing websites

Description

Receive 1-to-1 RCS messages when browsing websites on DUT

Related core specifications

GSMA RCC.71 UP-SDD

Reason for test

This test verifies the DUT can concurrently process 1-to-1 RCS messages when using the browser.

Initial configuration

As referred to 3.2.1

There is a default browser avliable on DUT

Test Procedure

As referred to 3.2.1. Apply the default browser to browse the website on DUT. DUT receives the 1-to-1 RCS messages sent by Reference 1. 1-to-1 RCS messages are sent from DUT to Reference 1.

The test webpages is suggested to be https://www.gsma.com/

Expected result

As referred to 3.2.1. When using the browser, DUT is able to receive the new message notifications and the messages can be displayed correctly on DUT.

4 Group Chat Test Cases

Test topic	Related test case number
MO Group Chat - New Group Chat	TS.11 58-2.4.1
MO Group Chat - DUT RCS Provisioned - Not Registered (Offline) - Existing Chat available	TS.11 58-2.4.2
MO Group Chat - Subject Editing	TS.11 58-2.4.3
MT Group Chat - New Group Chat	TS.11 58-2.4.4
MO Group Chat - Message size exceeded	TS.11 58-2.4.6
MT Group Chat - Message size exceeded	TS.11 58-2.4.7
MT Group Chat - Visual notification of new messages	TS.11 58-2.4.8
MT Group Chat - Visual and Audio notification of new messages	TS.11 58-2.4.9
MT Group Chat - Unread messages	TS.11 58-2.4.10
MO Group Chat - Reference joins and leaves Existing Group Chat	TS.11 58-2.4.11
MT Group Chat - DUT joins and leaves Existing Group Chat	TS.11 58-2.4.12
Group Chat - DUT Forwards a received File to another Existing Group Chat	TS.11 58-2.4.13
Group Chat - Messages ordered by Timestamp	TS.11 58-2.4.14
Group Chat - Messages ordered by Timestamp (Reference in different time zone)	TS.11 58-2.4.15
Group Chat - Delete individual messages	TS.11 58-2.4.16
Group Chat - Delete Group Chat (Reference re-invites DUT to re-join after deletion)	TS.11 58-2.4.17
Group Chat - MO Group Chat (New group chat - 1-2-1 --> Group chat)	TS.11 58-2.4.20
Group Chat - MO Group Chat (Reference Leaves Group Chat - DUT invites Reference to Re-join)	TS.11 58-2.4.21
Group Chat (Store and Forward) - MO Group Chat (DUT re-joins Group Chat after temporary disconnection)	TS.11 58-2.4.22
Group Chat - MO Group Chat (Typing notifications)	TS.11 58-2.4.23
Group Chat – MT Group Chat (DUT Leaves Group Chat)	TS.11 58-2.4.24
Group Chat - Unknown participant; Alias handling	TS.11 58-2.4.25
Group Chat - no need to deal with Group Chat invites and acceptances	TS.11 58-2.4.26
Group Chat- Status of sent Group Chat Messages	TS.11 58-2.4.27
Group Chat-Administrator roll features	TS.11 58-2.4.28
Group chat: Select and flag messages as important	TS.11 58-2.4.29
Group chat: Select a conversation to pin it to the top of the list	TS.11 58-2.4.30

5 File Transfer Test Cases

Test topic	Related test case number
MO File Transfer - Reference RCS Provisioned - Registered (Online)	TS.11 58-2.5.1
MO File Transfer - Reference RCS Not Provisioned (SMS with a link)	TS.11 58-2.5.2
MO File Transfer – Reference RCS Not Provisioned (MMS)	TS.11 58-2.5.3
MO File Transfer – RCS Provisioned - Not Registered (Offline) – Client Fallback to SMS	TS.11 58-2.5.5
MO File Transfer - Reference RCS Provisioned – Not Registered (Offline) – Client Fallback to SMS	TS.11 58-2.5.6
MO File Transfer - Legacy Reference RCS Provisioned - Not Registered (Offline) - Client Fallback to SMS	TS.11 58-2.5.7
During 1-to-1 chat - Successful HTTP-based file Transfer in Active Chat	TS.11 58-2.5.10
File transfer- user cannot perceive a restriction in file sizes	TS.11 58-2.5.11
File transfer-Administrate File Transfers in Chat and Group Chat Conversations intuitively	TS.11 58-2.5.12

6 Audio Messaging

Test topic	Related test case number
MO Audio Message 1-to-1 Chat	TS.11 58-2.6.1
MO Audio Message - Group Chat	TS.11 58-2.6.2
MT Audio Message - 1-to-1 Chat	TS.11 58-2.6.3
MO Audio Message - 1-to-1 Chat (Timestamp)	TS.11 58-2.6.4

7 Enriched Calling

Test topic	Related test case number
MT Enriched Calling – In-Call – Invites while call-screen in background	TS.11 58-2.8.8
MO Enriched Calling – In-Call – Image Share while call is ended	TS.11 58-2.8.10
MO Enriched Calling – In-Call – Image Share with different file formats	TS.11 58-2.8.11
MO Enriched Calling – In-Call – Picture Share from Device Gallery	TS.11 58-2.8.12
MT Enriched Calling – In-Call – Exchange messages from call screen	TS.11 58-2.8.13
MO Enriched Calling – Post-Call – Call unanswered, sending note	TS.11 58-2.8.15
MO Enriched Calling – Logs – Established Call with Media	TS.11 58-2.8.16
MT Enriched Calling – Logs – Cancelled Call before ringing	TS.11 58-2.8.17
MT Enriched Calling – Logs – Cancelled Call during ringing with Audio Message	TS.11 58-2.8.19

7.1 Enriched Calling Local Use Cases

7.1.1 Image Recognition During Enriched Calling

Description

Images sent during Enriched Calling can be recognized and can be converted into audio message.

Related core specifications

Local use cases

Reason for test

These features provide disabled people or driving scenarios with convenient and rich experience.

NOTE: This test case is optional but not mandatory for industry to take reference.

Initial configuration

DUT is known to be RCS capable and Online (Cellular or Wi-Fi).

Reference 1 is known to be RCS capable and online (Cellular or Wi-Fi).

Reference 1 is a known contact of DUT and exchanged calls before.

Test Procedure

-	Test procedure	Expected behaviour
1	Establish an Enriched Call from DUT to Reference 1. The Reference 1 device rings and picks up the call on Reference 1.	The Enriched call is established.
2	During the call, share pictures from DUT to Reference 1 from the call screen.	The pictures are sent and the sequence of the picture is correctly displayed on DUT.
3	Select the picture on DUT and choose the local function: recognize the image and convert the image into audio to deliver.	When selecting the picture on DUT, DUT displays the option to recognize the key content of the image and convert the image into audio.
4	The converted audio messages are sent from DUT to reference 1 through the IMS network.	The Enriched Calling is still in active and Reference 1 receives the new audio message in RCS client.
5	Play the received audio message on Reference 1.	The audio message received and played on Reference 1 is correct and the picture sequence number is correct.

Additional Notes for converting image into audio message:

- It is recommended to apply CNN model to recognise the key character of the image. The CNN model generates convolutional kernels code and performs convolution operation, pooling operation and classification operations on the images then outputs the content of

the image (for example: human or car or cat). The CNN model can be implemented on DUT side.

- It is recommended to apply NLG model to convert the recognised image content into human understandable text. It is recommended that the sequence number of the image are added automatically within the text. It is also recommended that the timestamp of the image can be added. (For example, Image No.1 was received: there is a dog and a cat within the image, which was sent on 12:09; Image No.2 was received: there is a house within the image, which was sent on 15:30). The NLG model can be implemented on the DUT side.
- It is recommended to apply TTS model to convert the text information (including the sequence number) into digital phoneme vector and then produce the audio message.

Use case example:

If B party is driving a car or is inconvenient to watch the screen, it is recommended to provide intelligent broadcast ability for the images transmitted during the call. During the enriched calling, A party tells party B that he shares images or emoji to B party. B party tells A party that he is not convenient to watch the screen and requires for an audio message for the images. On A party, the DUT will recognize the image, generate a suitable sentence to describe the image and then transmit the transferred audio message to B party. For example, with the AI technology the scenery within the image will be vividly described and converted to audio message to the B party.

7.1.2 Real-time translation During Enriched Calling

Description

The voices can be translated during Enriched Calling and the translated languages can be displayed on the screen.

Related core specifications

Local use cases

Reason for test

These features provide people with real time translation.

NOTE: The test case is optional but not mandatory for industry to take reference.

Initial configuration

DUT is known to be RCS capable and Online (Cellular or Wi-Fi).

Reference 1 is known to be RCS capable and online (Cellular or Wi-Fi).

Reference 1 is a known contact of DUT and exchanged calls before.

The translation target language has already been set on RCS client.

The real time translation function during Enriched Calling has been turned on for DUT and Reference 1.

Test Procedure

	Test procedure	Expected behaviour

1	Establish an Enriched Call from DUT to Reference 1. The Reference 1 device rings and picks up the call on Reference 1.	The Enriched call is established.
2	During the call, speak one sentence on DUT.	On Reference 1, the voice can be heard and the translated text is displayed on the call screen.
3	During the call, Speak one sentence on Reference 1.	On DUT, the voice can be heard and the translated text is displayed on the call screen.

Additional Notes for real time translation:

- For the IMS network, session mode and MSRP are required to realize the real time translation.

7.1.3 MO Enriched Calling-Pre-Call：Maximise the incoming call screen when it is minimized

Description

When the incoming call screen is minimised, DUT is able to maximise the incoming call screen to see any Pre-call content.

Related core specifications

GSMA RCC.71 UP-SDD, GSMA RCC.17 v3.0

Reason for test

To verify UP 1.0 and UP2.5 Reference section 12-12: Pre-Call experience.

Initial configuration

DUT is known to be RCS capable and Online (Cellular or Wi-Fi).

Reference 1 is known to be RCS capable and online (Cellular or Wi-Fi).

Test Procedure

	Test procedure	**Expected behaviour**
1	DUT sets Pre-call content (importance indicator set & subject) and makes call to Reference 1.	If Reference 1 incoming call indication is minimized, the Call Importance Indicator and Subject should still be displayed in addition to the usual information that is provided for incoming calls without the user having to expand the notification.
2	DUT sets Pre-call content (image or location) and makes call to Reference 1.	If the Reference 1 incoming call indication is minimized, an indication of the availability of other content (i.e. Image and/or location) should be provided. Reference 1 should have the option to maximize the incoming call indication to view the additional content before accepting or rejecting the call.

7.1.4 MO Enriched Calling-Pre-Call：Pre-call content is displayed on in-call screen when no other content (e.g. via In-call Services) has replaced this Pre-call Content during the call

Description

To verify the Pre-call content can be replaced during the call.

Related core specifications

GSMA RCC.71 UP-SDD, GSMA RCC.17 v3.0

Reason for test

To verify UP 1.0 and UP 2.5 Reference section 12-12: Pre-Call experience.

Initial configuration

DUT is known to be RCS capable and Online (Cellular or Wi-Fi)

Reference 1 is known to be RCS capable and online (Cellular or Wi-Fi)

Test Procedure

-	Test procedure	Expected behaviour
1	DUT sets Pre-call content (image or location) and makes call to Reference 1.	Any Pre-call image and/or location shared by the DUT should be visible on both the DUT and Reference 1 in-call screens, unless replaced by other content during the call.

7.1.5 MO Enriched Calling-In-Call: sketch can be saved on device

Description

To verify that the sketch is able to be saved on device.

Related core specifications

GSMA RCC.71 UP-SDD, GSMA RCC.17 v3.0

Reason for test

To verify UP1.0 and UP2.5. Reference section 12.8: In-Call experience.

Initial configuration

DUT is known to be RCS capable and Online (Cellular or Wi-Fi).

Reference 1 is known to be RCS capable and online (Cellular or Wi-Fi).

Test Procedure

-	Test procedure	Expected behaviour
1	Call Reference 1 from DUT and accept.	A call is established between DUT and Reference 1.
2	Select “shared sketch” from the call screen of DUT.	DUT is able to see that the invite for shared sketch is not yet accepted.

3	On Reference 1, accept the share sketch invite.	Both DUT and Reference 1 see the session is confirmed. Both DUT and Reference 1 are able to start sketching, using different drawing colours by default.
4	DUT adds a picture background to the sketch.	On both DUT and Reference 1 screens, the picture background is visible. Sketching and pictures on both devices match.
5	End the call session.	The sketch should be automatically saved to both devices when the session ends. NOTE 1: Sketch can be saved as a 'flat' image, without separately editable background and drawing layers. NOTE 2: In case of using an image as background, the original image will not be overwritten by the image modified during the live sketch sharing session.

7.1.6 MO Enriched Calling-In-Call：Specific Requirements for a live sketch on an image

Description

To verify specific requirements for live sketch on an image

Related core specifications

GSMA RCC.71 UP-SDD, GSMA RCC.17 v3.0

Reason for test

To verify UP1.0 and UP2.5. Reference section 12.8: In-Call experience

Initial configuration

DUT is known to be RCS capable and Online (Cellular or Wi-Fi).

Reference 1 is known to be RCS capable and online (Cellular or Wi-Fi).

Test Procedure

-	**Test procedure**	**Expected behaviour**
1	Call Reference 1 from DUT and accept.	A call is established between DUT and Reference 1.
2	Select shared sketch from DUT to Reference 1. Reference 1 accepts received sketch.	Both DUT and Reference 1 are able to start sketching.
3	Change the live sketch background image and/or colour at any time during the live sketch at both DUT and Reference 1.	a) Any change to the live sketch background should be shown in real-time on both DUT and Reference 1.

		b) Either DUT or Reference 1 should be able to select an existing image from the device gallery as the live sketch background. c) Either DUT or Reference 1 should be able to take a new picture from the device camera to use as the live sketch background. d) Either DUT or Reference 1 should be able to select a live sketch background from a selection of pre-defined template backgrounds.
4	On-going live sketch zoom and move the background image	a) Both DUT and Reference 1 should be able to change the scale of the image (zoom in/out), independent of the image being viewed by the other party. b) Both DUT and Reference 1 should be able to move around the image, independent of the image being viewed by the other device. NOTE: These changes to the image are not visible to the other device.
5	On-going live sketch change the line thickness	a) The default line thickness and colour initially assigned to the both DUT and Reference 1 when first opening the live sketch should be the thickness and colour they last selected in any previous sketch session (if applicable). b) Either DUT or Reference 1 should be able to change the thickness of any lines that they draw at any time during the live sketch session (irrespective of any line thicknesses set on initial default).

7.1.7 MO Enriched Calling-In-Call：Specific Requirements for a live sketch on a map

Description

To veriy specific requirements for live sketch on map

Related core specifications

GSMA RCC.71 UP-SDD, GSMA RCC.17 v3.0

Reason for test

To verify UP1.0 and UP2.5. Reference section 12.8: In-Call experience

Initial configuration

DUT is known to be RCS capable and Online (Cellular or Wi-Fi).

Reference 1 is known to be RCS capable and online (Cellular or Wi-Fi).

Test Procedure

-	**Test procedure**	**Expected behaviour**
1	Call Reference 1 from DUT and accept.	a) Call is established between DUT and Reference 1. The live sketch on a map should be provided on the in-call screen (i.e. defaulting to a map background). b) DUT's current location should be set as the default location for any new live sketch on a map for both DUT and Reference 1.
2	Select shared map sketch from DUT to Reference 1. Reference 1 accepts received sketch.	The session is established.
3	On-going live sketch interacts with the background map on both DUT and reference 1.	a) Both DUT and Reference 1 should be able to change the scale of the map, independent of the map being viewed by the other device. b) Both DUT and Reference 1 should be able to move the map location, independent of the map being viewed by the other device. NOTE: These changes to the map are not visible to the other device.
4	On-going live sketch on map, either DUT or Reference 1 edits on the background.	a) If DUT has edited a part of the map that the Reference 1 is not viewing, then the Reference 1 should be made aware that this is occurring. b) If DUT has edited a part of the map that the Reference 1 is not viewing, then the Reference 1 should be able to view all the edits easily on their screen when desired.
5	On-going live sketch on map, check for some additional map-based controls.	a) Both DUT and Reference 1 should be able to see each other's locations on the map. b) Both DUT and Reference 1 should be able to easily move the map to their location at any time. c) Both DUT and Reference 1 should be able to easily move the map to the other device's location at any time. d) Both devices should be able to easily move the map to display both locations at any time. NOTE: If location is disabled on either device, the marker for their location will not be shown on the map. e) Both DUT and Reference 1 should be able to send a location marker to the other party, with

		this marker being visible on both devices' sketches. f) Both DUT and Reference 1 should be able to easily move the map to display all locations at any time.

Annex A Document Management

A.1 Document History

Version	Date	Brief Description of Change	Approval Authority	Editor / Company
1.0		New PRD (WG Doc nn/nnn).	TSG# EMC #nn	Xin Wang & Sainan Hou/ China Unicom Kay Fritz/ Vodafone Tom Van Pelt/ GSMA Jin Gao/ China Telecom Neil Mcgrath/ AT&T David Nash/ Samsung Weiye Dong/ China Mobile
2.0	December 2022	Implementing changes in CR1002	TSG#50 ISAG#26	Xin Wang / China Unicom Jin Gao / China Telecom Kay Fritz / Vodafone Tom Van Pelt / GSMA Weiye Dong / China Mobile Sunil Kumar / Samsung Yue Wang / ZTE

A.2 Other Information

Type	Description
Document Owner	GSMA Terminal Steering Group (TSG)
Editor / Company	Xin Wang China Unicom

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.