RCS Test Case Guidelines
Version 1.0
16 December 2021

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 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

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.

Compliance Notice

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

This Permanent Reference Document is classified by GSMA as an Industry Specification, as such it has been developed and is maintained by GSMA in accordance with the provisions set out in GSMA AA.35 - Procedures for Industry Specifications.

Table of Contents

1 Introduction

1.1 Overview

This document defines the test cases for terminal RCS Universal Profile features. It is applicable to the terminals with RCS function. Terminal RCS testing include field testing, lab testing, performance testing and local special test cases. For this document, most of the test cases are related to field testing, and GCF/PTCRB use them as part of the 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, Enrich call, Green Button voice& IP video and so on. Further expansion of the scope requires further study.

For the current version, the document focuses on RCS A2P/P2A Chatbot message features. This document defines the Chatbot test cases, Chatbot requirements and related field network configuration parameters.

For the future versions, the RCS P2P messages, Enrich call, Green Button voice& IP video will be added.

1.3 Definitions

Term	Description
Chatbot	An RSC-based service provided to users whose output is presented in a conversational form and which provides some kind of value to the users. Often a piece of software interfacing with one or more users aiming to simulate intelligent human conversation.

1.4 Abbreviations

Term	Description
CPIM	Common Profile for Instant Messaging
CSS	Cascading Style Sheets
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
RCS	Rich Communication Services
UP	Universal Profile
URI	Uniform Resource Identifier

Term	Description
URL	Uniform Resource Locator
JSON	JavaScript Object Notation
T&C	Terms and conditions

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 Chatbot to the industry customers.

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

Test topic	Related test case number
RCS Capability Discovery towards Chatbot by Deeplink- APP	TS.11 58-2.10.1.5
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 -Session after Cache-control Max-age has Expired	TS.11 58-2.10.2.3
Chatbot Information Retrieval - Cache-control Max-age has not Expired	TS.11 58-2.10.2.4
Chatbot Information Retrieval - Session Request from Unknown Chatbot When the Chatbot Information Query Failed	TS.11 58-2.10.2.5
Chatbot Information Retrieval - Chatbot Information Query Succeed after Retrying	TS.11 58-2.10.2.6
Chatbot Information Retrieval - Query Fail after Cache-control Max-age has Expired	TS.11 58-2.10.2.7

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
Blocked the Chatbot on the Network side	TS.11 58-2.10.3.3
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 Session

Test topic	Related test case number
A2P Chatbot Session from a Known Chatbot	TS.11 58-2.10.4.1
1-to-1 Chatbot Session with a Message with a Suggested Chip List	TS.11 58-2.10.4.2
1-to-1 Chatbot Session with Rich Card Message	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 Session Multipart CPIM- File Transfer with Suggested Chip List	TS.11 58-2.10.5.5
1-to-1 Chatbot Session Multipart CPIM- Geolocation Push Message with Suggested Chip List	TS.11 58-2.10.4.6
1-to-1 Chatbot Session Multipart CPIM- Richcard with Suggested Chip List	TS.11 58-2.10.4.7
1-to-1 Chatbot Session Carousel	TS.11 58-2.10.4.8
1-to-1 Chatbot Session with Suggested Actions	TS.11 58-2.10.4.9
User Privacy Control	TS.11 58-2.10.4.10
Chatbot Session CSS Functions- Predefined CSS Template is Referred in Chatbot Info	TS.11 58-2.10.4.11-1
Chatbot Session CSS Functions- CSS Template is Included in the Rich Card Message	TS.11 58-2.10.4.11-2

2.5 Chatbot P2A Session

Test topic	Related test case number
DUT Sends P2A Session 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 Session Management

Test topic	Related test case number
Store and Forward Session Request	TS.11 58-2.10.7.1
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
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

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 the QR code, there are multiple QR codes within the scan screen.

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 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 with each other and ensure DUT camera can captured them together. Appy 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 user properly when scanning one QR code that doesn't contain the Chatbot SIP URI.

Initial configuration

1. DUT is RCS Provisioned - Registered (Online)
2. DUT and Chatbot platform are 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 including 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 build an appropriate SMS message service under 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 embed the sms-recipient parameter of a Chatbot.	Since DUT is RCS offline, the DUT should initiate the regular messaging interface and apply that SMS number as the recipient.
2	Turn on the data connection of DUT.	DUT is RCS registered.
3	Set the Chatbot information query is failed. (This can be simulated under simulator)	The regular messaging interface should not be initiated on DUT. DUT should inform user that the Chatbot is not reachable or display the string parsed by the QR code.

3 Requirement for Chatbots

Below are the requirements for standard Chatbot that used for test cases referred 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 message with unknow Chatbot.

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

No.	Requirement
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 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 send or reply Rich Card Message 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). Chatbot shall prepared several media images with different sizes: SHORT_HEIGHT images: 3:1, MEDIUM_HEIGHT images: 1.56:1, TALL_HEIGHT images: 9:10.
7	The Chatbot shall 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 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 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
12	The Chatbot can be temporary disabled from receiving messages
13	The Chatbot shall reply or send a message with suggested action that includes PostBack data of 1024KB in size.
14	The Chatbot shall 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 250KB.

Requirement for Critical Chatbot:

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

4 FQNW Configuraion Parameters

4.1 RCS - Enabling Restrictions

Client Approved Listing : Does the RCS Client 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:

4.2 RCS - Regular Internet APN

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

4.3 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 Platfom server available	UP 2.0 and above	Yes/No

4.4 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

4.5 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 viceo 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

4.6 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) will not be available to those customers.	UP 1.0 and above	Please specify
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 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.	UP 1.0 and above	Please specify
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 botinfo 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 behaviour 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 the user setting to enrich the search is enabled. 0 (default): the i query parameters is included 1: the i query parameter is not included	UP 2.0 and above	Please specify
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	UP 2.0 and above	Please specify

	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).		

Annex A Document Management

A.1 Document History

Version	Date	Brief Description of Change	Approval Authority	Editor / Company
1.0	Dec 2021	New PRD	TSG#46 ISAG#11	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

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.