



# Multi SIM Devices Requirements Test Cases

## Version 5.0

### 22 April 2020

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## Introduction

### 1.1 Overview

The aim of the GSMA Multi SIM DUTs (Device Under Test) work is to ensure all DUTs supporting multiple SIMs/eUICCs behave in a similar way.

This document provides test cases for the Multi SIM requirements detailed in GSMA PRD TS.37 Requirements for Multi SIM devices [1].

### 1.2 Scope

This document is intended for:

1. Parties which develop test tools and platforms
2. Test Labs / Test Houses which execute the testing
3. Vendors, device & chipset Manufacturers
4. Operators

The Test Book consists of a set of test cases relevant for testing a device supporting multiple SIMs/eUICCs.

The test cases specified within the Test Book are either specified fully, step by step or refer to existing publicly available test standards. For the test cases from other organizations, a unique reference to the specification and test case is provided.

For each test case specified or defined by reference within this Test Book, there is a reference to one or more requirements from the GSMA PRD TS.37 [1].

### 1.3 Definition of Terms

Term	Definition
SIM	Subscriber Identity Module; a physical entity that contains keys and ID required to authenticate a user on a mobile network. "SIM" is commonly used to refer to the physical entity that is technically called the UICC (see below). This document generally uses "SIM" to refer to the physical entity
UICC	Universal Integrated Circuit Card; the physical entity that contains as a minimum the SIM/USIM application
USIM	An application that runs on the UICC and provides authentication functions similar to those provided by the SIM in pre-3G systems
eUICC	A removable or non-removable UICC which enables the remote and/or local management of Profiles in a secure way
Profile	A specific SIM/USIM application contained within an eUICC. Generally an eUICC will contain multiple SIM profiles, but only one will be active at any given time.
Simulator	A Network Simulator or a Test Network within a test lab.

### 1.4 Abbreviations

Abbreviation	Definition
APN	Access Point Name

CS	Circuit Switched
DSDA / MSMA	Dual SIM Dual Active / Multi SIM Multi Active
DSDS / MSMS	Dual SIM Dual Standby / Multi SIM Multi Standby
DUT	Device Under Test
EAP	Extensible Authentication Protocol
FFS	For Future Study
IMEI	International Mobile Equipment Identifier
IMS	IP Multimedia Subsystem
ME	Mobile Equipment
MMS	Multimedia Message Service
NFC	Near Field Communications
OS	Operating System
OTA	Over The Air
PDN	Public Data Network
SMS	Short Message Service
USAT	UMTS SIM Application Toolkit
UE	User Equipment
UI	User Interface

## 1.5 References

Ref	Document Number	Title
[1]	GSMA PRD TS.37	Requirements on Multi SIM devices
[2]	GSMA PRD TS.06	IMEI Allocation and Approval Process
[3]	GSMA PRD TS.26	NFC Handset Requirements
[4]	GSMA PRD TS.32	Technical Adaptation of Devices through Late Customisation
[5]	GSMA PRD TS.36	Device Settings Database
[6]	3GPP TS 24.008	Mobile Radio Interface Layer 3 Specification
[7]	3GPP TS 24.301	Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS)
[8]	3GPP TS 23.122	Non-Access-Stratum (NAS) functions related to Mobile Station (MS) in idle mode
[9]	3GPP TS 31.102	Characteristics of the Universal Subscriber Identity Module (USIM) application
[10]	3GPP TS 31.111	Universal Subscriber Identity Module (USIM) Application Toolkit (USAT)
[11]	3GPP TS 25.331	Radio Resource Control (RRC); Protocol specification
[12]	3GPP TS 36.331	E-UTRA Radio Resource Control (RRC); Protocol specification
[13]	3GPP2 C.S0005-F	Upper Layer (Layer 3) Signalling Standard for cdma2000 Spread Spectrum Systems.
[14]	GSMA PRD SGP.21	Remote SIM Provisioning Architecture

Ref	Document Number	Title
[15]	GSMA PRD SGP.22	Remote SIM Provisioning Technical Specification
[16]	GSMA PRD SGP.23	Remote SIM Provisioning Test Book
[17]	MIIT (PRC) YDT 3041-2016	Test Methods for LTE/CDMA/TD-SCDMA/WCDMA/GSM (GPRS) Multi-Mode Dual-SIM Multi-Standby User Equipment An English translation of this document is available from MIIT
[18]	GSMA PRD TS.27	NFC Test Book
[19]	3GPP TS 31.124	Mobile Equipment (ME) conformance test specification; Universal Subscriber Identity Module Application Toolkit (USAT) conformance test specification

## 1.6 Conventions

As per IETF Requirements terminology, reference RFC 2119, the following terms have the following meaning.

Term	Description
SHALL	Denotes a mandatory requirement
SHOULD	Denotes a recommendation
MAY	Denotes Optional

## 2 Applicability

### 2.1 DUT optional features and feature description

Several requirements in GSMA PRD TS.37 [1] are either optional or depend on the DUT implementing specific technologies. The tables below list the DUT optional features and DUT related implementation values. The “Support” and “Value” columns are intended to be filled by the DUT Vendor.

Item	Optional Feature	Support [Yes/ No]	Mnemonic (short name for the optional feature)
1	Support of 3GPP2 technologies		3GPP2
2	User Interface control of SIM association		UI_SIM_Assoc
3	Hot Swap of SIMs		Hot_Swap
4	Compliance to MIIT "All mode" specification		All_Mode
5	Dual SIM Dual Active		DSDA
6	Dual SIM Dual Standby		DSDS
7	(void)		(void)
8	Preferred SIM for Voice, SMS, MMS		Pref_Voice
9	Data use display per SIM		Data_Display
10	SMS cell broadcast support		SMSCB
11	All SIM Network Search		All_SIM_Search
12	VoLTE		VoLTE
13	VoWiFi		VoWiFi
14	DUT has a port limited to 2G operation		2G
15	DUT supports automatic association based on hardware		Auto_HW
16	DUT supports automatic association based on discovery protocols		Auto_Discovery
17	Support of eUICC		eUICC
18	Support of UICC based NFC		NFC

DUTs with more than two SIM ports are also possible:

Item	Feature description	Value	Mnemonic (short name for the optional feature)
1	Number of SIM ports supported by the DUT		No_Of_SIM_Ports_N

## 2.2 Conditional Tests

The table below defines conditions applicable to certain test cases. The conditions below are used in the Applicability Table in the following section.

Conditional item	Condition
------------------	-----------

Conditional item	Condition
C001	IF UI_SIM_Assoc THEN M ELSE N/A
C002	IF Hot_Swap THEN M ELSE N/A
C003	IF 3GPP2 THEN M ELSE N/A
C004	VOID
C005	IF 3GPP2 AND Hot_Swap THEN M Else N/A
C006	IF All_Mode THEN M Else N/A
C007	IF DSDA THEN M Else N/A
C008	IF DSDS THEN M Else N/A
C009	IF DSPA THEN M Else N/A
C010	IF Pref_Voice THEN M Else N/A
C011	IF Data_Display THEN M Else N/A
C012	IF SMS CB THEN M Else N/A
C013	IF All_SIM_Search THEN M Else N/A
C014	IF VoLTE THEN M Else N/A
C015	IF VoWiFi THEN M Else N/A
C016	IF 2G AND Auto_HW THEN M Else N/A
C017	IF Auto_Discovery THEN M Else N/A
C018	VOID
C019	IF NFC THEN M Else N/A

### 2.3 Test Applicability Table

The table below specifies the applicability of each test case according to the DUT optional features.



Test case	Test case title	Live Network or Simulator	Physical SIM + Physical SIM	Physical SIM + eUICC	eUICC + eUICC
4.1.1	Number of IMEIs	Either	M	M	M
4.1.2	Primary IMEI	Either	M	M	M
4.1.3	IMEI presentation	Either	M	M	M
4.2.1	Blocking of service	Simulator	M	M	M
4.2.2.1	Retry following blocking (3GPP) – automatic retry	Simulator	M	M	M
4.2.2.2	Retry following blocking (3GPP) – association change	Simulator	C001	M	M
4.2.2.3	Retry following blocking (3GPP) – hot swap	Simulator	C002	C002	N/A
4.2.3.1	Retry following blocking (3GPP2) – automatic retry	Simulator	C003	C003	C003
4.2.3.2	Retry following blocking (3GPP2) – association change	Simulator	C001 and C003	C003	C003
4.2.3.3	Retry following blocking (3GPP2) – hot swap	Simulator	C005	C005	N/A
4.3	All Mode	Either	C006	N/A	N/A
4.4.1	USAT – Dual SIM Dual Active (DSDA)	Simulator	C007	C007	C007
4.4.2	USAT – Dual SIM Dual Standby (DSDS)	Simulator	C008	C008	C008
4.4.3	(void)	N/A	N/A	N/A	N/A
4.5.1	SIM selection via software	Either	C001	M	M
4.5.2	Preferred SIM for data	Either	M	M	M
4.5.3	Preferred SIM for voice, SMS, MMS	Either	C010	C010	C010
4.5.4	Single SIM operation	Either	M	M	M
4.5.5	Change of SIM association	Simulator	C001	M	M
4.5.6	Idle screen display	Either	M	M	M
4.5.7	Lock screen display	Either	M	M	M
4.5.8	Mobile terminated call, SMS, MMS	Either	M	M	M

Test case	Test case title	Live Network or Simulator	Physical SIM + Physical SIM	Physical SIM + eUICC	eUICC + eUICC
4.5.9	Mobile originated call, SMS, MMS	Either	M	M	M
4.5.10	Emergency call	Simulator	M	M	M
4.5.11	Voice call logs	Either	M	M	M
4.5.12	SMS MMS logs	Either	M	M	M
4.5.13	Data use display	Either	C011	C011	C011
4.5.14	Cell broadcast	Either	C012	C012	C012
4.5.15	Priority of services	Either	M	M	M
4.5.16	Call forwarding / call waiting	Either	M	M	M
4.5.17	Call hold	Either	C007	C007	C007
4.5.18	SIM PIN	Either	M	M	M
4.5.19	PUK code	Either	M	M	M
4.5.20	Unlock code	Either	M	M	M
4.5.21	Network and service provider locks	FFS	FFS	FFS	FFS
4.5.22.1	Access to contacts	Either	M	M	M
4.5.22.2	Presentation of contacts	Either	M	M	M
4.5.22.3	Adding contacts	Either	M	M	M
4.5.22.4	Deleting contacts	Either	M	M	M
4.5.22.5	Copying contacts	Either	M	M	M
4.5.23.1	Simple network search	Either	M	M	M
4.5.23.2	Simultaneous network search	Either	C013	C013	C013
4.5.24.1	VoLTE user interface	Either	C014	C014	C014
4.5.24.2	VoWiFi user interface	Either	C015	C015	C015
4.6.1	SIM allocation based on hardware	Either	C016	C016	N/A

Test case	Test case title	Live Network or Simulator	Physical SIM + Physical SIM	Physical SIM + eUICC	eUICC + eUICC
4.6.2	SIM allocation based on discovery protocol	Either	C017	C017	C017
4.7.1	Network specific applications	FFS	FFS	FFS	FFS
4.8.1	User imposed limitations on applications	FFS	FFS	FFS	FFS
4.9.1	Auto configuration across all SIMs	FFS	FFS	FFS	FFS
4.9.2	Auto configuration of one connection	FFS	FFS	FFS	FFS
4.9.3	Reconfiguration	FFS	FFS	FFS	FFS
4.10.1	(void)	N/A	N/A	N/A	N/A
4.10.2	Management of eUICC	Either	N/A	M	M
4.10.3	eUICC and user interface	FFS	N/A	FFS	FFS
4.11	NFC	Either	C019	C019	C019
4.12	EAP-SIM	FFS	FFS	FFS	FFS
4.13.1	Data throughput – secondary SIM idle	Either	C008	C008	C008
4.13.2	Data throughput – secondary SIM idle (dual data / Dual VoLTE)	Either	C007 and C008+C014	C007 and C008+C014	C007 and C008+C014
4.13.3	Data throughput – secondary SIM in call	Either	C007	C007	C007

Table definitions:

- M – the test case is Mandatory.
- Cxxx – the test case is conditional and the applicability depends on DUT support of optional or conditional features as specified by Cxxx in the previous section.
- FFS – For Future Study; the test case is not yet defined.
- N/A – the test is not applicable to this device type

### 3 Test process

#### 3.1 Test Environment

Test cases may be performed in a Laboratory using one or more network simulators or on Live Networks. Most tests can be performed in either environment.

For some of the test cases it is necessary to log the signalling between the DUT and the network. If a network simulator is used all the signalling between the DUT and the network shall be logged and shall be accessible to be used to derive the test case verdict. If a Live Network is used, other options such as on-DUT logging or live network logging may be used. Such logging will be implementation dependent.

The number of SIMs required for each test case depends on the capability of the DUT. Most current DUTs require two SIMs, but some have more. Each SIM port is identified SIM n.

For each SIM, the DUT will provide a SIM slot or soldered (fix mounted) SIM (eUICC). For testing, the SIM(s) can be real physical SIMs or simulated SIMs. The SIMs can be either Test SIMs or real according to the configuration required.

Tests specify that certain SIM ports either have a physical SIM or are empty; in the case of devices with eUICC:

- an eUICC with an active profile is equivalent to a physical SIM in the port,
- an eUICC with no active profile is equivalent to an empty port.

### **3.2 Pass Criteria**

- A test is considered as successful only if the entire test procedure was carried out successfully and the expected results observed.
- A test is considered as failed if the tested feature shows unexpected behaviour.
- A test is considered as non-conclusive when the pass criteria cannot be evaluated due to issues during the setup of the initial conditions.

### **3.3 Future Study**

Some of the test cases described in this Test Book are FFS (For Future Study). This means that some clarifications are expected at the requirement level to conclude on a test method, or that the test cases are low priority and have not yet been defined.

### **3.4 Tests From Other Sources**

This document refers to test specifications developed by other organisations. These organisations define their own requirements for test benches, test applicability and pass criteria.

Changes to all tests in this document may be requested by contacting the GSMA Terminal Steering Group at [terminals@gsma.com](mailto:terminals@gsma.com). If such a request affects a test belonging to an outside organisation then either:

- a) The change request will be passed on to the outside organisation for action, or
- b) The change request will be actioned by removing the outside reference and drafting a replacement case within this document.

The complete MIIT (PRC) YDT 3041-2016 [17] only applies to handsets being tested for CCSA All Mode certification, and covers only technologies appropriate to that market. A subset of CCSA requirements & test cases are used by GSMA TS.37 & TS.42. The GSMA documents are global specifications wherein choice of technologies is at the discretion of the device vendor. Hence for GSMA testing, references to [17] section 4.8.1 table 1 should be

replaced with technology combinations appropriate to the capabilities of the device under test.

### 3.5 Test Execution Optimisation

Some tests do not require the device to start in a powered off state. These tests may be run directly after another test case, subject to all initial conditions for the test being met,

## 4 Test Cases

### 4.1 IMEIs

#### 4.1.1 Number of IMEIs and IMEI SV

##### Test Purpose

To ensure the DUT has correct number of IMEIs, uses them in the correct manner and has the same SV value for all IMEIs

##### Referenced requirements

TS37\_2.1\_REQ\_1  
 TS37\_2.1\_REQ\_2  
 TS37\_2.2\_REQ\_6

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
	If live network is used, the network shall be configured to request the IMEI of the DUT during the IMSI attach procedure.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	The DUT is powered off. Each SIM port has either an inserted physical SIM or a logically associated eUICC

##### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Power on DUT	The DUT attaches to each network. Each connection uses a unique IMEI. One of the connections uses the primary IMEI. SV value is the same for all connections

### 4.1.2 Primary IMEI

#### Test Purpose

To ensure the DUT always uses primary IMEI

#### Referenced requirements

TS37\_2.2\_REQ\_4

TS37\_2.2\_REQ\_5

#### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator or network configured to allow access by at least one SIM/eUICC
	If live network is used, the network shall be configured to request the IMEI of the DUT during the IMSI attach procedure.
SIM	A SIM is configured to access the configured networks. If the SIM is an eUICC, it has an appropriate active profile
DUT	The DUT is powered off. The DUT has n SIM ports

#### Test execution:

Step	Direction	Sequence	Expected Result
1	User → DUT	Insert a SIM in SIM port n and power on DUT (For eUICC, use the device UI to associate an eUICC with SIM port n)	The DUT performs attach to the network. The connection uses the Primary IMEI.
2	User → DUT	Power off the DUT	
3		Repeat steps 1 and 2 for each SIM port	

### 4.1.3 IMEI Presentation

#### Test Purpose

To ensure the DUT presents IMEIs correctly

#### Referenced requirements

TS37\_2.2\_REQ\_7

TS37\_2.2\_REQ\_8

## Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
	If live network is used, the network shall be configured to request the IMEI of the DUT during the IMSI attach procedure.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.

## Test execution:

Step	Direction	Sequence	Expected Result
1	User → DUT	Type *#06# on dialler	Number of IMEIs displayed is equal to number of SIM ports  Each IMEI is unique  One IMEI is highlighted / listed as the being the Primary IMEI

Note: if the DUT does not have a dialler then a different process may be used to access IMEIs; this is particularly applicable to embedded DUTs.

## 4.2 Blocking & Recovery of Service

### 4.2.1 Blocking of Service

#### Test Purpose

To ensure the DUT handles blocking of service correctly

#### Referenced requirements

TS37\_2.2\_REQ\_1

TS37\_2.2\_REQ\_2

TS37\_2.2\_REQ\_3

#### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
	If live network is used, the network shall be configured to request the IMEI of the DUT during the IMSI attach procedure.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	The DUT is powered off. Each SIM port has either an inserted physical SIM or a logically associated eUICC

**Test execution:**

Step	Direction	Sequence	Expected Result
1	User → DUT	Power on DUT	The DUT attaches to each network.
2	Network → DUT	At periodic update, connection n sends a reject with a blocking reject cause (reject #6 "Illegal ME" for a 3GPP connection or <i>Lock until Power-Cycled Order</i> received over one 3GPP2 connection)	All connections are closed in accordance with standards [6], [11], [13] The UI displays an appropriate message
3	User → DUT	Attempt to: 1. Dial a call 2. Send an SMS 3. Browse the internet	No connection request is initiated from the DUT
4	User → DUT	Power off DUT	
5		Repeat steps 1-4 with the reject sent over a different connection until all connections have been tested.	

**4.2.2 Retry Following Blocking (3GPP)**

**4.2.2.1 Automatic Retry (3GPP)**

**Test Purpose**

To ensure the DUT follows correct 3GPP retry procedure

**Referenced requirements**

TS37\_2.2\_REQ\_12

TS37\_2.2\_REQ\_16

**Initial Conditions**



Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
	If live network is used, the network shall be configured to request the IMEI of the DUT during the IMSI attach procedure.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	The DUT is powered off. Each SIM port has either an inserted physical SIM or a logically associated eUICC

**Test execution:**

Step	Direction	Sequence	Expected Result
1	User → DUT	Power on DUT	The DUT attaches to each network.
2	Network → DUT	At periodic update, 3GPP connection n sends a reject with a blocking reject cause (reject #6 "Illegal ME")	All connections are closed in accordance with standards [6], [11], [13] The UI displays an appropriate message
3	DUT → Network	Wait for DUT to retry connection	Interval between retries is greater than 24 hours  First retry is always made over the connection that had previously generated the blocking reject.
4	User → DUT	Power cycle DUT	The DUT attempts attach to each network.

**4.2.2.2 Change of SIM association to port (3GPP)**

**Test Purpose**

To ensure the DUT correctly retries connection following SIM association change

**Referenced requirements**

TS37\_2.2\_REQ\_12

TS37\_2.2\_REQ\_14

**Initial Conditions**

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.

	If live network is used, the network shall be configured to request the IMEI of the DUT during the IMSI attach procedure.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	The DUT is powered off. Each SIM port has either an inserted physical SIM or a logically associated eUICC

**Test execution:**

Step	Direction	Sequence	Expected Result
1	User → DUT	Power on DUT	The DUT attaches to each network.
2	Network → DUT	At periodic update, 3GPP connection n sends a reject with a blocking reject cause (reject #6 “Illegal ME”)	All connections are closed in accordance with standards [6], [11], [13] The UI displays an appropriate message
3	User → DUT	Change SIM/eUICC association to SIM port through user interface	The DUT attempts attach to each network.

**4.2.2.3 Hot Swap of SIMs (3GPP)**

**Test Purpose**

To ensure the DUT correctly retries connection following hot swap of SIMs

**Referenced requirements**

TS37\_2.2\_REQ\_12

TS37\_2.2\_REQ\_14

**Initial Conditions**

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
	If live network is used, the network shall be configured to request the IMEI of the DUT during the IMSI attach procedure.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	The DUT is powered off. Each SIM port has either an inserted physical SIM or a logically associated eUICC

**Test execution:**

Step	Direction	Sequence	Expected Result
1	User → DUT	Power on DUT	The DUT attaches to each network.
2	Network → DUT	At periodic update, 3GPP connection n sends a reject with a blocking reject cause (reject #6 "Illegal ME")	All connections are closed in accordance with standards [6], [11], [13]  The UI displays an appropriate message
3	User → DUT	Physically change a SIM in the DUT without powering off.	The DUT attempts attach to each network.

**4.2.3 Retry Following Blocking (3GPP2)**

**4.2.3.1 Automatic Retry (3GPP2)**

**Test Purpose**

To ensure the DUT follows correct 3GPP2 retry procedure

**Referenced requirements**

TS37\_2.2\_REQ\_13

TS37\_2.2\_REQ\_16

**Initial Conditions**

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
	If live network is used, the network shall be configured to request the IMEI of the DUT during the IMSI attach procedure.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	The DUT is powered off. Each SIM port has either an inserted physical SIM or a logically associated eUICC

**Test execution:**

Step	Direction	Sequence	Expected Result
1	User → DUT	Power on DUT	The DUT attaches to each network.

Step	Direction	Sequence	Expected Result
2	Network → DUT	At periodic update, 3GPP2 connection n sends a reject with a blocking reject cause ( <i>Lock until Power-Cycled Order</i> )	All connections are closed in accordance with standards [6], [11], [13]  The UI displays an appropriate message
3	DUT → Network	Wait for DUT to retry connection	Interval between retries is greater than 24 hours  First retry is always made over the connection that had previously generated the blocking reject.
4	User → DUT	Power cycle DUT	The DUT attempts attach to each network.

#### 4.2.3.2 Change of SIM association to port (3GPP2)

##### Test Purpose

To ensure the DUT correctly retries connection following SIM association change

##### Referenced requirements

TS37\_2.2\_REQ\_13

TS37\_2.2\_REQ\_14

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
	If live network is used, the network shall be configured to request the IMEI of the DUT during the IMSI attach procedure.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	The DUT is powered off. Each SIM port has either an inserted physical SIM or a logically associated eUICC

##### Test execution:

Step	Direction	Sequence	Expected Result
1	User → DUT	Power on DUT	The DUT attaches to each network.

Step	Direction	Sequence	Expected Result
2	Network → DUT	At periodic update, 3GPP2 connection n sends a reject with a blocking reject cause ( <i>Lock until Power-Cycled Order</i> )	All connections are closed in accordance with standards [6], [11], [13]  The UI displays an appropriate message
3	User → DUT	Change SIM/eUICC association to SIM port through user interface	The DUT attempts attach to each network.

#### 4.2.3.3 Hotswap of SIMs (3GPP2)

##### Test Purpose

To ensure the DUT correctly retries connection following hot swap of SIMs

##### Referenced requirements

TS37\_2.2\_REQ\_13

TS37\_2.2\_REQ\_14

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
	If live network is used, the network shall be configured to request the IMEI of the DUT during the IMSI attach procedure.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	The DUT is powered off. Each SIM port has either an inserted physical SIM or a logically associated eUICC

##### Test execution:

Step	Direction	Sequence	Expected Result
1	User → DUT	Power on DUT	The DUT attaches to each network.
2	Network → DUT	At periodic update, 3GPP2 connection n sends a reject with a blocking reject cause ( <i>Lock until Power-Cycled Order</i> )	All connections are closed in accordance with standards [6], [11], [13]  The UI displays an appropriate message
3	User → DUT	Physically change a SIM in the DUT without powering off.	The DUT attempts attach to each network.

### 4.3 All Mode

#### Test Purpose

To ensure the DUT follows China “All Mode” technology and user interface requirements

Note: DUTs which support a subset of the “All Mode” features are acceptable in China BUT these MAY NOT be sold as “All Mode” DUTs.

#### Referenced requirements

TS37\_2.3\_REQ\_3

#### Test execution:

Please refer to the following tests in YTD 3041-2016 [17].

GSMA TS.42 Test ID	YTD 3041-2016 referenced test
4.3.1	4.1.2a Only one SIM is inserted
4.3.2	4.1.2b Only one SIM is inserted
4.3.3	4.1.2c Only one SIM is inserted
4.3.4	4.1.3a Two SIMs are inserted
4.3.5	4.1.3b Two SIMs are inserted
4.3.6	4.1.3c Two SIMs are inserted
4.3.7	4.8.2 PIN protection function
4.3.8	4.8.3.1 SMS test
4.3.9	4.8.3.2 Phonebook test
4.3.10	4.8.3.3 Data files test
4.3.11	4.8.3.4 Test for call records
4.3.12	4.8.4.1 MO call in idle state
4.3.13	4.8.4.2 MT call in idle state
4.3.14	4.8.4.3 MO call on SIM1 when using data on SIM2
4.3.15	4.8.4.4 MT call on SIM1 when using data on SIM2
4.3.16	4.8.4.5 Simultaneous MT calls in idle state
4.3.17	4.8.4.6 MT call on SIM1 when SIM2 in call
4.3.18	4.8.5.1 MO SMS in idle state
4.3.19	4.8.5.2 MT SMS in idle state

<b>GSMA TS.42 Test ID</b>	<b>YTD 3041-2016 referenced test</b>
4.3.20	4.8.5.3 MO SMS on SIM1 when in call on SIM2
4.3.21	4.8.5.4 MT SMS on SIM1 when in call on SIM2
4.3.22	4.8.5.5 MO SMS on SIM1 when using data on SIM2
4.3.23	4.8.5.6 MT SMS on SIM1 when using data on SIM2
4.3.24	4.8.6.1 Data service from idle mode
4.3.25	4.8.6.2 Data service on SIM1 when in call on SIM2
4.3.26	4.8.7.2 Selection of network in idle mode

Note: Some of these tests are also called up by the “user interface” section of this document. It is not necessary to run identical tests twice, but be aware that the user interface tests require any test applicable to SMS to be repeated for MMS.

## **4.4 USAT Operation**

### **4.4.1 Dual SIM Dual Active**

#### **Test Purpose**

To ensure USAT functions correctly on all SIM ports

When a DUT is DSDA (or MSMA) USAT commands SHALL be supported on all SIM ports.

#### **Referenced requirements**

TS37\_2.4\_REQ\_2

#### **Test execution:**

1. Perform all USAT tests accordingly to Applicability Table of 3GPP TS 31.124 on each SIM port.

### **4.4.2 Dual SIM Dual Standby**

#### **Test Purpose**

To ensure USAT functions correctly on all SIM ports

#### **Referenced requirements**

TS37\_2.4\_REQ\_3

#### **Test execution:**

1. Perform all USAT tests accordingly to Applicability Table of 3GPP TS 31.124 on the in-call SIM port.
2. For each SIM port that is power on other than the in-call SIM port, call up USAT tests that do not require network access accordingly to the Applicability Table of 3GPP TS 31.124, including tests related to the USAT command Open Channel over a Local Bearer.
3. For each SIM port that is power on other than the in-call SIM port, call up USAT tests that require network access accordingly to the Applicability Table of 3GPP TS 31.124. For these USAT tests when the ME is unable to process the command, the ME SHALL inform the SIM ("ME currently unable to process command" or "Network currently unable to process command") as specified in the USAT specification.

#### 4.4.3 Void

### 4.5 User Interface

#### 4.5.1 SIM Selection via Software

##### Test Purpose

For DUTs supporting SIM selection through software, to ensure the DUT offers appropriate SIM selection menu(s)

##### Referenced requirements

TS37\_2.5\_REQ\_1

TS37\_2.5\_REQ\_2

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	The DUT is powered off. Each SIM port has either an inserted physical SIM or a logically associated eUICC

##### Test execution

Step	Direction	Sequence	Expected Result
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Step	Direction	Sequence	Expected Result
1	User → DUT	Power on DUT and access the menu for SIM selection	The user interface offers a SIM selection menu.  Technology restrictions (if any) are indicated and match those declared by the vendor in the proforma in TS.37 section 2.3

## 4.5.2 Preferred SIM for Data

### Test Purpose

To ensure the DUT allows selection of a preferred SIM for data, that this selection is used to direct data traffic, and that the correct default is applied if the user does not make a selection

### Referenced requirements

TS37\_2.5\_REQ\_3

TS37\_2.5\_REQ\_4

### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.

### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Go to the menu for SIM selection for data traffic	The user interface allows selection of a preferred SIM/eUICC for data  Prior to user selecting a SIM/eUICC for data service, the device automatically selects a connection with the highest available radio access technology generation.

Step	Direction	Sequence	Expected Result
2	User → DUT	Select a SIM/eUICC as preferred for data and browse a web page.	All data is routed over the connection associated with the selected SIM/eUICC
3		Repeat step 2 for each available SIM/eUICC	

### 4.5.3 Preferred SIM for Voice, SMS, MMS

#### Test Purpose

To ensure that, if the DUT allows selection of a preferred SIM for Voice, SMS or MMS, these selections are used to direct traffic accordingly.

#### Referenced requirements

TS37\_2.5\_REQ\_5

#### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.

#### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Go to the menu for SIM selection for Voice	Prior to user selecting a SIM/eUICC for voice service, the device automatically selects a connection with voice call capability and clearly shows this in the user interface.  The user interface allows selection of a preferred SIM/eUICC for Voice
2	User → DUT	Select a SIM/eUICC as preferred for voice and make a voice call.	All mobile originated voice calls are routed over the connection associated with the selected SIM/eUICC

Step	Direction	Sequence	Expected Result
3		Repeat step 2 for each available SIM/eUICC	
4	User → DUT	Repeat steps 2 & 3 for SMS and MMS if a preferred SIM/eUICC for these can be selected independently of Voice.	All mobile originated SMS / MMS are routed over the connection associated with the selected SIM/eUICC

#### 4.5.4 Single SIM Operation

##### Test Purpose

To ensure that, if the DUT contains a single SIM, this SIM is automatically chosen as the default SIM for all services.

##### Referenced requirements

TS37\_2.4\_REQ\_5

TS37\_2.5\_REQ\_6

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	There are no SIMs inserted or eUICCs associated with SIM ports. The DUT is powered off

##### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Insert a single USIM in slot 1, then power on the device. (For eUICC, associate a single eUICC with SIM port 1)	Device camps onto a network appropriate to inserted SIM / associated eUICC and enters standby state
2	User → DUT	Access configuration UI	UI settings relating to multi SIM operation are either hidden or pre set to the inserted SIM and are not changeable

Step	Direction	Sequence	Expected Result
3	User → DUT	Make a voice call; maintain call for 10 seconds and then end the call.	UI only offers one connection for making the call.  Call is set up and terminated in accordance with 3GPP/3GPP2 standards. [6], [11], [13]
4	User → DUT	Send an SMS	UI only offers one connection for sending SMS.  SMS is sent in accordance with 3GPP/3GPP2 standards. [6], [11], [13]
5	User → DUT	Send an MMS.	UI only offers one connection for sending MMS  MMS is sent in accordance with 3GPP/3GPP2 standards. [6], [11], [13]
6	User → DUT	Access contacts	UI only presents contacts from the active SIM/eUICC
7	User → DUT	Access SIM toolkit menu	UI only presents SIM toolkit options for the active SIM/eUICC
8	User → DUT	Power down DUT	Device disconnects from network in accordance 3GPP/3GPP2 standards. [6], [11], [13] and powers down
9	User → DUT	Repeat steps 1-8 for each available SIM port.	

Note: this test corresponds to YDT 3041-2016 [17] test 4.1.2(a,b,c). eUICC is not explicitly covered by YDT specifications.

#### 4.5.5 Change of SIM Association

##### Test Purpose

To ensure that alteration of SIM association through DUT software results in network connectivity changes that comply with 3GPP / 3GPP2 standards

##### Referenced requirements

TS37\_2.5\_REQ\_7

TS37\_2.5\_REQ\_8

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.

### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Access the SIM selection menu and associate each SIM/eUICC with a SIM port	Connections are established according to 3GPP/3GPP2 standards [6], [11], [13]
2	User → DUT	Change SIM/eUICC association	<p>For connections where association has been changed</p> <ol style="list-style-type: none"> <li>1. Connection detaches according to 3GPP/3GPP2 standards and using original IMEI [6], [11], [13]</li> <li>2. Relevant parameters are synchronised with SIM and higher layers (via modem reset or otherwise)</li> <li>3. Connection is re-established according to 3GPP/3GPP2 standards and using new IMEI [6], [11], [13]</li> </ol> <p>For connections where association has not changed:</p> <ol style="list-style-type: none"> <li>1. No detach / re attach is seen.</li> </ol>

#### 4.5.6 Idle Mode Display

##### Test Purpose

To ensure the DUT presents connection status information for each SIM when in idle mode

##### Referenced requirements

TS37\_2.5\_REQ\_9

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.

### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Check the idle mode UI	The following are visible on the idle mode user interface for each connection: a) Network identifier b) Roaming status c) Radio Access Technology d) Signal strength

### 4.5.7 Lock Screen Display

#### Test Purpose

To ensure the DUT presents connection status information for each SIM on the lock screen

#### Referenced requirements

TS37\_2.5\_REQ\_10

#### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.

### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Activate lock screen and check the UI.	The following are visible on the lock screen for each connection:  1. Network identifier 2. Roaming status 3. Radio Access Technology 4. Signal strength

### 4.5.8 Mobile Terminated Calls SMS & MMS

#### Test Purpose

To ensure that, for mobile terminated calls, SMS and MMS, the user interface SHALL indicate the connection on which the call/SMS/MMS is received.

#### Referenced requirements

TS37\_2.5\_REQ\_11

#### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.
UE_B	A reference device containing a single SIM is powered on and attached to a network appropriate to its SIM

### Test execution

Step	Direction	Sequence	Expected Result
1	User → UE_B	Make a call to the number associated with DUT SIM/eUICC1	Call is routed and causes ringing at DUT with indication of which SIM/eUICC the call is being received on

Step	Direction	Sequence	Expected Result
2	User → DUT	Answer call	Call is connected
3	User → DUT	After 10 seconds, disconnect call	Call is disconnected at both DUT and UE_B
4	User → UE_B	Send an SMS to the number associated with DUT SIM/eUICC1	SMS is received at DUT with indication of which SIM/eUICC the SMS was received on
5	User → UE_B	Send an MMS to the number associated with DUT SIM/eUICC1	MMS is received at DUT with indication of which SIM/eUICC the MMS was received on
6		Repeat steps 1-5 for each SIM/eUICC in DUT.	

Note: this test in part corresponds to YDT 3041-2016 [17] tests 4.8.4.2 (MT Call) and 4.8.5.2 (MT SMS). The MMS case is not covered by YDT specifications. eUICC is not explicitly covered by YDT specifications.

#### 4.5.9 Mobile Originated Calls SMS & MMS

##### Test Purpose

To ensure that, for mobile originated calls, SMS and MMS, the user interface SHALL allow the user to select the connection used to make the call.

##### Referenced requirements

TS37\_2.5\_REQ\_12

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.
UE_B	A reference device containing a single SIM is powered on and attached to a network appropriate to its SIM

##### Test execution



Step	Direction	Sequence	Expected Result
1	User → DUT	Make a call to UE_B using DUT SIM/eUICC1	Call is routed and causes ringing at UE_B with indication of number associated with DUT SIM/eUICC1
2	User → UE_B	Answer call	Call is connected
3	User → UE_B	After 10 seconds, disconnect call	Call is disconnected at both DUT and UE_B
4	User → DUT	Send an SMS to UE_B using DUT SIM/eUICC1	SMS is received at UE_B with indication of number associated with DUT SIM/eUICC1
5	User → DUT	Send an MMS to UE_B using DUT SIM/eUICC1	MMS is received at UE_B with indication of number associated with DUT SIM/eUICC1
6		Repeat steps 1-5 for each SIM/eUICC in DUT.	

Note: this test in part corresponds to YDT 3041-2016 [17] tests 4.8.4.1 (MO Call) and 4.8.5.1 (MO SMS). The MMS case is not covered by YDT specifications. eUICC is not explicitly covered by YDT specifications.

#### 4.5.10 Emergency Call

##### Test Purpose

To ensure the DUT initiates emergency calls on all available connections

##### Referenced requirements

TS37\_2.5\_REQ\_13

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or test network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT. Some of the network connections shall be configured to reject emergency calls.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	The DUT is powered off. Each SIM port has either an inserted physical SIM or a logically associated eUICC

##### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Power on DUT.	DUT attaches to each network
2	User → DUT	Dial emergency call through user interface	DUT initiates emergency call with no additional dialog boxes.
3	DUT → Network		Emergency call is initiated in accordance with 3GPP/3GPP2 standards. [6], [11], [13]
4	Network → DUT	Connect emergency call	Call is connected
5	User → DUT	Terminate emergency call at user interface	DUT terminates emergency call with no additional dialog boxes.
6	DUT → Network		Call is terminated in accordance with 3GPP/3GPP2 standards. [6], [11], [13]
7	User → DUT	Dial emergency call through user interface on a network that will reject the call	DUT initiates emergency call with no additional dialog boxes.
8	DUT → Network		Emergency call is initiated in accordance with 3GPP/3GPP2 standards. [6], [11], [13]
9	Network → DUT	Reject emergency call	DUT retries on second connection regardless of voice call routing preferences set in the DUT
10	DUT → Network		Emergency call is initiated on 2 <sup>nd</sup> network in accordance with 3GPP/3GPP2 standards. [6], [11], [13]
11	Network → DUT	Connect emergency call	Call is connected
12	User → DUT	Terminate emergency call at user interface	DUT terminates emergency call with no additional dialog boxes.
13	DUT → Network		Call is terminated in accordance with 3GPP/3GPP2 standards. [6], [11], [13]
14	User → DUT	Dial emergency call through user interface on first network that will reject the call	DUT initiates emergency call with no additional dialog boxes.
15	DUT → Network		Emergency call is initiated in accordance with 3GPP/3GPP2 standards. [6], [11], [13]

Step	Direction	Sequence	Expected Result
16	Network → DUT	Reject emergency call	DUT retries on 2 <sup>nd</sup> connection regardless of voice call routing preferences set in the DUT
17	DUT → Network		Emergency call is initiated on 2 <sup>nd</sup> network in accordance with 3GPP/3GPP2 standards. [6], [11], [13]
18	Network → DUT	Reject emergency call	DUT retries on 3 <sup>rd</sup> connection regardless of voice call routing preferences set in the DUT
19	DUT → Network		Emergency call is initiated on 3 <sup>rd</sup> network in accordance with 3GPP/3GPP2 standards. [6], [11], [13]  Note: for a Dual SIM DUT the third connection will be emergency camped-on state through any available network.
20	Network → DUT	Connect emergency call	Call is connected
21	User → DUT	Terminate emergency call at user interface	DUT terminates emergency call with no additional dialog boxes.
22	DUT → Network		Call is terminated in accordance with 3GPP/3GPP2 standards. [6], [11], [13]

If the DUT has more than two SIMs/eUICCs, repeat with 3,4,5... networks rejecting the call attempt

Note: After an IMS emergency call is ended, the device MAY remain IMS registered on that connection until the SESSION\_EXPIRY time. This is to allow support for emergency service callback. This is typically 30 minutes, so will lead to long test durations if the above procedure is run on live networks.

#### 4.5.11 Call Logs

##### Test Purpose

To ensure the DUT shows which SIM a call was made / received on

##### Referenced requirements

TS37\_2.5\_REQ\_14

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.
UE_B	A reference device containing a single SIM is powered on and attached to a network appropriate to its SIM

### Test execution

Step	Direction	Sequence	Expected Result
1	User → UE_B	Make a call to number associated with DUT SIM/eUICC 1	Call is routed and causes ringing at DUT with indication of which SIM/eUICC the call is being received on
2	User → DUT	Answer call	Call is connected
3	User → DUT	After 10 seconds, disconnect call	Call is disconnected at both DUT and UE_B
4	User → UE_B	Make a call to number associated with DUT SIM/eUICC 1	Call is routed and causes ringing at DUT with indication of which SIM/eUICC the call is being received on
5	User → DUT	Reject call	Call is rejected at DUT and shown as rejected at UE_B
6	User → DUT	Make a call to UE_B using DUT SIM/eUICC 1	Call is routed and causes ringing at UE_B with indication of number associated with DUT SIM/eUICC 1
7	User → UE_B	Answer call	Call is connected
8	User → UE_B	After 10 seconds, disconnect call	Call is disconnected at both DUT and UE_B
9	User → DUT	Make a call to UE_B using DUT SIM/eUICC 1	Call is routed and causes ringing at UE_B with indication of number associated with DUT SIM/eUICC 1
10	User → UE_B	Reject call	Call is rejected at UE_B and shown as rejected at DUT

Step	Direction	Sequence	Expected Result
11		Repeat steps 1-10 for each SIM/eUICC in DUT.	
12	User → DUT	Access call records in DUT UI	All calls are shown with indication of the SIM with which they were made (for MO) or received (for MT)

Note: this test corresponds to YDT 3041-2016 [17] test 4.8.3.4 (Call records) eUICC is not explicitly covered by YDT specifications.

#### 4.5.12 SMS / MMS Logs

##### Test Purpose

To ensure the DUT shows which SIM an SMS / MMS was made / received on

##### Referenced requirements

TS37\_2.5\_REQ\_15

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.
UE_B	A reference device containing a single SIM is powered on and attached to a network appropriate to its SIM

##### Test execution

Step	Direction	Sequence	Expected Result
1	User → UE_B	Send an SMS to number associated with DUT SIM/eUICC 1	SMS is routed and arrives at indication of which SIM/eUICC the SMS was received on
2	User → UE_B	Send an MMS to number associated with DUT SIM/eUICC 1	MMS is routed and arrives at indication of which SIM/eUICC the MMS was received on

Step	Direction	Sequence	Expected Result
3	User → DUT	Send an SMS to UE_B using DUT SIM/eUICC 1	SMS arrives at UE_B with indication of number associated with DUT SIM/eUICC 1
4	User → DUT	Send an MMS to UE_B using DUT SIM/eUICC 1	MMS arrives at UE_B with indication of number associated with DUT SIM/eUICC 1
5		Repeat steps 1-4 for each SIM/eUICC in DUT.	
6	User → DUT	Access call records in DUT UI	All calls are shown with indication of the SIM with which they were made (for MO) or received (for MT)
7	User → DUT	Reply to a message from SIM/eUICC 1 using SIM/eUICC 2	UI offers an option to reply using a different SIM/eUICC from the SIM/eUICC associated with the message, and reply is sent using the selected SIM/eUICC.
8	User → DUT	Forward a message from SIM/eUICC 1 using SIM/eUICC 2	UI offers an option to forward message using a different SIM/eUICC from the SIM/eUICC associated with the message, and reply is sent using the selected SIM/eUICC.
9	User → DUT	Make a call in reply to a message from SIM/eUICC 1 using SIM/eUICC 2	UI offers an option to make a call in reply to a message using a different SIM/eUICC from the SIM/eUICC associated with the message, and reply is sent using the selected SIM/eUICC.
10	User → DUT	Repeat steps 7-9 for all SIM/eUICC combinations in DUT.	

Note: This test corresponds in part to YDT 3041-2016 [17] test 4.8.3.1 (SMS records). The MMS case is not covered by YDT specifications. While covered by YDT, this test omits the case where SMS are physically stored in the SIM as this is not seen in any recent devices. eUICC is not explicitly covered by YDT specifications.

#### 4.5.13 Data Use Display

##### Test Purpose

To ensure that, if the DUT has a per-connection data use display, data use is correctly shown.

##### Referenced requirements

TS37\_2.5\_REQ\_16

## Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.

## Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Access the UI for data connection	Prior to user selection of a preferred SIM/eUICC for data, the DUT automatically selects a connection. The automatic selection uses the highest available radio access technology generation and is clearly indicated on the user interface.  The user interface allows selection of a preferred SIM/eUICC for data
2	User → DUT	Select a SIM/eUICC as preferred for data.	All data is routed over the connection associated with the selected SIM/eUICC
3	User → DUT	Download a file of known size	User interface shows the correct amount of data traffic for the selected SIM/eUICC
		Repeat steps 2 & 3 for each available SIM/eUICC	

### 4.5.14 Cell Broadcast

#### Test Purpose

If cell broadcast reception is supported:

To ensure the DUT implements cell broadcast messaging per connection, and that message display includes an indication of the connection over which they were received.

#### Referenced requirements

TS37\_2.5\_REQ\_17

TS37\_2.5\_REQ\_18  
 TS37\_2.5\_REQ\_19

### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.

### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Access Cell Broadcast configuration in the user interface.	Cell broadcast configuration is offered independently for each connection
2	User → DUT	Enable cell broadcast reception for all connections	User interface shows which connections cell broadcast is enabled for
3	Network → DUT	All networks send cell broadcast messages	DUT displays each message in cell broadcast display and correctly indicates the connection over which it was received.
4		If DUT can display cell broadcast messages in idle or lock screen, repeat step 3 for each screen	

Note: Any user visible cell broadcast message may be used. Details are not defined in this test as messages in use vary considerably between countries / networks.

#### 4.5.15 Priority of Services

##### Test Purpose

For a DUT that does not offer dual active connection, to ensure that voice, SMS and MMS are prioritised over data

##### Referenced requirements



TS37\_2.5\_REQ\_20  
 TS37\_2.5\_REQ\_20.1  
 TS37\_2.5\_REQ\_20.2

### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.
UE_B	A reference device containing a single SIM is powered on and attached to a network appropriate to its SIM

### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Using UI, configure device to route data traffic to SIM/eUICC 1 and start a data download.	Data traffic is routed over the connection associated with SIM/eUICC 1
2	User → DUT	Make a call to UE_B using SIM/eUICC 2	Call is routed and causes ringing at UE_B with indication of number associated with DUT SIM/eUICC2
3	User → UE_B	Answer call	Call is connected. Data traffic on DUT SIM/eUICC 1 is suspended for devices types other than DSDA
4	User → UE_B	After 10 seconds, disconnect call	Call is disconnected at both DUT and UE_B. Data traffic at DUT resumes on SIM/eUICC 1.
5	User → UE_B	Make a call to number associated with DUT SIM/eUICC 2	Call is routed and causes ringing at DUT with indication of which SIM/eUICC the call is being received on.
6	User → DUT	Answer call	Call is connected. Data traffic on DUT SIM/eUICC 1 is suspended for devices types other than DSDA
7	User → DUT	After 10 seconds, disconnect call	Call is disconnected at both DUT and UE_B. Data traffic at DUT resumes on SIM/eUICC 1.

Step	Direction	Sequence	Expected Result
8		Repeat steps 2-7 using SMS instead of voice calls	
9		Repeat steps 2-7 using MMS instead of voice calls	
10		Repeat steps 2-7 for a voice call of longer duration than the network FTP timeout	Data traffic does not resume due to FTP timeout; instead the data transfer restarts on SIM/eUICC 1.
11		Repeat steps 1-9 for all other SIM/eUICC combinations supported by the device	

Note: This test corresponds to YDT 3041-2016 [17] tests 4.8.4.3, 4.8.4.4, 4.8.5.5 & 4.8.5.6 (call & SMS priority over data). The MMS case is not covered by YDT specifications. eUICC is not explicitly covered by YDT specifications.

#### 4.5.16 Call Forwarding / Call Waiting

##### Test Purpose

To ensure supplementary services operate independently on each connection

##### Referenced requirements

TS37\_2.5\_REQ\_21  
 TS37\_2.5\_REQ\_22

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
User B	A second device is connected to a network from which it may make call to / receive calls from the DUT
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.

##### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Access call forwarding configuration in the user interface.	Call forwarding configuration is offered independently for each connection
2	User → DUT	Enable call forwarding on connection n	User interface shows call forwarding is enabled on connection n
3	User B → another DUT	Make a call to connection n of DUT	Call is forwarded in accordance with settings at DUT.
4	User B → another DUT	Terminate call	
5	User B → another DUT	Make call to other connection(s) of DUT	Calls is received by DUT
6	User B → another DUT	Terminate call	
7	User → DUT	Disable call forwarding on connection n	User interface shows call forwarding is disenabled on connection n
8	User B → another DUT	Make a call to connection n of DUT	Call is received by DUT
9		Repeat steps 2-8 for each available connection on DUT	
10	User → DUT	Access call waiting configuration in the user interface.	Call waiting configuration is offered independently for each connection
11	User → DUT	Enable call waiting on connection n	User interface shows call waiting is enabled on connection n
12	User → DUT	Make a call on connection n	Call is connected
13	User B → another DUT	While DUT MO call is still in progress, make a call to connection n of DUT	Call waiting indication is made at DUT Call waiting indication is made to User B
14		Terminate all calls	
15	User → DUT	Make a call on a connection other than n	Call is connected
16	User B → another DUT	While DUT MO call is still in progress, make a call to connection n of DUT	Call waiting indication is not made at DUT Call waiting indication is not made to User B

Step	Direction	Sequence	Expected Result
17		Terminate all calls	
18	User → DUT	Disable call waiting on connection n	User interface shows call waiting is disabled on connection n
19	User → DUT	Make a call on a connection n	Call is connected
20	User B → another DUT	While DUT MO call is still in progress, make a call to connection n of DUT	Call waiting indication is not made at DUT Call waiting indication is not made to User B
21		Terminate all calls	
22		Repeat steps 11-21 for each connection available on the DUT	

#### 4.5.17 Call Hold

##### Test Purpose

For a DSDA DUT to ensure that an ongoing call can be placed on hold while a call on the other connection is answered or initiated.

##### Referenced requirements

TS37\_2.5\_REQ\_23

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.
UE_B	A reference device containing a single SIM is powered on and attached to a network appropriate to its SIM
UE_C	A reference device containing a single SIM is powered on and attached to a network appropriate to its SIM

**Test execution**

Step	Direction	Sequence	Expected Result
1	User → DUT	Initiate a call to UE_B using SIM/eUICC 1	Call is routed and causes ringing at UE_B with indication of number associated with DUT SIM/eUICC 1
2	User → UE_B	Answer call from DUT SIM/eUICC 1	Call is connected.
3	User → DUT	Place call to UE_B on hold. Make a call to UE_C using SIM/eUICC 2	Call is routed and causes ringing at UE_C with indication of number associated with DUT SIM/eUICC 2
4	User → UE_C	Answer call from DUT SIM/eUICC 2	Call is connected.
5	User → DUT	Place call to UE_C on hold. Resume call with UE_B	Call to UE_B is successfully resumed
6	User → DUT	Disconnect call to UE_B. Resume call with UE_C	Call to UE_B is disconnected at both DUT and UE_B. Call to UE_C is successfully resumed
7	User → DUT	Disconnect call to UE_C.	Call is disconnected at both DUT and UE_C.
8	User → UE_B	Initiate a call to DUT SIM/eUICC 1 from UE_B	Call is routed and causes ringing at DUT SIM/eUICC 1 with indication of number associated with UE_B
9	User → DUT	Answer call from UE_B	Call is connected.
10	User → UE_C	Initiate a call to DUT SIM/eUICC 2 from UE_C	Call is routed and causes ringing at DUT SIM/eUICC 2 with indication of number associated with UE_C
11	User → DUT	Please call from UE_B on hold. Answer call from UE_C	Call is connected.
12	User → DUT	Place call to UE_C on hold. Resume call with UE_B	Call from UE_B is successfully resumed
13	User → DUT	Disconnect call from UE_B. Resume call from UE_C	Call from UE_B is disconnected at both DUT and UE_B. Call from UE_C is successfully resumed
14	User → DUT	Disconnect call from UE_C.	Call is disconnected at both DUT and UE_C.
15		Repeat steps 1-14 for any other SIM/eUICC combinations supported by the device	

Note: This test corresponds in part to YDT 3041-2016 [17] test 4.8.4.6 (MT call on SIM/eUICC 1 when in call on SIM2). The MO case is not covered by YDT. eUICC is not explicitly covered by YDT specifications

#### 4.5.18 SIM PIN

##### Test Purpose

To ensure correct operation of SIM PIN and presentation of appropriate information to the user

##### Referenced requirements

TS37\_2.5\_REQ\_24

TS37\_2.5\_REQ\_25

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile Each SIM has a PIN code set and activated
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered off

##### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Power on DUT	UI presents SIM PIN entry screen with indication of which SIM the entry relates to
2	User → DUT	Enter PIN for indicated SIM/eUICC	DUT connects to network associated with the SIM just unlocked.  UI presents SIM PIN entry screen for next SIM/eUICC with indication of which SIM/eUICC the entry relates to.
3		Repeat step 2 until all SIM/eUICCs have been unlocked	
4	User → DUT	Power off DUT	DUT shuts down

Note: this test corresponds to YDT 3041-2016 test [17] 4.8.2 (SIM PIN). eUICC is not explicitly covered by YDT specifications

#### 4.5.19 PUK Code

##### Test Purpose

To ensure that when asking for a PUK, the DUT indicates which SIM this relates to

##### Referenced requirements

TS37\_2.5\_REQ\_26

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile Each SIM has a PUK code set and activated
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered off

##### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Power on DUT	UI presents SIM PUK entry screen with indication of which SIM/eUICC the entry relates to
2	User → DUT	Enter PUK for indicated SIM/eUICC	DUT connects to network associated with the SIM just unlocked.  UI presents SIM PUK entry screen for next SIM/eUICC with indication of which SIM/eUICC the entry relates to.
3		Repeat step 2 until all SIMs have been unlocked	
4	User → DUT	Power off DUT	DUT shuts down

#### 4.5.20 (Void)

#### 4.5.21 Network & Service Provide Locks (FFS)

##### Test Purpose

To ensure the Network and service provider locks operate in an easy-to-understand manner

##### Referenced requirements

TS37\_2.5\_REQ\_27  
 TS37\_2.5\_REQ\_28  
 TS37\_2.5\_REQ\_29

**Test execution:**

Test to be defined

**4.5.22 Contact Book Management**

**4.5.22.1 Access to Contacts**

**Test Purpose**

To ensure the user can access all contacts, whether stored in a SIM, the DUT itself or cloud storage

**Referenced requirements**

TS37\_2.5\_REQ\_30

**Initial Conditions**

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile SIMs contain stored contacts; some contacts are present in more than one SIM
Cloud account	A cloud account containing contacts is accessible over at least one of the networks. Some contacts stored in this account are the same as on one or more SIMs
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs. No preferred SIM is set for voice call, SMS or MMS.

**Test execution**

Step	Direction	Sequence	Expected Result
1	User → DUT	Log into cloud account (if supported by DUT)	Cloud account successfully accessed.



Step	Direction	Sequence	Expected Result
2	User → DUT	Access the user interface contacts menu, select a contact from SIM/eUICC 1 and perform the following actions: <ol style="list-style-type: none"> <li>1. Make a call to contact</li> <li>2. Send an SMS to contact</li> <li>3. Send an MMS to contact</li> </ol>	The user interface asks which SIM/eUICC to use for each operation  Operation is successfully completed over the selected SIM/eUICC connection
3		Repeat step 2 for a contact stored on each other SIM/eUICC in the DUT, stored in the DUT itself, and (if applicable) present in cloud storage	

Note: this test corresponds in part to YDT 3041-2016 [17] test 4.8.3.2 (Phonebook test). An eUICC is not explicitly covered by YDT specifications.

#### 4.5.22.2 Presentation of Contacts

##### Test Purpose

To ensure the DUT presents contacts correctly

##### Referenced requirements

TS37\_2.5\_REQ\_31

TS37\_2.5\_REQ\_32

TS37\_2.5\_REQ\_33

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile SIMs contain stored contacts; some contacts are present in more than one SIM
Cloud account	A cloud account containing contacts is accessible over at least one of the networks. Some contacts stored in this account are the same as on one or more SIMs
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.

### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Log into cloud account (if supported by DUT)	Cloud account successfully accessed.
2	User → DUT	Access the user interface contacts menu	<p>Contacts from all sources (DUT, cloud, SIMx, SIMy ...) can be accessed within the same user interface menu</p> <p>There is either:</p> <ul style="list-style-type: none"> <li>- a single contact list consolidating all sources; or</li> <li>- a contact list per source.</li> </ul> <p>For a single contact list:</p> <ul style="list-style-type: none"> <li>- Each contact has an indication of its source</li> <li>- Contacts present in more than source are either displayed multiple times with different source indications, or displayed once with multiple source indications</li> </ul> <p>For a contact list per source:</p> <ul style="list-style-type: none"> <li>- Each list indicates the source it from which it derives.</li> </ul>

#### 4.5.22.3 Adding Contacts

##### Test Purpose

To ensure the DUT adds contacts correctly

##### Referenced requirements

TS37\_2.5\_REQ\_34

TS37\_2.5\_REQ\_35

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile

Entity	Description of the initial condition
	SIMs contain stored contacts; some contacts are present in more than one SIM
Cloud account	A cloud account containing contacts is accessible over at least one of the networks. Some contacts stored in this account are the same as on one or more SIMs/eUICCs
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.

### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Log into cloud account (if supported by DUT)	Cloud account successfully accessed.
2	User → DUT	Access the user interface contacts menu and enter a new contact	The user interface asks where to save the contact.  The contact is saved to the location selected

Note: it is permissible to allow a contact to be saved to multiple locations, but this must be through user selection

#### 4.5.22.4 Deleting Contacts

##### Test Purpose

To ensure the DUT deletes contacts correctly

##### Referenced requirements

TS37\_2.2\_REQ\_36

TS37\_2.2\_REQ\_37

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile SIMs contain stored contacts; some contacts are present in more than one SIM
Cloud account	A cloud account containing contacts is accessible over at least one of the networks. Some contacts stored in this account are the same as on one or more SIMs

DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.
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### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Log into cloud account (if supported by DUT)	Cloud account successfully accessed.
2	User → DUT	Access the user interface contacts menu and delete a contact that is present in more than one source	User interface asks which source to delete the contact from.  The contact is deleted only from the source(s) selected

Note: it is permissible to allow a contact to be deleted from multiple locations, but this must be through user selection

#### 4.5.22.5 Copying Contacts

##### Test Purpose

To ensure the DUT copies contacts correctly

##### Referenced requirements

TS37\_2.5\_REQ\_38

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile SIMs contain stored contacts; some contacts are present in more than one SIM
Cloud account	A cloud account containing contacts is accessible over at least one of the networks. Some contacts stored in this account are the same as on one or more SIMs
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.

## Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Log into cloud account (if supported by DUT)	Cloud account successfully accessed.
2	User → DUT	Access the user interface contacts menu and copy a contact that is present in only one source	User interface asks which source to copy the contact to.  The contact is copied only to the location(s) selected

Note: it is permissible to allow a contact to be copied to multiple locations, but this must be through user selection

### 4.5.23 Network Search

#### 4.5.23.1 Simple network search

##### Test Purpose

To ensure independent operation of network search for each SIM is available and that the user interface makes appropriate information available

##### Referenced requirement

TS37\_2.5\_REQ\_39

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.

### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Access user interface manual network search and begin network search for SIM/eUICC 1	DUT presents search results. <ul style="list-style-type: none"> <li>- User interface shows all found networks.</li> <li>- User interface shows the highest available radio access technology for each network.</li> </ul>
2	User → DUT	From the list of networks, select the home network for SIM/eUICC 1	Device immediately returns to idle mode on the selected network.
3	User → DUT	Access user interface manual network search and begin network search for SIM/eUICC 1	DUT presents search results. <ul style="list-style-type: none"> <li>- User interface shows all found networks.</li> <li>- User interface shows the highest available radio access technology for each network.</li> </ul>
4	User → DUT	Select a network that is forbidden for SIM/eUICC 1	Network selection fails. Device returns to network selection list.
5		Repeat steps 1-4 for all other SIMs/eUICCs in the DUT	

Note: this test corresponds to YDT 3041-2016 [17] test 4.8.7.2 (Network selection in idle). eUICC is not explicitly covered by YDT specifications.

#### 4.5.23.2 Simultaneous Network Search

##### Test Purpose

If implemented, to ensure simultaneous multi-SIM network search provides results in a consistent manner

##### Referenced requirements

TS37\_2.5\_REQ\_40

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.

SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.

### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Access user interface manual network search and select “all SIM” search option	DUT to presents search results <ul style="list-style-type: none"> <li>– User interface indicates which SIM(s)/eUICC(s) may be used for each network found.</li> <li>– User interface indicates the highest available radio access technology for each network.</li> <li>– User interface indicates if the highest available radio access technology of a network differs between SIMs</li> <li>– If FPLMNs are included, User interface indicates the SIM(s) /eUICC(s) for which they are forbidden.</li> </ul>
2	User → DUT	Select a network that may be accessed by more than one SIM/eUICC	User interface asks which source to user interface allows selection of the SIM/eUICC to be used
3	User → DUT	Select a network & SIM/eUICC combination	Remaining options are updated appropriately.

Note: there is no naming convention for this search operation. It has been called “all SIM” for convenience; the DUT user interface may use different terminology.

#### 4.5.24 IMS Voice services

Applicable to DUTs supporting IMS services and offering the user options to enable / disable these services.

##### 4.5.24.1 VoLTE

#### Test Purpose

To ensure user interface controls of VoLTE voice services function correctly

### Referenced requirements

TS37\_2.5\_REQ\_41  
 TS37\_2.5\_REQ\_42  
 TS37\_2.5\_REQ\_43

### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT. VoLTE is supported
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile VoLTE subscription is in place
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.

### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Access VoLTE configuration through user interface	User interface offers individual VoLTE enable/disable controls for each connection that supports VoLTE
2	User → DUT	Enable all VoLTE connections Return to home screen	User interface presents VoLTE registration status for each connection.
3	User → DUT	Access VoLTE configuration through user interface Disable VoLTE connection n Return to home screen	User interface reports connection n is no longer VoLTE registered All other connections are unchanged
4		Repeat step 3 for each VoLTE connection available on the DUT	

#### 4.5.24.2 VoWiFi

##### Test Purpose

To ensure user interface controls of VoWiFi voice services function correctly

##### Referenced requirements



TS37\_2.5\_REQ\_44  
 TS37\_2.5\_REQ\_45  
 TS37\_2.5\_REQ\_46

### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICC supported by the DUT. VoWiFi is supported
Wi-Fi	A Wi-Fi access point with backhaul to the cellular network core.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile VoWiFi subscription is in place
DUT	Each SIM port has either an inserted physical SIM or a logically associated eUICC. The DUT is powered on and is attached to networks appropriate to the SIMs/eUICCs.

### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Access VoWiFi configuration through user interface	User interface offers individual VoWiFi enable/disable controls for each connection that supports VoWiFi
2	User → DUT	Enable all VoWiFi connections Return to home screen	User interface presents VoWiFi registration status for each connection.
3	User → DUT	Access VoWiFi configuration through user interface Disable VoWiFi connection n Return to home screen	User interface reports connection n is no longer VoWiFi registered All other connections are unchanged
4		Repeat step 3 for each VoWiFi connection available on the DUT	

#### 4.5.25 Accessories

##### Test Purpose

To ensure that accessories with a UI designed for single SIM operate in a logical way when attached to a Multi SIM device

Note: these tests apply to the master device rather than the accessory – it is assumed that the accessory behaves in a single SIM mode throughout.

## Referenced requirements

TS37\_2.5\_REQ\_47  
 TS37\_2.5\_REQ\_48  
 TS37\_2.5\_REQ\_49  
 TS37\_2.5\_REQ\_50  
 TS37\_2.5\_REQ\_51  
 TS37\_2.5\_REQ\_52  
 TS37\_2.5\_REQ\_53  
 TS37\_2.5\_REQ\_54

## Initial Conditions

To be defined

## Initial Conditions

To be defined

## 4.6 Automatic SIM Allocation

### 4.6.1 Based on Hardware

#### Test Purpose

To ensure Automatic SIM allocation based on physical SIM hardware, and associated user interface functions, operate correctly

#### Referenced requirements

TS37\_2.6\_REQ\_1  
 TS37\_2.6\_REQ\_3  
 TS37\_2.6\_REQ\_4

#### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	Each SIM is configured to access the configured networks. Each eUICC has an appropriate active profile One SIM is physically a 2G model
DUT	The DUT is powered off. Each SIM port has either an inserted physical SIM or a logically associated eUICC

#### Test execution

Step	Direction	Sequence	Expected Result
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Step	Direction	Sequence	Expected Result
1	User → DUT	Power on DUT	DUT connects to each network
2	User → DUT	Access user interface network search menu	<p>The 2G SIM is associated with the 2G only port. Other SIM(s)/eUICC(s) are allocated the highest radio access technology available according to the settings of the DUT</p> <p>The user interface clearly indicates that automatic association has been used.</p> <p>The user interface clearly indicates the association in use</p> <p>The user interface offers options to manually change the association</p>
3	User → DUT	Change the SIM/eUICC association via the UI	<p>Existing connections are closed in accordance with 3GPP / 3GPP2 standards [6], [11], [13]</p> <p>New connections are established in accordance with the new association</p>

#### 4.6.2 Based on Discovery Protocol

##### Test Purpose

To ensure Automatic SIM allocation based on discovery protocols, and associated user interface functions, operate correctly

##### Referenced requirements

TS37\_2.6\_REQ\_2

TS37\_2.6\_REQ\_3

TS37\_2.6\_REQ\_4

##### Initial Conditions

Entity	Description of the initial condition
Network	Network simulator(s) or network(s) configured to allow access for the number of SIMs/eUICCs supported by the DUT.
SIM	<p>Each SIM is configured to access the configured networks.</p> <p>Each eUICC has an appropriate active profile</p> <p>One SIM must have radio access technology access restricted by subscription status (e.g. LTE not allowed)</p>
DUT	<p>The DUT is powered off.</p> <p>Each SIM port has either an inserted physical SIM or a logically associated</p>

Entity	Description of the initial condition
	eUICC

### Test execution

Step	Direction	Sequence	Expected Result
1	User → DUT	Power on DUT	DUT connects to each network
2	User → DUT	Access user interface network search menu	<p>The radio access technology limited SIM/eUICC is associated with the radio access technology limited port. Other SIM(s)/eUICC(s) are allocated the highest radio access technology available according to the settings of the DUT</p> <p>The user interface clearly indicates that automatic association has been used.</p> <p>The user interface clearly indicates the association in use</p> <p>The user interface offers options to manually change the association</p>
3	User → DUT	Change the SIM/eUICC association via the UI	<p>Existing connections are closed in accordance with 3GPP / 3GPP2 standards [6], [11], [13]</p> <p>New connections are established in accordance with the new association</p>

## 4.7 Network Specific Applications

### 4.7.1 Applications with Inherent Limitations (FFS)

#### Test Purpose

To ensure that applications requiring a specific connection are handled gracefully when that connection is not available

#### Referenced requirement

TS37\_2.7\_REQ\_1

#### Test execution:

Test to be defined

## **4.8 User Imposed Limitations (FFS)**

### **Test Purpose**

To ensure that applications which the user has limited to using a specific connection are handled gracefully when that connection is not available

### **Referenced requirement**

TS37\_2.8\_REQ\_1

### **Test execution:**

Test to be defined

## **4.9 Auto Configuration / Late Customisation**

### **4.9.1 Auto Configuration Across All SIMs (FFS)**

#### **Test Purpose**

If the DUT supports auto configuration across all SIMs/eUICCs, to ensure that automatic configuration settings are correctly applied to all connections

#### **Referenced requirement**

TS37\_2.9\_REQ\_1

#### **Test execution:**

Test to be defined

### **4.9.2 Auto Configuration of One Connection (FFS)**

#### **Test Purpose**

If the DUT only supports one set of auto configuration settings, to ensure that those settings are correctly applied

#### **Referenced requirement**

TS37\_2.9\_REQ\_2

#### **Test execution:**

Test to be defined

### **4.9.3 Reconfiguration (FFS)**

#### **Test Purpose**

In accordance with TS.32 Section 2.12.2 reconfiguration of the items indicated in TS37\_2.9\_REQ\_1 in case of selecting a new SIM using the primary IMEI is optional, but SHALL be documented if implemented.

#### **Referenced requirement**

TS37\_2.9\_REQ\_3

**Test execution:**

Test to be defined

## **4.10 eUICC**

### **4.10.1 Equivalency of eUICC with SIM**

**Test Purpose**

To ensure that Multi SIM behaviour is the same when one or more of the SIMs is an eUICC

**Referenced requirement**

TS37\_2.10\_REQ\_1

TS37\_2.10\_REQ\_4

**Test execution:**

Please run tests as indicated in the applicability matrix in section 2.3 of this document.

Note that:

- An eUICC with an active profile is equivalent to a physical SIM.
- An eUICC with no active profile is equivalent to an empty SIM slot.

### **4.10.2 Management of eUICC**

**Test Purpose**

To ensure that eUICC management in a multi SIM DUT complies with eUICC standards

**Referenced requirement**

TS37\_2.10\_REQ\_2

**Test execution:**

Please refer to SGP.21 & SGP.22 and associated test books.

### **4.10.3 eUICC and User Interface (FFS)**

**Test Purpose**

To ensure that, if eUICC is indicated in user interface, this indication is consistent.

**Referenced requirement**

TS37\_2.10\_REQ\_3

**Test execution:**

Test to be defined

#### 4.11 NFC

##### Test Purpose

To ensure that, if SIM based secure element NFC is supported, operation complies with TS.26 v10 or later

##### Referenced requirement

TS37\_2.11\_REQ\_1

##### Test execution:

Please refer to TS.27 NFC Test Book

#### 4.12 EAP-SIM (FFS)

##### Test Purpose

To ensure that if EAP-SIM is supported by the DUT, it is supported on all SIM ports and that operation can be individually enabled/disabled for each SIM port.

##### Referenced requirement

TS37\_2.12\_REQ\_1

TS37\_2.12\_REQ\_2

TS37\_2.12\_REQ\_3

##### Test execution:

This requires the DUT to support EAP-SIM

Test to be defined

#### 4.13 Performance

##### 4.13.1 LTE Data Throughput – non Carrier Aggregation

##### Test Purpose

To ensure LTE data throughput on preferred SIM for data with secondary SIM in idle is not significantly different from that of the same device operating with a single SIM.

##### Referenced requirement

TS37\_2.13\_REQ\_1

##### Initial Conditions

Entity	Description of the initial condition
Device	Device is Dual SIM Dual Standby and supports LTE on at least one connection Device has an FTP client installed

Entity	Description of the initial condition
Network	Network simulator(s) configured to allow access by two SIMs/eUICCs Network simulator configured to provide LTE data connection as specified in 3GPP TS37.901 Network simulator configured to provide LTE, WCDMA or GSM idle mode as specified in TS.09
SIM	Each SIM is configured to access the appropriate network simulator. Each eUICC has an appropriate active profile
DUT	The DUT is powered off. Each SIM port has either an inserted physical SIM or a logically associated eUICC

### Test execution

Step	Direction	Sequence	Expected Result
1	User → Network Simulator	Configure GSM idle for 2 <sup>nd</sup> network	2 <sup>nd</sup> network is configured for GSM idle
2	User → DUT	Power on DUT	DUT connects to each network
3	User → DUT	Access user interface. Select SIM/eUICC 1 as preferred SIM for data.	Device logically connects to the selected network for data service.  Device logically connects to both networks for voice service
4	User → DUT	Use an FTP client to download a file of 100MB and measure throughput	File is downloaded over the connection associated with the preferred SIM/eUICC for data.  Secondary link remains in idle.
5	User → DUT	Disable SIM/eUICC 2. This may be done through user interface or by physical removal of the SIM	Device is logically connected to only the network associated with the enabled SIM/eUICC.
6	User → DUT	Use an FTP client to download a file of 100MB and measure throughput	File is downloaded over the connection associated with the preferred SIM/eUICC for data.  Throughput seen at step 3 is at least 90% of throughput at step 5.
7	User → DUT	Re-enable the SIM/eUICC 2 and select SIM/eUICC 2 as preferred for data service	Device logically connects to the selected network for data service.  Device logically connects to both networks for voice service



Step	Direction	Sequence	Expected Result
8	User → DUT	Use an FTP client to download a file of 100MB and measure throughput	File is downloaded over the connection associated with the preferred SIM/eUICC for data.  Secondary link remains in idle.
9	User → DUT	Disable SIM/eUICC 2. This may be done through user interface or by physical removal of the SIM	Device is logically connected to only the network associated with the enabled SIM/eUICC.
10	User → DUT	Use an FTP client to download a file of 100MB and measure throughput	File is downloaded over the connection associated with the preferred SIM/eUICC for data.  Throughput seen at step 7 is at least 90% of throughput at step 9.
11		Repeat steps 2-10 for uplink data	
12		Power off DUT	DUT disconnects from networks in accordance with 3GPP standards
13		If device supports WCDMA on the 2 <sup>nd</sup> SIM port, configure WCDMA idle for 2 <sup>nd</sup> network	2 <sup>nd</sup> network is configured for WCDMA idle
14		Repeat steps 2-12.	
15		If device supports LTE on the 2 <sup>nd</sup> SIM port, configure LTE idle for 2 <sup>nd</sup> network	2 <sup>nd</sup> network is configured for LTE idle
16		Repeat steps 2-12.	

## 4.14 Automatic call forwarding between SIMs

### 4.14.1 UI Elements

#### Test Purpose

To ensure that there is a simple user interface to manage call forwarding between SIMs/eUICCs in the device

#### Referenced requirement

TS37\_2.14\_REQ\_1

TS37\_2.14\_REQ\_2

TS37\_2.14\_REQ\_3

TS37\_2.14\_REQ\_4

TS37\_2.14\_REQ\_11

### **Initial Conditions**

To be defined

### **Test execution**

To be defined

## **4.14.2 Turning on**

### **Test Purpose**

To ensure that there is a simple user interface to enable call forwarding between SIMs/eUICCs in the device, and that the process uses standard network messaging

### **Referenced requirement**

TS37\_2.14\_REQ\_6

TS37\_2.14\_REQ\_8

TS37\_2.14\_REQ\_9

TS37\_2.14\_REQ\_11

### **Initial Conditions**

To be defined

### **Test execution**

To be defined

## **4.14.3 Turning off**

### **Test Purpose**

To ensure that there is a simple user interface to disable call forwarding between SIMs/eUICCs in the device, and that the process uses standard network messaging

### **Referenced requirement**

TS37\_2.14\_REQ\_10

TS37\_2.14\_REQ\_11

### **Initial Conditions**

To be defined

### **Test execution**

To be defined

#### **4.14.4 Inter SIM forwarding already set**

##### **Test Purpose**

To ensure that the user is given appropriate information when the device detects that call forwarding between SIMs/eUICCs within the device is already set

##### **Referenced requirement**

TS37\_2.14\_REQ\_5

TS37\_2.14\_REQ\_11

##### **Initial Conditions**

To be defined

##### **Test execution**

To be defined

#### **4.14.5 Other forwarding already set**

##### **Test Purpose**

To ensure that the user is given appropriate information when the device detects that call forwarding is already set

##### **Referenced requirement**

TS37\_2.14\_REQ\_8

TS37\_2.14\_REQ\_11

##### **Initial Conditions**

To be defined

##### **Test execution**

To be defined

#### **4.14.6 Failure case**

##### **Test Purpose**

To ensure that the user is given appropriate information in case of configuration failure of call forwarding between SIMs/eUICCs within the device

##### **Referenced requirement**

TS37\_2.14\_REQ\_11

TS37\_2.14\_REQ\_12

TS37\_2.14\_REQ\_13

**Initial Conditions**

To be defined

**Test execution**

To be defined

**4.14.7 Network(s) not available**

**Test Purpose**

To ensure that settings for call forwarding between SIMs/eUICCs in the device cannot be changed when one or more of the associated networks are not available.

**Referenced requirement**

**4.15 TS37\_2.14\_REQ\_7**

**Initial Conditions**

To be defined

**Test execution**

To be defined

## Annex A Document Management

### Document History

Version	Date	Brief Description of Change	Approval Authority	Editor / Company
1.0	Jan 2018	New PRD TS.42	TSG / TG	Richard Ormson / Hutchison
2.0	14 <sup>th</sup> June 2018	Updated with changes approved in CR1003	TSG#32	Richard Ormson / Hutchison
3.0	4 <sup>th</sup> Dec 2018	Updated with changes approved in CR1003	TSG#34	Richard Ormson / Hutchison
4.0	17 <sup>th</sup> Sept 2019	Updated with changes approved in CR1004	TSG#37	Richard Ormson / Hutchison
5.0	April 2020	Updated with changes approved in CR1005	TSG#39h	Richard Ormson / Hutchison

### Other Information

Type	Description
Document Owner	Terminal Steering Group
Editor / Company	Richard Ormson / Hutchison

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