

Service Entitlement Configuration Test Cases

Version 0.1

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# Introduction

## Overview

The aim of this GSMA standardization effort is to ensure that devices and device clients that follow the GSMA TS.43 specification behave in a similar way when communicating with the Entitlement Configuration Server (ECS) of an MNO.

Similarly it ensures that the MNO's ECS responds to entitlement requests from device clients in a consistent manner, according to the status of the service and the actions being requested.

This document provides test cases for the Service Entitlement Configuration protocol detailed in GSMA PRD TS.43 [1].

## Scope

This document is intended for:

1. Parties which develop test tools and platforms
2. Test Labs / Test Houses which execute the testing
3. Entitlement Configuration Server vendors
4. Device OEMs / Manufacturers
5. Operators

The Test Book consists of a set of test cases relevant for testing a device or device client supporting Entitlement Configuration for one of the use cases covered in TS.43:

* VoLTE Entitlement
* VoWiFi Entitlement
* SMSoIP Entitlement
* Companion Devices On-Device Service Activation (ODSA)

The test cases specified within the Test Book are specified fully, step by step. For each test case specified or defined within this Test Book, there is a reference to one or more clauses or requirements from the GSMA PRD TS.43 [1].

## Definition of Terms

|  |  |
| --- | --- |
| Term | Definition |
| SIM | Subscriber Identity Module; a physical entity (UICC) that contains keys and ID required to authenticate and identify a user on a mobile network. |
| Device Client | Component/module on a device that provides a service to end-users. A device client verifies with the network’s Entitlement Configuration Server if it is entitled or not to offer that service to end-users. |
| Entitlement | The applicability, availability and status of a service on a device, needed by the device client before offering that service to end-users. |
| Entitlement Configuration | Information returned to the client by the network, providing entitlement information on a service. |
| Entitlement Configuration Server | The network element that provides entitlement configuration for different services to device clients. |
| eUICC | A removable or non-removable UICC which enables the remote and/or local management of Profiles in a secure way |
| Functional test case | Test cases designed to confirm compliance of main entitlement services from the user perspective to the requirements of TS.43. Functional test cases shall cover the services as a user experiences them, in realistic set up of real networks, and do not require deep inspection of traces. |
| Technical test case | A test case designed to verify technical implementation of devices/clients and networks and their compliance to technical requirements provided in TS.43. Technical test case require deep inspection of traces to confirm correct message syntax, formatting and sequencing |
| Simulator | A Network Simulator or a Test Network within a test lab. |
|  |  |

## Abbreviations

| Abbreviation | Definition |
| --- | --- |
| AAA | Authentication, Authorization and Accounting server |
| CUT | Client Under Test |
| CDUT | Companion Device Under Test |
| EAP-AKA | Extensible Authentication Protocol for 3rd Generation Authentication and Key Agreement |
| ECS | Entitlement Configuration Server |
| EID | eUICC Identifier |
| eSIM | Embedded SIM |
| eUICC | Embedded Universal Integrated Circuit Card |
| FCM | Firebase Cloud Messaging |
| FFS | For Future Study |
| IMEI | International Mobile Equipment Identifier |
| HTTP | Hyper-Text Transfer Protocol |
| HTTPS | Hyper-Text Transfer Protocol Secure |
| ICCID | Integrated Circuit Card Identifier |
| IMEI | International Mobile Equipment Identity |
| IMS | IP Multimedia Subsystem |
| IMSI | International Mobile Subscriber Identity |
| JSON | JavaScript Object Notation |
| MSISDN | Mobile Subscriber Integrated Services Digital Network Number |
| ODSA | On-Device Service Activation |
| OIDC | OpenID Connect |
| OTP | One-Time Password |
| PRD | Permanent Reference Document |
| SIM | Subscriber Identity Module |
| SMS | Short Message Service |
| SMSoIP | SMS Over IP |
| SP | Service Provider |
| TAD | Technical Adaptation of Devices |
| TLS | Transport Layer Security |
| T&C | Terms & Conditions |
| UDH | User Data Header |
| UICC | Universal Integrated Circuit Card |
| URL | Uniform Resource Locator |
| VoWiFi | Voice-over-Wi-Fi |
| VoLTE | Voice-over-LTE |
| WNS | Windows Push Notification Service |
| XML | Extensible Markup Language |

## References

| Ref | Document Number | Title |
| --- | --- | --- |
| [1] | TS.43 | GSMA PRD TS.43 - “Service Entitlement Configuration” <http://www.gsma.com> |
| [2] | RCC.14 | GSMA PRD RCC.14 - “Service Provider Device Configuration” <http://www.gsma.com> |
| [3] | RFC 2119 | “Key words for use in RFCs to Indicate Requirement Levels”, S. Bradner, March 1997. Available at http://www.ietf.org/rfc/rfc2119.txt |
| [4] | RFC 8174 | Ambiguity of Uppercase vs Lowercase in RFC 2119 Key Words |
| [5] | RFC 4187 | Extensible Authentication Protocol Method for 3rd Generation  Authentication and Key Agreement (EAP-AKA) |
| [6] | RFC 7231 | Hypertext Transfer Protocol (HTTP/1.1): Semantics and Content |

## Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in BCP 14 (RFC2119) [3] (RFC8174) [4] when, and only when, they appear in all capitals, as shown here.

# Test process

## Test Environment

Two entities make up the Service Entitlement Configuration test environment:

* Client Under Test (CuT) – the device client that performs service entitlement requests towards the network for a particular service / use case
* Entitlement Configuration Server Under Test (ECSuT) – the MNO element supporting the TS.43 protocol [1], responding to entitlement requests from device clients

Test cases may be performed in a Laboratory using one or more ECS simulators or on Live Networks. In order to reach an ECS simulator, the device client shall be able to change the default ECS address configured on the client (as specified in 2.1 of TS.43 [1]) and points it to the simulator.

For some of the test cases it is necessary to log the signalling between the CuT and the ECSuT. If an ECS simulator is used, all the signalling between the CuT and the ECSuT 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-CUT logging or live network logging may be used. Such logging will be implementation dependent.

## Pass Criteria

* A test is considered as successful only if the entire test procedure was carried out successfully and the expected results (functional test) or deep inspection (technical test) 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.

## 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.

# Test Cases

## List of tests

The following table sum up the test cases

|  |  |  |
| --- | --- | --- |
| Ref | Title | page |
| [AUT-1] | check encoding of device GET (Accept\_xxx) and ECS Response |  |
| [AUT-2] | check percent URL encoding on all values from device GET query string |  |
| [AUT-10] | Embedded EAP-AKA Authentication | 10 |
| [AUT-11] | Check EAP-Response EAP\_AKA-Synchronization-Failure | 12 |
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| [AUT-20] | OpenID Connect Authentication |  |
| [AUT-30] | OpenID Connect Error cases |  |
| [AUT-35] | OpenID OpenID Connect 511 response |  |
| [AUT-36] | EAP-AKA 511 response | 17 |
| [CONF-1] | check VoIMS configuration document |  |
| [CONF-10] | Validity period expiration | 24 |
| [ERR-01] | 400 Bad Request | 20 |
| [ERR-05] | 403 Forbidden | 20 |
| [ERR-07] | 405 Method not Allowed | 21 |
| [ERR-10] | 406 Not Acceptable | 21 |
| [ERR-15] | 500 Internal Error return code | 22 |
| [ERR-20] | 503 Retry-After return code | 23 |
| [ODSA-10] | ODSA on synchronous call flow | 18 |
| [ODSA-11] | ODSA on asynchronous call flow | 19 |
| [ODSA-12] | ODSA when a valid profile has been installed | 21 |
| [ODSA-20] | ODSA when eligibility rejected | 23 |
| [ODSA-30] | ODSA when no answer provided | 24 |
| [ODSA-90] | Callback management on Webviews | 17 |
| [ODSA-70] | Enable / disable profile on CDuT | 25 |
| [ODSA-75] | Mismatch profile detection | 26 |
| [ODSA-80] | Change companion device | 27 |
| [ODSA-81] | Change primary device | 28 |
| [PUSH-10] | Push notification to refresh configuration | 51 |
| [SMS-20] | SMSoIP Entitlement – status is INCOMPATIBLE | 30 |
| [SMS-21] | SMSoIP Entitlement – status is DISABLED | 31 |
| [SMS-22] | SMSoIP Entitlement – status is PROVISIONING | 31 |
| [SMS-23] | SMSoIP Entitlement – status is ENABLED | 32 |
| [VERS-01] | Vers parameter is aligned with the configuration document | 21 |
| [VERS-05] | Reset client | 22 |
| [VERS-06] | Reset client and stop configuration query | 22 |
| [VERS-07] | Reset client until user input and stop configuration query | 24 |
| [VLT-20] | VoLTE Entitlement – status is INCOMPATIBLE | 26 |
| [VLT-21] | VoLTE Entitlement – status is DISABLED | 26 |
| [VLT-22] | VoLTE Entitlement – status is PROVISIONING | 26 |
| [VLT-23] | VoLTE Entitlement – status is ENABLED | 28 |
| [VLT-30] | VoLTE Call | 36 |
| [WIF-10] | VoWiFi Entitlement Mode – Cannot be Offered | 19 |
| [WIF-11] | VoWiFi Entitlement Mode – Can Be Activated | 20 |
| [WIF-12] | VoWiFi Entitlement Mode – Service Data Missing | 21 |
| [WIF-13] | VoWiFi Entitlement Mode – Service Data Being Updated | 22 |
| [WIF-14] | VoWiFi Entitlement Mode – Service Being Provisioned | 23 |
| [WIF-50] | WiFi-calling indication & user actions | 23 |

## Most frequent initial conditions

This section gathers the mostly used initial condition. The description of test cases would reference this conditions, and focus on the variable conditions.

| Ref | Entity | Initial conditions |
| --- | --- | --- |
| [EAP\_S1] | ECSuT | ECSuT ready to receive Entitlement Configuration requests from device clients.  ECSuT can support EAP-AKA authentication and has access to the data and AKA procedure of a SIM on the device.  VoWIFI & VoLTE services provisioned for the IMEI/IMSI used and active (version & version validity are greater or equal to 0) |
| [EAP\_C1] | CuT | CuT can support EAP-AKA authentication with the SIM on device  The SIM's subscription is known to the MNO.  VoWifi and 4G or 5G network are available  IMEI/IMSI eligible.  SIM card is compatible with AKA mechanisms. |
| [EAP\_S2] | ECSuT | ECSuT ready to receive Entitlement Configuration requests from device clients.  ECSuT can support EAP-AKA authentication and has access to the data and AKA procedure of a SIM on the device. |
| [OIDC\_S1] | ECSuT | ECSuT ready to receive Entitlement Configuration requests from device clients.  ECSuT can support OIDC authentication and is configured to delegate authentication to the MNO's OpenID authentication server. |
| [OIDC\_C1] | CuT | CuT is configured to perform OIDC authentication (properly handles 302 Found from ECSuT).  The OIDC login / passwords are known by the tester  Device is powered on.  The CuT and user account are eligible to the SharedNumber service to be provisioned. |
| [NOES\_CP1] | CDuT | No eSIM profile installed on companion device.  The companion is paired with primary (CuT).  The companion is eligible to the service to be provisioned. |
| [ES\_CP1] | CDuT | eSIM profile is already installed on companion device.  The companion is paired with primary (CuT). |
| ANY\_S1 | ECSuT | ECSuT ready to receive Entitlement Configuration requests from device clients.  ECSuT can support EAP-AKA and OIDC authentications. |
| ANY\_C1 | CuT | CuT is configured to perform EAP-AKA or OIDC authentication.  A Fast Authentication Token has already been delivered on the device.  Device is powered on. |

## Technical test cases

This section includes generic tests which could be perform on most use-cases, such as protocol conformance. The test description can be done out of the table template, if more convenient. The description shall be kept short nevertheless.

### [AUT-1] check encoding of device GET (Accept\_xxx) and ECS Response (Content\_Length+Type+Encoding)

**Test Purpose**

To ensure CuT use correct HTTP headers in AKA procedure.

**Referenced Clauses**

RCC14 [2] **HTTP Embedded EAP-AKA procedure**

**Initial Conditions**

See [EAP\_S1]/[EAP\_C1].

**Test execution**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester switch on device | CuT boot up and perform AKA procedure |

**Deep Inspection**

check that all GET requests and ECSuT responses are compliant to the specifications.

The CuT shall send HTTP request to ESuT with at least the following headers:

Accept: application/vnd.gsma.eap-relay.v1.0+json, text/vnd.wap.connectivity-xml

Accept-encoding: gzip

and

Cookie: <cookies> whenever cookies have been set for the domain of the Entitlement

Server FQDN

### Authentication

#### [AUT-10] Embedded EAP-AKA Authentication

**Test Purpose**

To ensure a CuT with access to a SIM for authentication purposes can go through an Embedded EAP-AKA authentication exchange with the ECSuT.

**Referenced Clauses**

TS43 [1]: 2.8.1 Embedded EAP-AKA Authentication by Entitlement Configuration Server

RCC.14 [2]

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECSuT | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions  Device is powered on.  CuT does not have a token from a previous authentication exchange with the ECSuT. |

**Test execution**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester invokes CuT and triggers an entitlement configuration | CuT initiates entitlement configuration.  Without an Auth Token from ECSuT (or an expired one), CuT get IMSI from SIM and invokes AKA function on SIM. |
| 2 | CuT 🡪 ECSuT | GET or POST request, parameters:   * EAP\_ID set to IMSI of SIM * No token * Other compulsory parameters shall be present: vers, app, terminal\_id, entitlement\_version | ECSuT detects EAP-AKA capability from client and initiates EAP procedure with MNO's authentication server.  The authentication server provides EAP challenge back to the ECSuT.  ECSuT creates HTTP response for client with EAP challenge. |
| 3 | ECSuT 🡪 CuT | HTTP 200 OK response with:   * JSON object containing eap-relay-packet field with EAP Challenge in Base64 as per RCC.14 [2] | CuT processes EAP Challenge by sending it to SIM's AKA function.  CuT obtains SIM's AKA response and creates another request to ECSuT |
| 4 | CuT 🡪 ECSuT | POST request, content:   * JSON object containing eap-relay-packet field with EAP Response in Base64 as per RCC.14 [2] | ECSuT relays EAP response to MNO's authentication server.  The authentication server informs ECSuT of successful authentication.  ECSuT creates HTTP response for client with new Auth Token. |
| 5 | ECSuT 🡪 CuT | HTTP 200 OK response with:   * TOKEN config parameter set to newly generated Auth Token. * Application data, if requested in initial request | CuT stores received Auth Token for any subsequent requests to the ECS. |
| 6 | Tester 🡪 CuT | Tester invokes CuT and triggers an entitlement configuration |  |

**Deep Inspection**

Check client headers:

Accept: application/vnd.gsma.eap-relay.v1.0+json, text/vnd.wap.connectivity-xml

#### [AUT-11] Check EAP-Response EAP\_AKA-Synchronization-Failure

**Test Purpose**

To ensure CuT supports resynchronization exchanges.

**Referenced Clauses**

RFC 4187: EAP-Response/AKA-Synchronization-Failure.

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECSuT | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions  The SQN parameter used by the ECSuT to compute the challenge required by the EAP-AKA algorithm is different from the one expected by the SIM card of the CuT. |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions  CuT is powered off.  CuT does not have a token from a previous authentication exchange with the ECSuT, or the token is invalidated. |

**Test execution**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester switch on device | CuT boot up and attach to VoLTE network |
| 2 | Tester 🡪 CuT | Tester invokes CuT and triggers an entitlement configuration | CuT must issue a EAP\_AKA-Synchronization-Failure EAP-Response |
| 3 | ECSuT 🡪 CuT | The SQN provided by the CuT is used in the new Challenge sent to the CuT | The CuT accept the new Challenge and send its own challenge. |

#### [AUT-12] EAP-AKA Fast Authentication for VoIMS procedure is successful

**Test Purpose**

To ensure CuT/ECSuT perform fast authentication procedure

**Referenced Clauses**

TS43 [1]: 2.8.1 Embedded EAP-AKA Authentication by Entitlement Configuration Server

TS43 [1]: 2.9.6 Additional details on TOKEN

RCC.14 [2]

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECSuT | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions  The device has received a valid token in a a previous authencation exchange and is powered off.The token is still valid before the test. |

**Test execution**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester switch on device | CuT boot up and attach to VoLTE network |
|  | Tester 🡪 CuT | Tester invokes CuT and triggers an entitlement configuration | CuT start a token-based Fast Authentication without EAP-ID but token value obtained in last configuration XML document  and request the Entitlement services configuration for:              app=ap2003 VoLTE              app=ap2004 VoWIFI              app=ap2005 SMSoIP |
| 3 | ECSuT 🡪CuT | if authentication token is correct, ECSuT returns services configuration XML document with:  possibly new authentication TOKEN generated by ES with its validity in seconds  Proper services entitlement status requested in GET message |  |

**Deep inspection:**

* Check configuration document. See Appendix A.1 for document example

#### [AUT-13] EAP-AKA Full Authentication procedure

**Test Purpose**

To ensure CuT performs full authentication procedure

**Referenced Clauses**

RFC4187 EAP-AKA full authentication procedure

RFC 3986 Section 2.4 Percent-Encoding.

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECSuT | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions |

**Test execution**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester invokes CuT and triggers an entitlement configuration | CuT initiates entitlement configuration.  Without an Auth Token from ECSuT. CuT creates a request to ECSuT. |
| 2 | ECSuT 🡪CuT | The server answers an AKA challenge | The CuT is able to decode the challenge, based on SIM algorithm |
| 3 | CuT 🡪ECSuT | The client answer its own AKAchallenge | The ECSuT is able to decode the challenge, based on AAA algorithm |
| 4 | ECSuT 🡪 CuT | The server answers to the request at step 1 | The ECSuT issues a new token in the configuration document |

**Deep inspection:**

* In the complete AKA procedure, check that all GET requests and AES response are **compliant to the percent URL encoding on all values from device GET query string (RFC 3986 Section 2.4 Percent-Encoding)**
* **The EAP\_ID param is present at step 1.**
* **Check cookie presence if ECSuT use them**

#### [AUT-14] EAP-AKA after SIM Swap with incompatible SIM

**Test Purpose**

To ensure a token is not reused after a SIM Swap

**Referenced Clauses**

RFC4187 EAP-AKA full authentication procedure

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECSuT | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions  2 SIM are required: one eligible to Entitlement, and the other not. |

**Test execution**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester invokes CuT and triggers an entitlement configuration with |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |

**Deep inspection:**

#### [AUT-20] OpenID Connect Authentication

**Test Purpose**

To ensure a CuT without access to a SIM can go through an OpenID authentication with the MNO at the request of the ECSuT.

**Referenced Clauses**

TS43\_2.6.2

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECSuT | [OIDC\_S1] |
| CuT | [OIDC\_C1]  CuT does not have a token from a previous authentication exchange with the ECSuT. |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester invokes CuT and triggers an entitlement configuration | CuT initiates entitlement configuration.  Without an Auth Token from ECSuT (or an expired one), CuT creates a request to ECSuT. |
| 2 | CuT 🡪 ECSuT | GET or POST request, parameters:   * No EAP\_ID * No token * Other compulsory parameters shall be present: vers, app, terminal\_id, entitlement\_version | ECSuT detects no identity or authentication parameters and invokes OpenID flow. |
| 3 | ECSuT 🡪 CuT | HTTP 302 Found response with:   * Address of MNO's OpenID server * All parameters needed for OpenID Connect authentication (response\_type, client\_id, scope, redirect\_uri, state, etc) | CuT processes 302 Found (redirect) and generates another GET or POST request to OpenID server with parameters as received from ECSuT |
| 4 | CuT 🡪 OpenID | GET request to OpenID server:   * All parameters needed for OpenID Connect authentication | OpenID server starts the authentication exchange with the Tester |
| 5 | OpenID 🡪 Tester | OpenID server authenticates the end-user and involves the proper authenticator | Authentication is successful on OpenID and authorization code is returned to the redirect\_uri |

#### Token-based Authentication

**Test Purpose**

To ensure …

**Referenced requirements**

TS43\_2.1

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | ECS simulator or ECS ready to receive Entitlement Configuration requests from device clients.  … |
| CUT | Device is powered on.  Client went through successful authentication with ECS and received an Auth Token in previous exchange.  … |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | User 🡪 CUT | User invokes VoWiFi CUT and triggers an entitlement configuration | CUT initiates entitlement configuration with an Auth Token from ECS and creates request to ECS. |
| 2 | CUT 🡪 ECS | GET or POST request, parameters:   * Token * App set to ap2004 * Other compulsory parameters shall be present: vers, terminal\_id, entitlement\_version | ECS … |
| 3 | ECS 🡪 CUT | HTTP 200 OK response with: | CUT … |

**Deep Inspection:**

#### [AUT-20] OpenID Connect Authentication

**Test Purpose**

### Vers parameter management

#### [VERS-01] Vers parameter is aligned with the configuration document

**Test Purpose**

To ensure the CuT take into account the vers param of the configuration document.

**Referenced requirements**

TS43 [1] : 2.3 HTTP GET Method

TS43 [1] : 2.4 HTTP POST Method

RCC14 [2] : 2.4 Client configuration

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions  The validity param is provisioned to 600 and the vers to 1 in the configuration documents. The validity is provisioned to 0 at the last configuration document sent. |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions.  The client has been reseted after a SIM change or factory reset of the device.  No token is available. |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a request towards ECSuT. vers parameter is set to 0 (no configuration document stored) |
| 2 | ECSuT 🡪 CuT | The ECSuT and CuT performs authentication mechanism (eg: EAP-AKA or OIDC) | The user is authenticated, a configuration document is sent back with a VERS characteristic (vers=1, validity=600) |
| 3 | Tester 🡪 CuT | The tester waits for validity expiracy (600s) | The CuT performs a new configuration request. The vers parameter of the request is aligned to the one received in the VERS characteristic previously received from the ECSuT (vers=1) |
| 4 | Tester 🡪 device | The tester changes the SIM | The CuT performs a new configuration request, with vers param set to 0 (no previous configuration for the new SIM) |
| 5 | CuT 🡪 ECSuT | A full authentication exchange is performed (eg: EAP-AKA, OIDC…) | A configuration document is sent by the ECSuT with a valid token (vers=1 validity=600). |
| 6 | notification platform 🡪 CuT 🡪ECSuT | A notification is sent to the CuT | The CuT performs a new configuration request, using the previously received token. |
| 7 | ECSuT 🡪 Cut | The ECSuT checks the token and send back the configuration document if the token is still valid | vers=1, validity=0 in the VERS characteristic of the document |
| 8 | Tester 🡪 device | The device is rebooted | The Cut performs a new configuration request at reboot, using the previously received token. The vers param of the request is set to 1. |
| 9 | Tester 🡪 ECSuT | The tester waits more than 600s | The CuT does not send new configuration request, as the last validity received is set to 0 (no limitation). |

#### [VERS-05] Reset client

**Test Purpose**

To ensure the CuT revert to its default behaviour when required by the server.

**Referenced requirements**

TS43 [1] : 2.3 HTTP GET Method

TS43 [1] : 2.4 HTTP POST Method

RCC14 [2] : 2.4.1 Configuration server response

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | The ECSuT is provisioned to return a VERS characteristic with vers=0 and validity=0 in the configuration documents returned. |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions  The CuT has already received a configuration allowing VoWifi, VoLTE and SMSoIP services. A valid token has been stored. The token validaty is 600s. |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a configuration request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The ECSuT returns a configuration document requesting the reset of the device | The vers and validity parameters are set to 0 in the configuration document.  The CuT disable the previously provisioned services. |
| 3 | Tester 🡪 device | The device is rebooted | The CuT performs a new configuration request at start up, without token. |
| 4 | Tester 🡪 CuT | The tester waits for 600s | No configuration request is performed by the CuT. |
| 5 | Tester 🡪 CuT | Tester starts client app and set the services (VoLTE, VoWiFi, SMSoIP) to “on” | The CuT sends a configuration request to the ECSuT. |
| 6 | Tester 🡪 device | The tester changes the SIM | The CuT sends a configuration request to the ECSuT after SIM swap detection, without token. |
| 7 | notification platform 🡪 CuT 🡪ECSuT | A notification is sent to the CuT | The CuT performs a new configuration request, without token. |

#### [VERS-06] Reset client and stop configuration query

**Test Purpose**

To ensure the CuT revert to its default behaviour when required by the server, and does not use reboot configuration at start up, neither user triggering.

**Referenced requirements**

TS43 [1] : 2.3 HTTP GET Method

TS43 [1] : 2.4 HTTP POST Method

RCC14 [2] : 2.4.1 Configuration server response

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | The ECSuT is provisioned to return a VERS characteristic with vers=-1 and validity=-1 in the configuration documents |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions  The CuT has already received a configuration allowing VoWifi, VoLTE and SMSoIP services. A valid token has been stored. The token validaty is 600s. |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a configuration request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The ECSuT returns a configuration document (200 OK) requesting the reset of the device | The vers and validity parameters are set to -1 in the configuration document.  The CuT disable the previously provisioned services. |
| 3 | Tester 🡪 CuT | The tester waits for 600s | No configuration request is performed by the CuT. |
| 4 | Tester 🡪 device | The device is rebooted | The CuT does not performs a new configuration request at start up. |
| 5 | Tester 🡪 CuT | Tester starts client app and set the services (VoLTE, VoWiFi, SMSoIP) to “on” | The CuT does not performs a new configuration request at user action |
| 6 | Tester 🡪 device | The tester changes the SIM in the device | The CuT performs a new configuration request at SIM swap detection |
| 7 | ECSuT 🡪 CuT | A full authentication exchange is performed (e.g.: OIDC, EAP\_AKA…) | The ECSuT returns a configuration document, vers = -1 and validity = -1 in VERS characteristic. |

#### [VERS-07] Reset client until user input and stop configuration query

**Test Purpose**

To ensure the CuT revert to its default behaviour when required by the server, and does not perform query at start up, but on user triggering action.

**Referenced requirements**

TS43 [1] : 2.3 HTTP GET Method

TS43 [1] : 2.4 HTTP POST Method

RCC14 [2] : 2.4.1 Configuration server response

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | The ECSuT is provisioned to return a VERS characteristic with vers=-2 and validity=-2 in the configuration documents. |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions  The CuT has already received a configuration allowing VoWifi, VoLTE and SMSoIP services. A valid token has been stored. The validity of the token is 600s. |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a configuration request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The ECSuT returns a configuration document (200 OK) requesting the reset of the device | The vers and validity parameters are set to -2 in the configuration document.  The CuT disable the previously provisioned services. |
| 3 | Tester 🡪 device | The device is rebooted | The CuT does not performs a new configuration request at start up. |
| 4 | Tester 🡪 CuT | The tester waits for 600s | No configuration request is performed by the CuT. |
| 5 | Tester 🡪 CuT | Tester starts client app and set the services (VoLTE, VoWiFi, SMSoIP) to “on” | A configuration request is sent without token and a full authentication exchange (eg: EAP-AKA or OIDC) is performed. |
| 6 | ECSuT 🡪 CuT | A configuration document is sent. | The vers parameter is set to -2, the validity parameter is set to -2. |
| 6 | Tester 🡪 device | The tester changes the SIM | The CuT performs a new configuration request, without token. |

### Error code management

#### [ERR-01] 400 Bad Request

**Test Purpose**

To ensure the CuT handles "400 Bad Request " HTTP return code properly.

**Referenced requirements**

TS43 [1] : 2.10 HTTP Response Codes

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | The ECSuT is provisioned to return a 400 error code. |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The ECSuT returns HTTP 400 error code. | The CuT resend the request at reboot or if the CuT is started again. |

#### [ERR-05] 403 Forbidden

**Test Purpose**

To ensure the CuT handles "403 Forbidden" HTTP return code properly.

**Referenced requirements**

TS43 [1] : 2.10 HTTP Response Codes

RCC14 [2] : 2.4.3 Response handling

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | The ECSuT is provisioned to return a 403 error code. |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The ECSuT returns HTTP 403 error code. | The CuT resend the request at reboot or if the CuT is started again.  The client shall perform in maximum 5 consecutive unsuccessful configuration requests |

#### [ERR-07] 405 Method not Allowed

**Test Purpose**

To ensure the CuT handles "405 Method not Allowed " HTTP return code properly.

**Referenced requirements**

TS43 [1] : 2.10 HTTP Response Codes

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | The ECSuT is provisioned to return a 405 error code. |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a POST request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The ECSuT returns HTTP 405 error code. | The CuT resend the request as GET. |

#### [ERR-10] 406 Not Acceptable

**Test Purpose**

To ensure the CuT handles 406 "Not Acceptable" HTTP return code properly.

**Referenced requirements**

TS43 [1] : 2.10 HTTP Response Codes

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | The ECSuT is provisioned to return a 406 error code. |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The ECSuT returns HTTP 406 error code. | The CuT apply the procedure defined by the Service Provider for the case of no configuration data is available (for example silent abort or error message). |

#### [ERR-15] 500 Internal Error return code

**Test Purpose**

To ensure the CuT handles "500 Internal Error" HTTP return code properly.

**Referenced requirements**

TS43 [1] : 2.10 HTTP Response Codes

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | The ECSuT is provisioned to return a 500 error code. |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The ECSuT returns HTTP 500 error code. | The CuT resend the request at reboot or if the CuT is started again. |

#### [ERR-20] 503 Retry-After return code

**Test Purpose**

To ensure the CuT handles "503 Retry-After" HTTP return code properly.

**Referenced requirements**

TS43 [1] : 2.10 HTTP Response Codes

RFC 7231 [6] : 7.1.3 Retry-After

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | The ECSuT is provisioned to return a 503 error code with a date or a delay in second in the HTTP Retry-After header. |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The ECSuT returns 503+Header “retry after/service unavailable” | The CuT resend the request after the time given in the header (either a date or a delay in second) |

### [CONF-10] Validity period expiration

**Test Purpose**

To ensure the CuT manages the validity period of the configuration document.

**Referenced requirements**

RCC14 [2]:4.2 Characteristics of the Service Provider Device Configuration

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions  The ECS is provisioned to deliver a short time validity value in the VERS characteristic |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The ECSuT deliver a configuration document with a short time validity value (VERS characteristic) | The CuT starts a timer at the reception of the document |
| 3 | Tester 🡪CuT | Tester wait for the validity period to expire | CuT shall invoke a new configuration request to check for configuration changes and to refresh the validity. |

### [ODSA-90] Callback management on Webviews

**Test Purpose**

To ensure the callbacks integration by the CuT on webviews.

## Functional test cases

This section includes specific tests against a complete use case.

### Authentication

#### [AUT-30] OpenID Connect Error cases

**Test Purpose**

To ensure the CUT handles authentication error cases properly.

#### [AUT-35] OpenID Connect 511 response

**Test Purpose**

To ensure the CUT handles reauthentication with OpenID

#### [AUT-36] EAP-AKA 511 response

**Test Purpose**

To ensure the CUT handles reauthentication with EAP-AKA

**Referenced requirements**

TS43 [1] 2.8.1 Embedded EAP-AKA Authentication by Entitlement Configuration Server

TS43 [1] 2.10 HTTP Response Codes

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions |
| CuT | See conditions [EAP\_C1 in section 3.2 Most frequent initial conditions  The CuT has already a token from previous EAP\_AKA authentication.  The token is no more valid. |

**Test execution**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a request towards ECSuT with previous token. |
| 2 | ECSuT 🡪 CuT | The ECSuT checks the token validity. As it is no more valid, a 511 HTTP code is returned. | The CuT delete the invalidated token. |
| 3 | CuT 🡪 ECSuT | The CuT retries the request without token. | A full authentication AKA procedure is performed. |

**Deep Inspection**

* The first request emitted by the CuT reuse the token parameter
* The second request performs a full EAP AKA authentication, without invalidated token

### VoWiFi Entitlement Test Cases / EAP AKA authentication

#### [WIF-10] VoWiFi Entitlement Mode – Cannot be Offered

**Test Purpose**

To ensure the CUT handles "Cannot be Offered" entitlement mode properly.

**Referenced requirements**

TS43 [1] : 3.3.1 VoWiFi Entitlement Mode - Cannot be offered

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S2] in section 3.2 Most frequent initial conditions  The VoIMS services are not provisioned for the given SIM card. No token has been retrieved in a previous EAP\_AKA authentication. |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a request towards ECSuT. A full EAP AKA authentication is performed. |
| 2 | ECSuT 🡪 CuT | After full authentication, the configuration document provided does not contain a token but **EntitlementStatus=INCOMPATIBLE (2) for VoWifi.** | the device shall either display **MessageForIncompatible** when it is not void, or the default device error message (if any). |

#### [WIF-11] VoWiFi Entitlement Mode – Can Be Activated

**Test Purpose**

To ensure the CUT handles "Can Be Activated" entitlement mode properly.

**Referenced requirements**

TS43 [1] **:** 3.3.2 VoWiFi Entitlement Mode - Can be activated

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions  The provisioning data regarding the SIM are:   * **EntitlementStatus** is ENABLED (1) * **ProvStatus** is PROVISIONED (1) or NOT REQUIRED (2) * **TC\_status** and **AddrStatus** are AVAILABLE (1) or NOT REQUIRED (2) |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions  VoWifi service setting on the device is set to on by the user. |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a configuration request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The configuration document is transmitted. | VoWiFi service should be activated on the device |

#### [WIF-12] VoWiFi Entitlement Mode – Service Data Missing

**Test Purpose**

To ensure the CUT handles " Service Data Missing " entitlement mode properly.

**Referenced requirements**

TS43 [1] **:** 3.3.3 VoWiFi Entitlement Mode - Service Data Missing

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions  The provisioning data regarding the SIM are:   * **EntitlementStatus** is DISABLED (0) * **ProvStatus** is any values * Either **TC\_status** or **AddrStatus** is NOT AVAILABLE (0) |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions  VoWifi service setting on the device is set to on by the user. |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a configuration request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The configuration document is transmitted. | VoWiFi service should not be activated on the device. The CuTshall open a web view and instruct the end-user to enter the required missing VoWiFi service information (T&C or static physical address). |

#### [WIF-13] VoWiFi Entitlement Mode – Service Data Being Updated

**Test Purpose**

To ensure the CUT handles " Service Data Being Updated " entitlement mode properly.

**Referenced requirements**

TS43 [1] **:** 3.3.4 VoWiFi Entitlement Mode - Service Data Being Updated

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions  The provisioning data regarding the SIM are:   * **EntitlementStatus** is DISABLED (0) * **ProvStatus** is any values * Either **TC\_status,** or **AddrStatus** is set to IN PROGRESS (3) |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions  VoWifi service setting on the device is set to on by the user. |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a configuration request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The configuration document is transmitted. | VoWiFi service should not be activated on the device. |

#### [WIF-14] VoWiFi Entitlement Mode – Service Being Provisioned

**Test Purpose**

To ensure the CUT handles " Service Being Provisioned " entitlement mode properly.

**Referenced requirements**

TS43 [1] **:** 3.3.5 VoWiFi Entitlement Mode - Service Being Provisioned

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions   * The provisioning data regarding the SIM are:**EntitlementStatus** is DISABLED (0) * **TC\_status** and **AddrStatus** are set to AVAILABLE (1) or NOT REQUIRED (2) * **ProvStatus** is set to NOT PROVISIONED (0) or IN PROGRESS (3)   Or   * **EntitlementStatus** is PROVISIONING (3) * **ProvStatus,TC\_status** and **AddrStatus** are set to any values |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions  VoWifi service setting on the device is set to on by the user. |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a configuration request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The configuration document is transmitted. | VoWiFi service should not be activated on the device. After an end-user action (going into VoWiFi service settings for example), the CuTshall show that the service is pending or being provisioned. |

#### [WIF-50] WiFi-calling indication & user actions

**Test Purpose**

To ensure CuT displays an indication about Wifi-calling. The way the information is provided (UI) is device dependant.

**Referenced Clauses**

TS43 [1]: 3 VoWiFi Entitlement Configuration

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECSuT | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions  CuT is powered off.  The device is switch on for the 1st time (factory reset procedure can be done before) |

**Test execution**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester invokes CuT and triggers an entitlement configuration | CuT initiates entitlement configuration |
| 2 | ECSuT 🡪 CuT | After AKA authentication procedure, a configuration document is sent to the CuT. | The tester can see on the device the WiFi calling feature is available. He can activate/deactivate the feature. |

#### [WIF-60] WiFi-call

**Test Purpose**

To ensure the CuT performs WiFi calls when VoWifi is activated. The way the user is aware about WiFi call is device dependant (UI).

**Referenced requirements**

TS43 [1]: 3.3 Entitlement Modes of VoWiFi Client

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions |

**Test execution**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app and enable WiFi calling | WiFi calling indication is enabled |
| 2 | Tester 🡪 device | Test perform an originating and terminating WiFi call | The calls are successful. The WiFi calling indication remains visible during the call |

### VoLTE Entitlement Test Cases

#### [VLT-20] VoLTE Entitlement – status is INCOMPATIBLE

**Test Purpose**

To ensure the CUT handles " INCOMPATIBLE " entitlement status properly.

**Referenced requirements**

TS43 [1] : 4.2 Client Behaviour to VoLTE Entitlement Configuration

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S2] in section 3.2 Most frequent initial conditions  The VoLTE service status is set to INCOMPATIBLE (2) for the CuT  MessageForIncompatible is provisioned |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The configuration document provided does not contain a token but **EntitlementStatus=INCOMPATIBLE(2) for VoLTE.** | VoLTE service is not activated. The device shall either display **MessageForIncompatible** parameter when it is not void, or the default device error message (if any). |

#### [VLT-21] VoLTE Entitlement – status is DISABLED

**Test Purpose**

To ensure the CUT handles " DISABLED " entitlement status properly.

**Referenced requirements**

TS43 [1] : 4.2 Client Behaviour to VoLTE Entitlement Configuration

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions  The VoLTE service status is set to DISABLED (0) |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The configuration document provided contains **EntitlementStatus=DISABLED for VoLTE.** | VoLTE service is not activated |

#### [VLT-22] VoLTE Entitlement – status is PROVISIONING

**Test Purpose**

To ensure the CUT handles " PROVISIONING " entitlement status properly.

**Referenced requirements**

TS43 [1] : 4.2 Client Behaviour to VoLTE Entitlement Configuration

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions  The VoLTE entitlement status is set to PROVISIONING (3) |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The configuration document contains **EntitlementStatus=** PROVISIONING(3) **for VoLTE.** | VoLTE service is not activated. After an end-user action (going into VoLTE service settings for example), the client shall show that the service is pending or being provisioned. |

#### [VLT-23] VoLTE Entitlement – status is ENABLED

**Test Purpose**

To ensure the CUT handles " ENABLED " entitlement status properly.

**Referenced requirements**

TS43 [1] : 4.2 Client Behaviour to VoLTE Entitlement Configuration

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions  The VoLTE entitlement status is set to ENABLED (1) |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions  The VoLTE’s service setting on the device is equivalent to ON |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The configuration document contains **EntitlementStatus=** ENABLED **(1) for VoLTE.** | VoLTE service is activated. |

#### [VLT-30] VoLTE Call

**Test Purpose**

To ensure the CuT allows 4G calls when VoWifi is deactivated

**Referenced requirements**

TS43 [1] Client Behaviour to VoLTE Entitlement Configuration

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions |

**Test execution**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app and disable WiFi calling | WiFi calling icon should be disabled |
| 2 | Tester 🡪 device | Test perform an originating and terminating VoLTE call | The calls are successful. 4G icon is visible during the call |

### SMSoIP Entitlement Test Cases

#### [SMS-20] SMSoIP Entitlement – status is INCOMPATIBLE

**Test Purpose**

To ensure the CUT handles " INCOMPATIBLE " entitlement status properly.

**Referenced requirements**

TS43 [1] : 5.2 Client Behaviour to SMSoIP Entitlement Configuration

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S2] in section 3.2 Most frequent initial conditions  The SMSoIP service status is set to INCOMPATIBLE |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The configuration document provided does not contain a token but **EntitlementStatus=INCOMPATIBLE for** SMSoIP**.** | SMSoIP service is not activated. |

#### [SMS-21] SMSoIP Entitlement – status is DISABLED

**Test Purpose**

To ensure the CUT handles " DISABLED " entitlement status properly.

**Referenced requirements**

TS43 [1] : 5.2 Client Behaviour to SMSoIP Entitlement Configuration**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions  The SMSoIP service status is set to DISABLED |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The configuration document provided contains **EntitlementStatus=DISABLED for** SMSoIP**.** | SMSoIP service is not activated |

#### [SMS-22] SMSoIP Entitlement – status is PROVISIONING

**Test Purpose**

To ensure the CUT handles " PROVISIONING " entitlement status properly.

**Referenced requirements**

TS43 [1] : 5.2 Client Behaviour to SMSoIP Entitlement Configuration**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions  The SMSoIP service status is set to PROVISIONING |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The configuration document contains **EntitlementStatus=** PROVISIONING **for** SMSoIP**.** | SMSoIP service is not activated. After an end-user action (going into SMSoIP’s service settings for example), the client shall show that the service is pending or being provisioned. |

#### [SMS-23] SMSoIP Entitlement – status is ENABLED

**Test Purpose**

To ensure the CUT handles " ENABLED " entitlement status properly.

**Referenced requirements**

TS43 [1] : 5.2 Client Behaviour to SMSoIP Entitlement Configuration

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions  The SMSoIP service status is set to PROVISIONING |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions  The SMSoIP’s service setting on the device is equivalent to ON |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The configuration document contains **EntitlementStatus=** ENABLED **for** SMSoIP**.** | SMSoIP service is activated. |

### Companion ODSA Entitlement Test Cases/OIDC authentication

#### [ODSA-10] ODSA on synchronous call flow

**Test Purpose**

To ensure CuT installs an eSIM profile on companion when no notification is required

**Referenced requirements**

TS43 – 6 “On-Device Service Activation (ODSA) Entitlement and Configuration”

TS43 – 7.2 “ODSA Portal with Immediate Download Info – Final Steps”

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [OIDC\_S1] in section 3.2 Most frequent initial conditions |
| CuT | See conditions [OIDC\_C1] in section 3.1 Most frequent initial conditions.  No previous authentication has been performed. |
| CDuT | See conditions [NOES\_CP1] in section 3.1 Most frequent initial conditions |

**Test execution**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | The app displays a page inviting the user to subscribe an offer to connect the companion device to his/her MNO |
| 2 | CuT 🡪 ECSuT | A TS43 request is issued without authentication token | The ECSuT issue HTTP 302 redirect toward MNO’s OpenID authentication server; the user is invited to authenticate |
| 3 | Tester 🡪 CuT | Tester goes through several websheet to authenticate with his MSISDN and password | A token is returned by the ECSuT to identify the user |
| 4 | ECSuT 🡪 CuT | the CuT is provided with information to download an eSIM profile | A page allowing the user to activate the MNO mobile service on the companion is displayed |
| 5 | Tester 🡪 CuT | Tester activate the service | Some notifications are displayed on CuT / CDuT while the eSIM profile is downloading. |
| 6 | Tester 🡪 CuT | Tester finalize the set up and close the client app. | The eSIM profile is downloaded and an ICCID is visible on CDuT and/or CuT menus. |
| 7 | Tester 🡪 CuT | Tester starts client to display the activation state of the service | A page displaying an “activated” profile status is displayed |
| 8 | Tester 🡪 CuT | Tester disable Bluetooth | The CDuT is isolated from CuT |
| 9 | Tester 🡪 CDuT | Tester performs outgoing & incoming cellular voice calls | Voice calls are performed without the primary device being involved. |

#### [ODSA-11] ODSA on asynchronous call flow

**Test Purpose**

To ensure CuT installs a profile on companion eSIM after a notification mechanism. This test requires the ECS to delay the activation state.

**Referenced requirements**

TS43 – 6 “On-Device Service Activation (ODSA) Entitlement and Configuration”

TS43 – 7.3 “ODSA Portal with Delayed Download Info – Final Steps”

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [OIDC\_S1] in section 3.1 Most frequent initial conditions  The ECS delays the activation state. |
| CuT | See conditions [OIDC\_C1] in section 3.1 Most frequent initial conditions.  A previous authentication has been performed. |
| CDuT | See conditions [NOES\_CP1] in section 3.1 Most frequent initial conditions |

**Test execution**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | The app displays a page inviting the user to subscribe an offer to connect the companion device to his/her MNO |
| 2 | CuT 🡪 ECSuT | A TS43 request is issued with authentication token | No authentication phase is required |
| 4 | ECSuT 🡪 CuT | the CuT is provided with information to download an eSIM profile | A page allowing the user to activate the MNO mobile service on the companion is displayed |
| 5 | Tester 🡪 CuT | Tester activate the service | Some notifications are displayed on CuT / CDuT while the eSIM profile is downloading. |
| 6 | Tester 🡪 CuT | Tester finalize the set up and close the client app. | The eSIM profile is downloaded and an ICCID is visible on CDuT and/or CuT menus. |
| 7 | Tester 🡪 CuT | Tester starts client to display the activation state of the service | A page displaying an “activating” profile status is displayed. |
| 8 | ECSuT 🡪 CuT | A notification is issued when the profile state changes from ACTIVATING to ACTIVATED |  |
| 9 | CuT 🡪 ECSuT | CuT requests to update the eSIM profile | A notification warns the user that he can use the service |
| 10 | Tester 🡪 CuT | Tester disable Bluetooth | The CDuT is isolated from CuT |
| 11 | Tester 🡪 CDuT | Tester performs outgoing & incoming cellular voice calls | Voice calls are performed without the primary device being involved. |

**Deep Inspection:**

The profile downloaded by the CDuT has the status “ACTIVATING” and not “ACTIVATED”.

#### [ODSA-12] ODSA when a valid profile has been installed

**Test Purpose**

To ensure CuT does not propose a new subscription after a companion factory reset for the same user.

#### [ODSA-20] ODSA when eligibility rejected

**Test Purpose**

To ensure CuT handles CheckEligibility operation rejected answer from the ECSuT

**Referenced requirements**

TS43 – 6.5.2 “CheckEligibility Operation Configuration Parameters”

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [OIDC\_S1] in section 3.1 Most frequent initial conditions |
| CuT | CuT is configured to perform OIDC authentication (properly handles 302 Found from ECSuT).  The OIDC login / passwords are known by the tester  Device is powered on.  The CuT or user account are NOT eligible to the service to be provisioned. |
| CDuT | See conditions [NOES\_CP1] in section 3.1 Most frequent initial conditions |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester launch CuT app to start ODSA journey | The CuT does not allow to download an eSIM profile on CDuT. The reason should be displayed. |

**Deep Inspection:**

Several mechanism can be used to display the reject. E.g.: use the “notEnabledURL” parameter, or an inner redirect to an ECS page. Checks the mechanism according to ECSuT used.

#### [ODSA-30] ODSA when no answer provided (or 4xx response code)

**Test Purpose**

To ensure CuT handles a error answers from ECSuT

**Referenced requirements**

TS43[1] – 2.10 “HTTP Response Codes”

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [OIDC\_S1] in section 3.1 Most frequent initial conditions. The test requires the ability to provision specific error codes and no answer from ECS. |
| CuT | See conditions [OIDC\_C1] in section 3.1 Most frequent initial conditions.  No previous authentication has been performed. |
| CDuT | See conditions [NOES\_CP1] in section 3.1 Most frequent initial conditions |

**Test execution**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | The app displays a page inviting the user to subscribe an offer to connect the companion device to his/her MNO |
| 2 | CuT 🡪 ECSuT | A TS43 request is issued without authentication token |  |
| 3 | ECSuT 🡪 CuT | The ECS returns an error code 4xx or 5xx, or does not answer | According to the error code, the CuT displays a dedicated or a generic error message. |

**Deep inspection:**

* After a successful authentication, a 511 return should lead next use of the CuT to perform requests without any token.

#### [ODSA-70] Enable / disable profile on CDuT

**Test Purpose**

To ensure the change of service status performed from the CuT is acknowledged by the CDuT.

**Referenced requirements**

TS43[1] – 6 “On-Device Service Activation (ODSA) Entitlement and Configuration”

TS43[1] – 6.5.5 “Acquire Configuration Operation Configuration Parameters”

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [OIDC\_S1] in section 3.1 Most frequent initial conditions |
| CuT | See conditions [OIDC\_C1] in section 3.1 Most frequent initial conditions.  A previous authentication has been performed. |
| CDuT | See conditions [ES\_CP1] in section 3.1 Most frequent initial conditions. An active eSIM profile has been downloaded on CDuT. |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT, CDuT | Tester open on CuT app a page that should allow to activate/deactivate the selected profile, and perform a deactivation action, then exit from the app. | The CDuT should display a notification indicating a service deactivation. |
| 2 | Tester 🡪 CuT | Tester open on CuT app the page that display the service status. | The page should indicate the status deactivated |
| 3 | Tester 🡪 CuT, CDuT | Tester open the page and perform an activation action, then exit from the app. | The CDuT should display a notification indicating a service activation. |
| 4 | Tester 🡪 CuT | Tester open on CuT app the page that display the service status. | The page should indicate the status activated. |

**Deep inspection:**

Check the service status changes are reflected through the result of an AcquireConfiguration request.

#### [ODSA-75] Mismatch profile detection

**Test Purpose**

To ensure a mismatch profile is detected by the CuT after a SIM SWAP for eligible users.

**Referenced requirements**

TS43[1] – 6 “On-Device Service Activation (ODSA) Entitlement and Configuration”

TS43[1] – 6.5.5 “Acquire Configuration Operation Configuration Parameters”

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [OIDC\_S1] in section 3.1 Most frequent initial conditions |
| CuT | See conditions [OIDC\_C1] in section 3.1 Most frequent initial conditions.  A previous authentication has been performed. 2 eligible SIM are required for the test. |
| CDuT | See conditions [ES\_CP1] in section 3.1 Most frequent initial conditions. An eSIM profile has been downloaded on CDuT with SIM#1 in primary device. |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT, CDuT | Tester disable Bluetooth on CuT and CDuT, and perform an incoming call to SIM#1 | Both devices (primary and companon) rings. |
| 2 | Tester 🡪 CuT | Tester switch off the smartphone and insert new SIM (SIM#2, also eligible to SharedNumber service) inside it. Switch on the smartphone.  Tester Launch CuT app and use menu to manage CDuT service subscription | A mismatch profile is detected. The user is allowed only to delete the current profile and download a new one. |
| 3 | Tester 🡪 CuT | Tester delete current profile. | The CDuT has no profile |
| 4 | Tester 🡪 CuT | Tester downloads a new profile (a new authentication is performed) | The new profile is downloaded to CDuT |
| 5 | Tester 🡪 CuT, CDuT | Tester disable Bluetooth on CuT and CDuT, and perform an incoming call to SIM#2 | Both devices (primary and companion) rings. |

#### [ODSA-80] Change companion device

**Test Purpose**

To ensure an existing service subscription is reused when a user changes a companion for a given primary device.

**Referenced requirements**

TS43[1] – 6 “On-Device Service Activation (ODSA) Entitlement and Configuration”

TS43[1] – 6.5.3 “ManageSubscription Operation Configuration Parameters”

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [OIDC\_S1] in section 3.1 Most frequent initial conditions |
| CuT | See conditions [OIDC\_C1] in section 3.1 Most frequent initial conditions.  A previous authentication has been performed. |
| CDuT | See conditions [ES\_CP1] in section 3.1 Most frequent initial conditions. 2 CDuT are needed for this test. An eSIM profile has been downloaded and is active on CDuT#1. |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT, CDuT#1 | Tester delete existing eSIM profile on CDuT#1. | The subscription to the service SharedNumber is not cancelled. |
| 2 | Tester 🡪 CuT, CDuT#2 | Tester pairs the CDuT#2 with the primary device, and launch the CuT app. | The user is proposed to download a new profile (he is not proposed to subscribe to SharedNumber service a 2nd time). |
| 3 | ECSuT 🡪 CuT,CDuT#2 | Once the downloading is accepted by the tester, the ECSuT returns download information to the CuT. | A profile is downloaded to the CDuT#2 |
| 4 | Tester 🡪 CuT, CDuT#2 | Tester disable Bluetooth on CDuT#2 and primary device. Tester performs incoming call. | Both CDuT#2 and primary rings. |

#### [ODSA-81] Change primary device

**Test Purpose**

To ensure a existing service subscription is reused when a user changes a primary device for a given companion.

**Referenced requirements**

TS43[1] – 6 “On-Device Service Activation (ODSA) Entitlement and Configuration”

TS43[1] – 6.5.3 “ManageSubscription Operation Configuration Parameters”

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [OIDC\_S1] in section 3.1 Most frequent initial conditions |
| CuT | See conditions [OIDC\_C1] in section 3.1 Most frequent initial conditions.  2 primary devices identified by CuT#1 & CuT#2 are needed for this test. They are both eligible to SharedNumber service. |
| CDuT | See conditions [ES\_CP1] in section 3.1 Most frequent initial conditions. An eSIM profile has been downloaded with CuT#1 and is active on CDuT. |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT#1, CDuT | Tester unpairs the CDuT from CuT#1 | The subscription to the service SharedNumber is not cancelled. |
| 2 | Tester 🡪 CuT#1, CuT#2 | Tester removes SIM cards from CuT#1 and inserts it in CuT#2. |  |
| 3 | Tester 🡪 CuT#2, CDuT | Tester pairs the CDuT with CuT#2 | No new subscription is proposed to the user. No other eSIM profile is downloaded to CDuT. |
| 4 | Tester 🡪 CuT#2, CDuT | Tester disables Bluetooth on CDuT and CuT#2. Tester performs incoming call. | Both CuT#2 and CDuT rings. |

**Deep Inspection:**

Check no new ICCID is returned from the AcquireConfiguration request, and no new download is performed by the CDuT.

### Primary ODSA Entitlement Test Cases

### DCB Entitlement Test Cases / any authentication

#### [DCB-10] DCB Entitlement Mode - Cannot purchase

**Test Purpose**

To ensure the CUT handles "Cannot purchase" entitlement mode properly.

**Referenced requirements**

TS43 [1] : 11.4.1 DCB Entitlement Mode - Cannot purchase

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [ANY\_S1 in section 3.2 Most frequent initial conditions  The DCB is not provisioned for the given SIM card. No token has been retrieved in a previous OIDC authentication. |
| CuT | See conditions [ANY\_C1] in section 3.2 Most frequent initial conditions |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a request towards ECSuT. An OIDC authentication is performed. |
| 2 | ECSuT 🡪 CuT | After authentication, the configuration document provided does not contain a token but **EntitlementStatus=INCOMPATIBLE (2) for DCB.** | the device shall either display **MessageForIncompatible** when it is not void, or the default device error message (if any). |

#### [DCB-11] DCB Entitlement Mode - Can purchase

**Test Purpose**

To ensure the CUT handles "Can purchase" entitlement mode properly.

**Referenced requirements**

TS43 [1] **:** 11.4.4 DCB Entitlement Mode - Can purchase

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [ANY\_S1] in section 3.2 Most frequent initial conditions  The provisioning data regarding the SIM are:   * **EntitlementStatus** is ENABLED (1) * **TC\_status** is AVAILABLE (1) or NOT REQUIRED (2) |
| CuT | See conditions [ANY\_C1] in section 3.2 Most frequent initial conditions  DCB setting on the device is set to on by the user. |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a configuration request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The configuration document is transmitted. | DCB should be activated on the device |

#### [DCB-12] DCB Entitlement Mode – Service Data Missing

**Test Purpose**

To ensure the CUT handles "Service Data Missing" entitlement mode properly.

**Referenced requirements**

TS43 [1] **:** 11.4.3 DCB Entitlement Mode - Service Data Missing

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [ANY\_S1] in section 3.2 Most frequent initial conditions  The provisioning data regarding the SIM are:   * **EntitlementStatus** is DISABLED (0) * **TC\_status** is NOT AVAILABLE (0) |
| CuT | See conditions [ANY\_C1] in section 3.2 Most frequent initial conditions  DCB setting on the device is set to on by the user. |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a configuration request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The configuration document is transmitted. | DCB service should not be activated on the device. The CuT shall open a web view or display a message to instruct the end-user to enter the required missing DCB service information (T&C). |

#### [DCB-14] DCB Entitlement Mode – Service Being Provisioned

**Test Purpose**

To ensure the CUT handles "Service Being Provisioned" entitlement mode properly.

**Referenced requirements**

TS43 [1] **:** 11.4.3 DCB Entitlement Mode - Service Being Provisioned

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions  The provisioning data regarding the SIM are:   * **EntitlementStatus** is DISABLED (0) * **TC\_status** is set to AVAILABLE (1) or NOT REQUIRED (2)   Or   * **EntitlementStatus** is PROVISIONING (3) * **TC\_status** is set to any values |
| CuT | See conditions [ANY\_C1] in section 3.2 Most frequent initial conditions  DCB service setting on the device is set to on by the user. |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a configuration request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The configuration document is transmitted. | DCB service should not be activated on the device. After an end-user action (going into DCB service settings for example), the CuT shall show that the service is pending or being provisioned. |

#### [DCB-50] DCB-status indication & user actions

**Test Purpose**

To ensure CuT displays an indication about DCB-status. The way the information is provided (UI) is device dependant.

**Referenced Clauses**

TS43 [1]: 3 DCB Entitlement Configuration

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECSuT | See conditions [ANY\_S1] in section 3.2 Most frequent initial conditions |
| CuT | See conditions [ANY\_C1] in section 3.2 Most frequent initial conditions  CuT is powered off.  The device is switch on for the 1st time (factory reset procedure can be done before) |

**Test execution**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester invokes CuT and triggers an entitlement configuration | CuT initiates entitlement configuration |
| 2 | ECSuT 🡪 CuT | After OIDC authentication procedure, a configuration document is sent to the CuT. | The tester can see on the store app the DCB feature is available. He can activate/deactivate the feature. |

#### [DCB-60] DCB-payment

**Test Purpose**

To ensure the CuT performs DCB purchase when DCB is activated. The way the user is aware about DCB purchase is store dependant (UI).

**Referenced requirements**

TS43 [1]: 3.3 Entitlement Modes of DCB Client

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [ANY\_S1] in section 3.2 Most frequent initial conditions |
| CuT | See conditions [ANY\_C1] in section 3.2 Most frequent initial conditions |

**Test execution**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app and enable DCB payment | DCB indication is enabled on the store. |
| 2 | Tester 🡪 device | Test perform DCB payment | Purchase is successful. |

### Message based Notifications

#### [PUSH-10] Push notification to refresh VoIMS services configuration

**Test Purpose**

To ensure configuration refresh on message notification is supported by CuT.

**Referenced requirements**

TS43 [1] : 2.6.2 Messaging Infrastructure-Based Notifications

**Initial Conditions**

|  |  |
| --- | --- |
| Entity | Description of the initial conditions |
| ECS | See conditions [EAP\_S1] in section 3.2 Most frequent initial conditions |
| CuT | See conditions [EAP\_C1] in section 3.2 Most frequent initial conditions  The CuT is registered on a messaging service and provides a notification token to be addressed. |

**Test execution:**

| **Step** | **Direction** | **Sequence** | **Expected Result** |
| --- | --- | --- | --- |
| 1 | Tester 🡪 CuT | Tester starts client app | CuT performs a request towards ECSuT. |
| 2 | ECSuT 🡪 CuT | The configuration document provided by the ECSuT enables (EntitlementStatus=ENABLED (1) VoWifi,VoLTE and SMSoIP services | The services are activated on the device. Depending on the device, the UI reflects the service activation. |
| 3 | Tester 🡪ECSuT/messaging service | Tester disable the services for the CuT on the provisioning of the server side and emits a notification message towards the messaging service | A message is received by the CuT |
| 4 | CuT 🡪 ECSuT | The CuT request the new configuration document. The document now contains EntitlementStatus=DISABLED (0) for the services | The services are deactivated on the device. Depending on the device, the UI reflects the service deactivation. |

**Deep Inspection:**

The CuT uses the token previously acquired to query the ECSuT at step 4.

### SMS based notification

TBC

1. Exchanges examples
   1. Configuration document

Possibly new authentication TOKEN generated by ECSuT with its validity in seconds

Proper services entitlement status requested in GET message

Exemple:

HTTP/1.1 200 OK

Content-Type: text/xml

<?xml version='1.0' encoding='UTF-8'?>

<wap-provisioningdoc version="1.1">

<characteristic type="VERS">

<parm name="version" value="1"/>

<parm name="validity" value="43200"/>

</characteristic>

<characteristic type="TOKEN">

<parm name="token" value="MjA4MDE3NTAzNTExOTYxMTUyNzY2MjAwMDE4MQ=="/>

<parm name="validity" value="86400"/>

</characteristic>

<characteristic type="APPLICATION">

<parm name="AppID" value="ap2004"/>

<parm name="Name" value="VoWiFi Entitlement settings"/>

<parm name=”AppRef" value="VoWiFi-Settings"/>

<parm name="EntitlementStatus" value=”1"/>

<parm name="ServiceFlow\_URL" value=""/>

<parm name="ServiceFlow\_UserData" value=""/>

<parm name=”MessageForIncompatible” value=””/>

<parm name="TC\_Status" value="2"/>

<parm name="AddrStatus" value="2"/>

<parm name="ProvStatus" value="2"/>

</characteristic>

<characteristic type="APPLICATION">

<parm name="AppID" value="ap2003"/>

<parm name="Name" value="VoLTE Entitlement settings"/>

<parm name=”AppRef" value="VoLTE-Settings"/>

<parm name="EntitlementStatus" value=”1"/>

<parm name=”MessageForIncompatible” value=””/>

</characteristic>

<characteristic type="APPLICATION">

<parm name="AppID" value="ap2005"/>

<parm name="Name" value=" SMSoIP Entitlement settings"/>

<parm name=”AppRef" value=?SMSoIP-Settings"/>

<parm name="EntitlementStatus" value=”1"/>

</characteristic>

</wap-provisioningdoc>

1. Document Management

Document History

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Version | Date | Brief Description of Change | Approval Authority | Editor / Company |
| 1.0 | Dec 2022 | New PRD TS.56 | TSG#50  ISAG#26 | François de Turenne / Orange |
|  |  |  |  |  |

Other Information

|  |  |
| --- | --- |
| Type | Description |
| Document Owner | Terminal Steering Group |
| Editor / Company | François de Turenne / Orange |

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Your comments or suggestions & questions are always welcome.