SIT Functional Test Data Approach & Plan

Document owner	Document number	Version
Cesar Lopes	**MHHS-DEL1367**	**1.0**
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Contents

Figures

1.1   Change Record

Date	Author(s)	Version	Change Detail
05/06/2023	Cesar Lopes	0.1	Initial Draft
07/07/2023	Cesar Lopes	0.2	Updates following SRO and Code Body review
27/07/2023	Cesar Lopes	0.3	Changes in response to industry consultation.
07/08/2023	Cesar Lopes	0.4	Changes in response to assurance review.
16/08/2023	Cesar Lopes	1.0	Baselined at v1.0 following July TMAG approval

1.2   Reviewers

Reviewer	Role
Lee Cox	SI Test Manager
Kevin Davis	SI Test Architect
Simon Berry	SI Environments and Release Manager
John Wiggins	SI Data Migration Manager
Chan Dabare	SRO Function Programme Test Manager
Smitha Pichrikat	SRO Function Client Delivery Manager
Code Bodies (BSC and REC)	Various

1.3   References

Ref No.	Document/Link	Publisher	Published	Additional Information
REF-01	MHHS-DEL-315E2E Testing & Integration Strategy	SI Testing	29th April 2022	
REF-02	MHHS-DEL1259 SIT Functional Testing Approach & Plan	SI Testing	12th Jun 2023	
REF-03	MHHS-DEL 300 Test Data Strategy	SI Testing	18th May 2023	
REF-04	MHHS-DEL813 Overarching Test Data Approach & Plan	SI Testing	24th May 2023	
REF-05	MHHS-DEL1117 SIT Functional Test Scenarios	SI Testing	15th May 2023	
REF-06	MHHSP-DES138-Interface Catalogue	MHHS	5th July 2023	
REF-07	MHHS-DEL618 - Environment Approach & Plan	SI Testing	28th February 2023	
REF-08	MHHS-DEL1181 MHHS Programme Data Cleanse Plan	SI Testing	9th June 2023	
REF-09	MHHS-DEL816 Population of Data Items for Testing	SI Testing	April 2023	

1.4   Terminology

Term	Description
Various	For terminology, see Programme Glossary on the MHHS portal: Programme Glossary (SharePoint.com)

2 Executive Summary

The Market-wide Half Hourly Settlement programme (MHHS) when completed will contribute to a more cost-effective electricity system, encouraging more flexible use of energy and helping consumers lower their bills.

[REF-01] 'MHHS-DEL315 - E2E Testing & Integration Strategy' describes the overall, end-to-end (E2E) approach to testing - the manner in which all parties involved in the MHHS programme will conduct testing.

One of the major test phases is the **Systems Integration Testing (SIT).** The purpose of SIT phase is to prove that the component Services are implemented in a way consistent with the MHHS E2E Design and interact coherently and consistently.

The SIT comprises sub-test stages: (1) **Component Integration Testing (CIT)**, (2) **Functional Test**, (3) **Migration Test,** (4) **Non-Functional Test** and (5) **Operational Test**.

This document, associated with the [REF-02] MHHS-DEL1259 SIT Functional Testing Approach & Plan, provides the data preparation guidance for the **SIT Functional Test**.

This document is a child document of a series of documents progressively detailing the data approach for testing. Therefore it is recommended the following documents are read in conjunction:

- [REF-03] MHHS-DEL 300 Test Data Strategy: covers the data required to be co-ordinated across the systems for testing purposes.
- [REF-04] MHHS-DEL813 Overarching Test Data Approach & Plan: establishes a common and fully aligned set of test data for use in the industry-wide test phases of MHHS.

3 Introduction

3.1 Document Purpose

This document aims to define a Test Data Approach specifically for the SIT Functional Tests. It provides a detailed view of specific data required per participant role.

This document is intended to be read by the following groups:

- Senior Responsible Owner Function (SRO)
- Lead Delivery Partner (LDP)
- Testing and Migration Advisory Group (TMAG)
- Data Working Group (DWG)
- Programme Participant Test Managers
- All Programme party teams and resources involved in SIT execution or support.

3.2 Reviews and Approvals

The SIT Functional Test Data Approach and Plan will go through an initial LDP review by the following team members:

- Lee Cox, SI Test Manager
- Kevin Davis, SI Test Architect
- Simon Berry, SI Environments and Release Manager
- John Wiggins, LDP Transition/Migration Lead

Upon completion of the LDP review, any comments and feedback would be incorporated before going to the SRO team for formal review by:

- Chan Dabare, SRO Function Programme Test Manager
- Smitha Pichrikat, SRO Function Client Delivery Manager
- Balancing and Settlement Code (BSC) and Retail Energy Code (REC)

Upon completion of the SRO and Code Body review it will then be distributed to the DWG for consultation where comments will be incorporated leading to a recommendation of approval by the group.

Approval will then be requested from:

- Testing and Migration Advisory Group (TMAG).

The document will be made available for information via the programme portal.

3.3 Change Forecast

The SI team will own this document and keep it up to date, with review and approval by MHHS programme governance as appropriate. Each new version supersedes the previous version in its entirety.

- At the time of writing, the SIT Functional test scenarios and cases are still under development, once a greater degree of maturity has been reached on these artefacts, the test cases will be analysed to determine the detailed data requirements for the execution of SIT functional testing. These aspects will be socialised and developed in consultation with the DWG and the agreed output, then formalised in a new full version of this document that will be targeted for approval in the January 2024 TMAG.

- o **Detailed test cases and Test Data Augmentation:** The test cases will drive detailed requirements for test data preparation and augmentation. The "section 7.4 Test Data Augmentation" will be refined However, the overall test data approach shouldn't change.
- Specific loading mechanisms for the following group of participants:

  - o **DCC:** the data cut scope, approach and data requirements for CSS and DSP has been agreed with DCC. However, the specific mechanics for updating MPANs Agent and Suppliers are to be defined. Section 7.16 will require refinement.

  - o **DIP:** The MPANs will need to be migrated and seeded to DIP for executing tests. This document contains the approach discussed to enable it. Ongoing bilateral discussions may require an update of the section "7.6 DIP – Onboarding and Test Data Seeding".

- The [REF-09] MHHS-DEL816 Population of Data Items for Testing will be updated after alignment with Programme Participants and the Functional Test Cases to include the detailed method for each data item's population. E.g. data item DI-015 Connection Type Indicator will be populated by the provision of JSON PUB-043 using sFTP by SI to the Participant.

- A new section will be added to describe the specific test data approach for Test Scenarios involving the creation of a new MPAN.

All updates to this document will follow the review and approval process outlined in section 3.2.

3.4   Summary of Changes

The version 0.4 contains updates following the industry assurance review. The main changes are:

- Section 3.3: Added change forecast to create a new section describing specific test data approach for tests scenarios involving creation of new MPANs.
- Section 7.4 Test Data Augmentation: updated the date for releasing updates of the REF-09.
- Section 7.10: updated to correct the test data loading approach for Metering Services.
- Section 7.15: updated to correct the test data loading approach for EES.

3.5   Assumptions and Caveats

3.5.1   Assumptions

- The Programme Participants taking part in SIT have already identified their systems that will be deployed in the Test Environments and will be used during SIT Tests.

- The Programme Participants, as part of the PIT Testing, are being able to create and load test data to their systems in their PIT test environment.

  - o Whenever possible, the tools developed by the participants during the PIT stage can be reused to load test data for SIT.

3.5.2   Caveats

N/A.

4 Objectives

4.1 Objectives

The objective of the SIT Functional Testing stage is to:

1. Validate the new MHHS arrangements by involving all participants connected via the Data Integration Platform (DIP), enabling End-to-end functional tests.

The objective of this document is to establish the approach to obtain the test data required to execute and pass all test scenarios / cases in the scope of the Test Stage without exception.

5 Scope

5.1 In Scope

As described in [REF-02] MHHS-DEL1259 SIT Functional Testing Approach & Plan, the scope of SIT Functional involves the following roles:

1. Data Integration Platform (DIP)
2. BSC Central Service – Industry Standing Data (ISD), Volume Allocation Service (VAS), Settlement Operations, Load Shape Service (LSS), Market-wide Data Service (MDS)
3. Registration Service (MPRS)
4. Smart Data Service (SDS)
5. Advanced Data Service (ADS)
6. Metering Service Smart (MSS)
7. Metering Service Advanced (MSA)
8. Electricity Suppliers
9. Network Operations
10. Electricity Enquiry Service (EES)
11. Unmetered Supplies Operator (UMSO)
12. Unmetered Supplies Data Service (UMSDS)
13. Data Communications Company (DCC) – Data Service Provider (DSP) and Central Switching Service (CSS)
14. ElectraLink – Data Transfer Network (DTN)
15. National Grid – Electricity System Operator (ESO)

This document provides the Test Data Approach per role.

Please refer to [REF-05] MHHS-DEL1117 SIT Functional Test Scenarios for further detail of the SIT Functional scope and coverage.

5.2 Out of Scope

This document does not cover the details of the provisioning of data for:

- All the other SIT Stages – these will be the subject of separate Test Data Approach and Plan documents:
  - Component Integration Test
  - Non-Functional Test
  - Migration Test

- o Operational Test
- UIT Test Stages:
  - o Qualification Test
  - o E2E Sandbox

6 Test Architecture & Coverage

6.1 MHHS Architecture and Coverage

SIT Functional Testing will be achieved by establishing a test environment where all Central Systems, the Registration Service and at least two Services for each Role are connected via to the Data Integration Platform (DIP), in addition to DCC (DSP and CSS), Retail Energy Code Company (RECCo) – Electricity Enquiry Service (EES) and ElectraLink (DTN). Note that SIT Participants will have proven DIP connectivity within the Component Integration Test stage, in addition they will be required to establish and prove non-DIP connectivity to systems that will be used by the party in Business as Usual as a separate pre-requisite to SIT Functional Testing thus enabling a fully functioning MHHS ecosystem. Tests will then be conducted based on the test scenarios and cases in scope. It should be noted that metering components fall outside of the MHHS design scope, and for this reason, consumption data generators will be used for the purpose of testing.
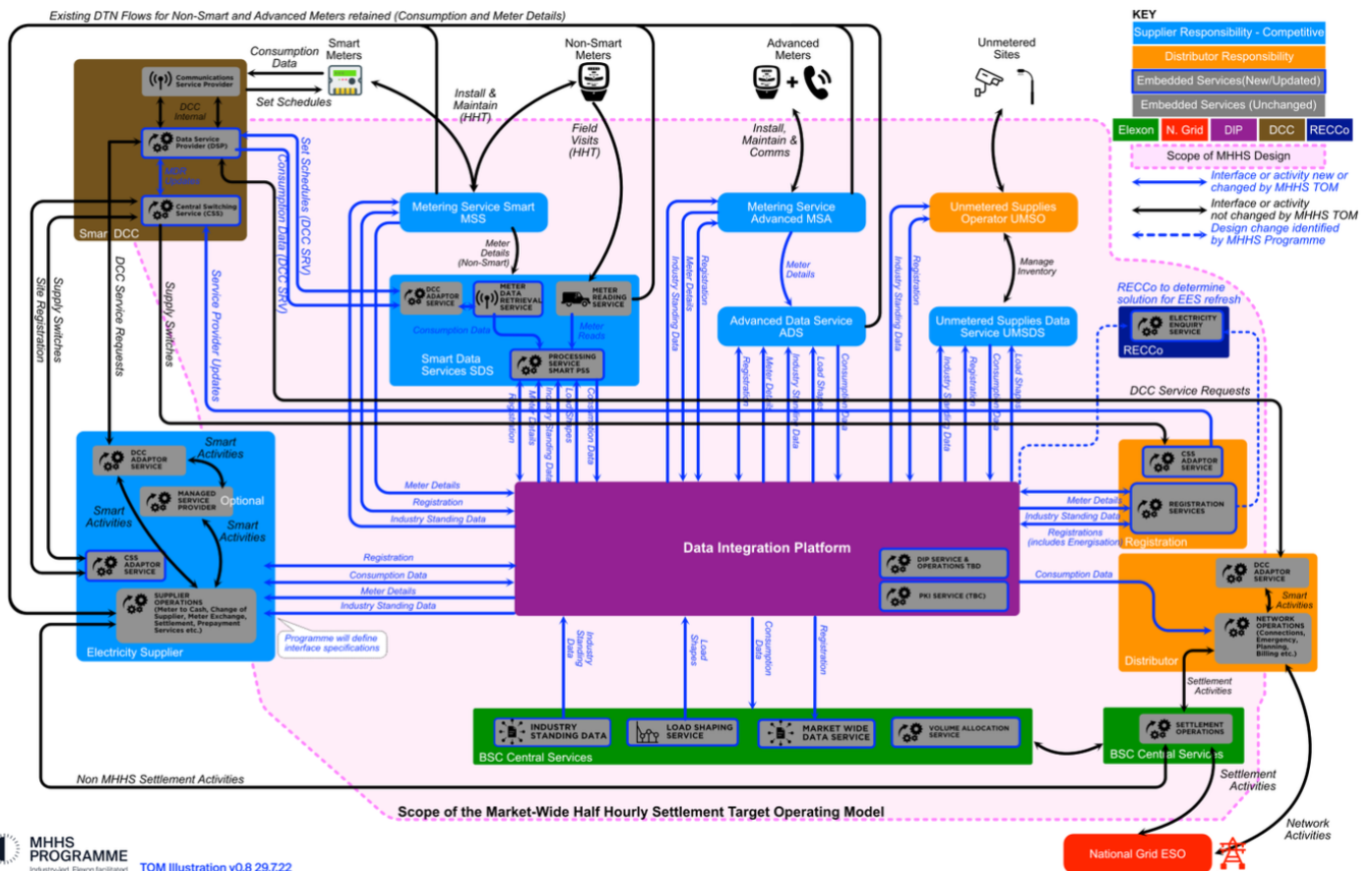

Figure 1 – TOM illustration

Notes:

1. The interface (IF number) is fully documented on [REF-06] MHHSP-DES138-Interface Catalogue. All Mandatory data items per test scenario shall be obtained from there, including details of data type, enumerations and format.

2. Data Conditions means any specific conditions called out in the MHHSP-DES138-Interface Catalogue, which are used to determine the routing. For example, routing for an IF-009 can depend on the DI-979 Response Code being 'A' (Accept) or 'R' (Reject).

3. In this test phase, tests will also be required to show the working of the full functionality, data integrations and feedback.

For details of the scenario coverage, please refer to [REF-05] MHHS-DEL1117 SIT Functional Test Scenarios. For Details of the Test Environment, please refer to [REF-07] MHHS-DEL618 – Environment Approach & Plan

7 Test Data Approach

7.1 Test Intervals

Test execution will be conducted within a three-cycle approach:

- **Cycle 1:** during the early stages of this cycle the aim will be prove the E2E cohesiveness of the solution by exercising all hand-off points as soon as possible. Testing will then progress in a logical sequence, considering both test case priority and the most efficient and logical sequence where scenarios executed are able to produce the pre-conditions for downstream process scenarios. The aim will be to exercise as much of the test coverage as possible in cycle 1 to flush out all key defects.

- **Cycles 2 and 3**: will be used to address any defect retesting or tests that were unable to be completed within the previous cycle(s), in addition to any associated regression testing identified as required due to code releases.

- **Regression Test**: During SIT functional test cycle execution, regression testing requirements will be assessed throughout on a case-by-case basis in relation to any defects that have been fixed with a code release, including assessment of the impact the release may have on testing that had been previously executed within the test stage.

Prior to testing SIT volunteer participants will have been paired with contracted partners where possible or other participants in order to support Change of Supply / Service / Agent tests.

Test Data will need to be allocated and loaded appropriately to the test environment to support all cycles.

The [REF-02] MHHS-DEL1259 SIT Functional Testing Approach & Plan contains the detailed Test Plan.

7.2 Test Data Allocation

1. For each SIT Functional Test Scenario, the SI Test Lead will allocate a minimum of **50 MPANs** with the required data conditions.

   o In the event that more MPANs are required during the test phases, the SI will identify and allocate further MPANs for the relevant participants to ingest into their respective environments.

   o The required data conditions will be described in the SIT Functional Test Cases.

2. All MPANs records used in testing will be allocated unique reference IDs that will be used in all communications, including test results and defect reports.

   o The reference ID is to protect MPAN data (GDPR PII) and that the use of MPANs in emails, instant messages, test results and defect reports must not happen to prevent an risk of GDPR non-compliance.

3. The SI Test Lead will identify and allocate suitable data considering the participant's own data cut.

   o During the Test Data preparation activities for the SIT Functional Tests, a data integrity check will be executed between Programme Participant and SI to confirm the data is suitable for the tests and are properly loaded to the environment (see section 9 Test Data Schedule).

4. When suitable data is not available from the Participant's own data cut, the SI Data Lead will manufacture or re-allocate data from another participant with a bigger dataset.

- o It is the participant's responsibility to load the allocated test data, including any manufactured test data (eg: electricity consumption), to the test environment.

- o The SI will publish to the participant a list of MPANs re-allocated, including the origin and destination participant.

5. For SIT Functional Tests, the SI will avoid allocating MPANs used during the CIT Tests.

- o The state of MPANs used in CIT tests may be corrupted or misaligned between participants. During CIT tests, the systems are not expected to execute fully functional business processes.

7.3   Test Data Load

Following the same approach as SIT Component Integration Testing, the test environment for SIT Functional will be populated with data from the SIT Data Cut. The [REF-04] MHHS-DEL813 Overarching Test Data Approach & Plan provides the date and scope of the Data Cut.

Figure 2, Figure 3, Figure 4, Figure 5 and Table 1 have the details of the Test Data Loading mechanisms proposed for SIT Functional Tests.

Notes:

1. The participants will be required to load test data related only to the MPANs within the Licensed Distribution System Operators (LDSOs) who volunteered to SIT.

2. The Test Data Loading **Mechanism #1 IF/PUB Content Loader** and **Mechanisms #2 DTS Message Content Loader** are preferable over the BAU since they will make possible the execution of Tests Cases independently of Critical Bugs being found on Registration/Migration Business Processes.

3. The SI Test Data Lead will provide the list of MPANs to be loaded per Test Scenario/Test Case for each participant.

4. For the DTS messages present in the TOM, the SI Test Data Lead will ask the participant owner/sender of the data to share the DTS message content via the DTS (ElectraLink) and/or MHHS Test Data sFTP.

5. The [REF-09] MHHS-DEL816 Population of Data Items for Testing will be updated after alignment with Programme Participants and the Functional Test Cases to include the detailed method for each data item's population. E.g. data item DI-015 Connection Type Indicator will be populated by the mechanism #1 provision of JSON PUB-043 using sFTP by SI to the Participant.

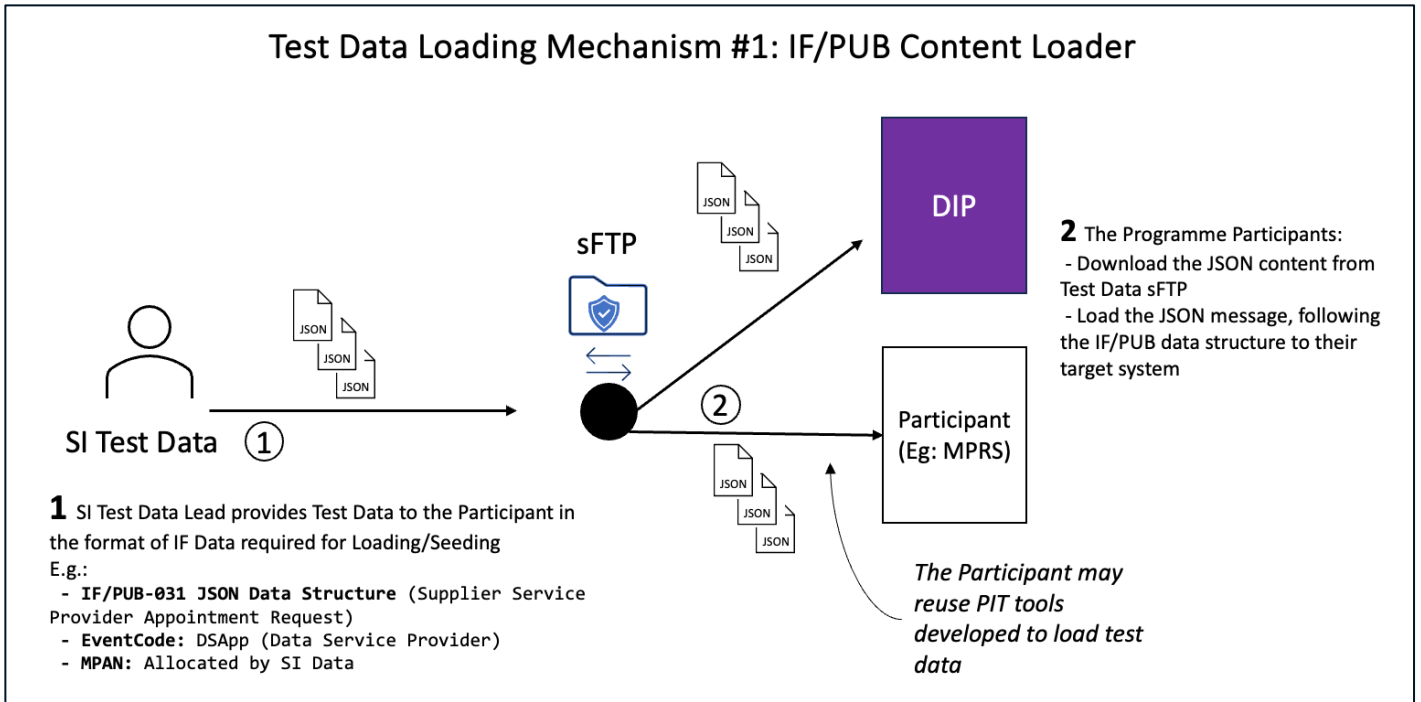## Test Data Loading Mechanism #1: IF/PUB Content Loader

DIP

sFTP

JSON
JSON
JSON

JSON
JSON
JSON

SI Test Data ①

②

JSON
JSON
JSON

2 The Programme Participants:
 - Download the JSON content from Test Data sFTP
 - Load the JSON message, following the IF/PUB data structure to their target system

**Participant
(Eg: MPRS)**

1 SI Test Data Lead provides Test Data to the Participant in the format of IF Data required for Loading/Seeding
E.g.:
  - **IF/PUB-031 JSON Data Structure** (Supplier Service Provider Appointment Request)
  - **EventCode:** DSApp (Data Service Provider)
  - **MPAN:** Allocated by SI Data

The Participant may reuse PIT tools developed to load test data

Figure 2: Test Data Loading Mechanism #1 – IF/PUB Content Loader

Test Data Loading Mechanism #2: D Message Content Loader

CSV
D-XYZ
CSV
D-XYZ

**Participant B
(Eg: UMSDS)**

**DTS
ElectraLink**

2 The Participants B and C, receivers of the D Message, load the Test Data into their Test Environments.

**Participant A

The D Message Sender

(Eg: UMSO)**

CSV
D-XYZ
CSV
D-XYZ
CSV
D-XYZ

①

②

CSV
D-XYZ

**Participant C
(Eg: UMSDS)**

1 SI Test Data Lead provides a list of MPANs to a Participant A to generate the D Messages to Participant B and C
E.g.:
  - **D-0388 CSV message** (Inventory Data)
  - **MPAN:** Allocated by SI Data to Participants B and C

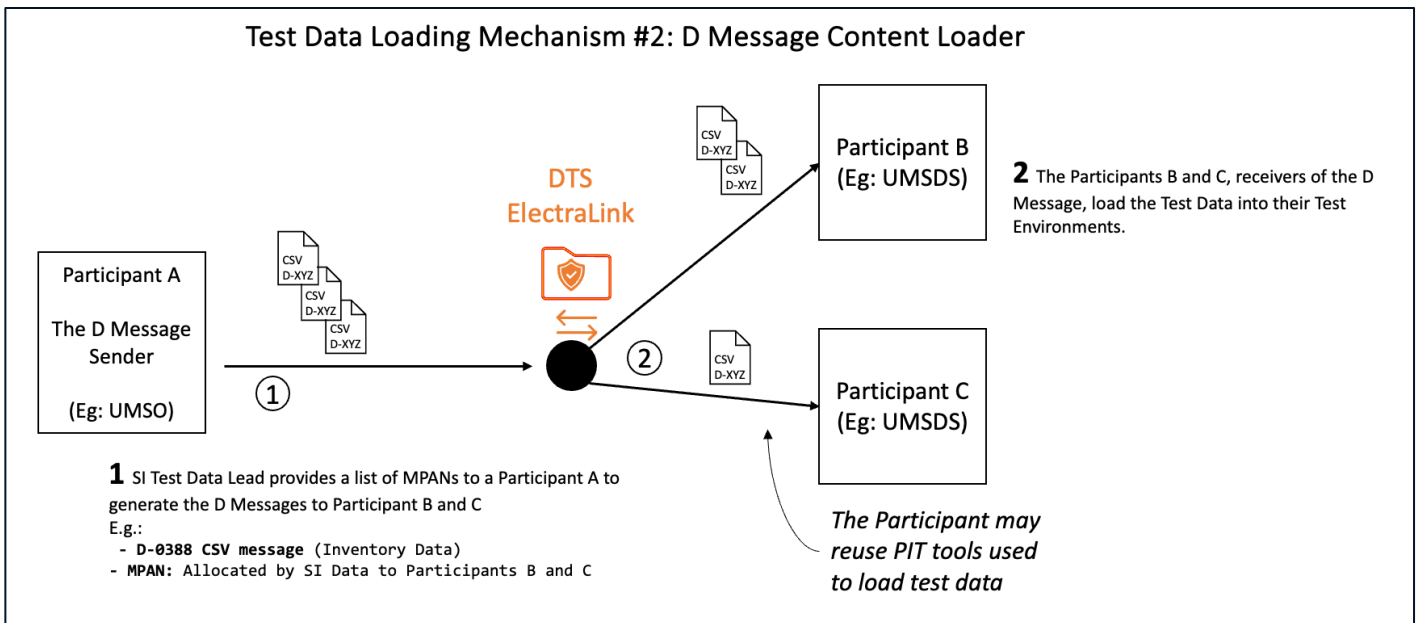*The Participant may reuse PIT tools used to load test data*

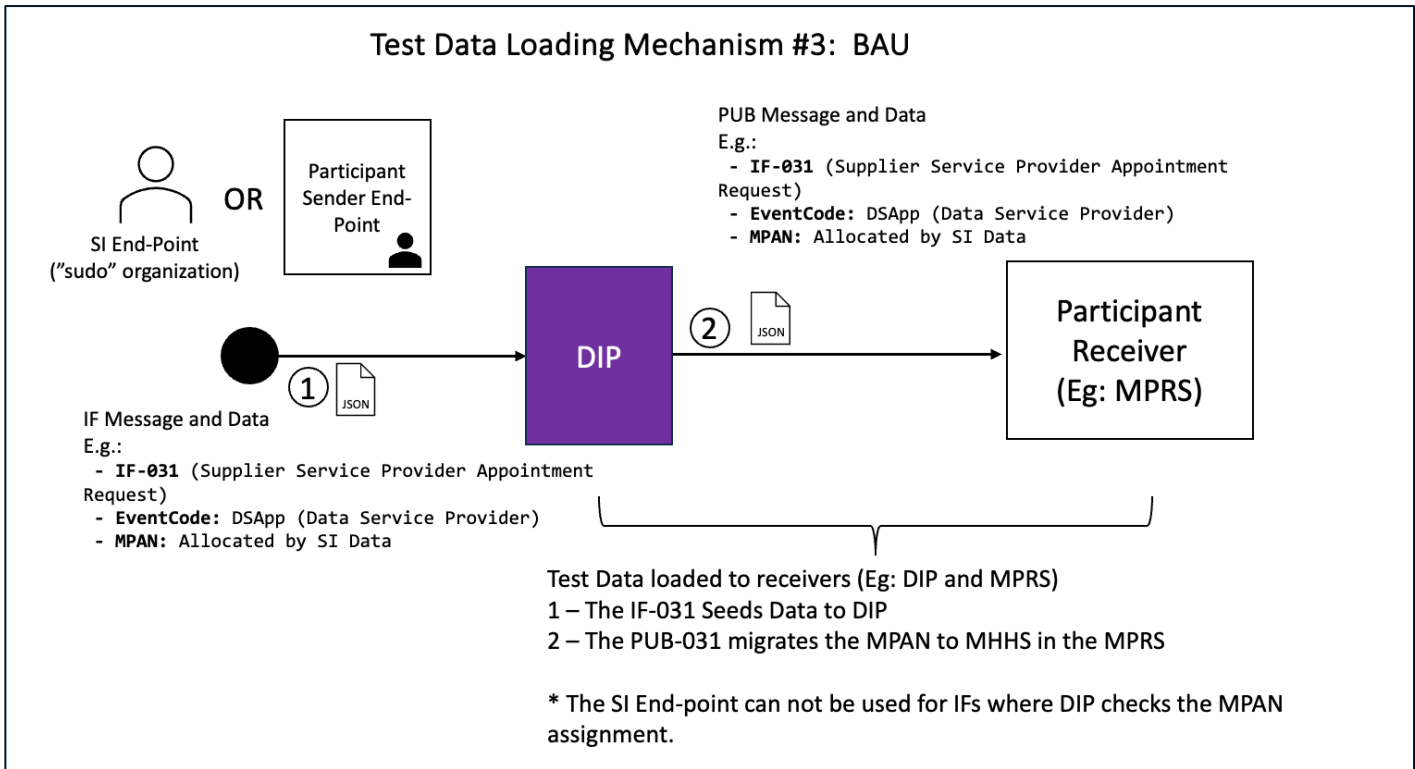*Figure 3: Test Data Loading Mechanism #2 – DTS Message Content Loader*

Figure 4: Test Data Loading Mechanism #3 – Business as Usual
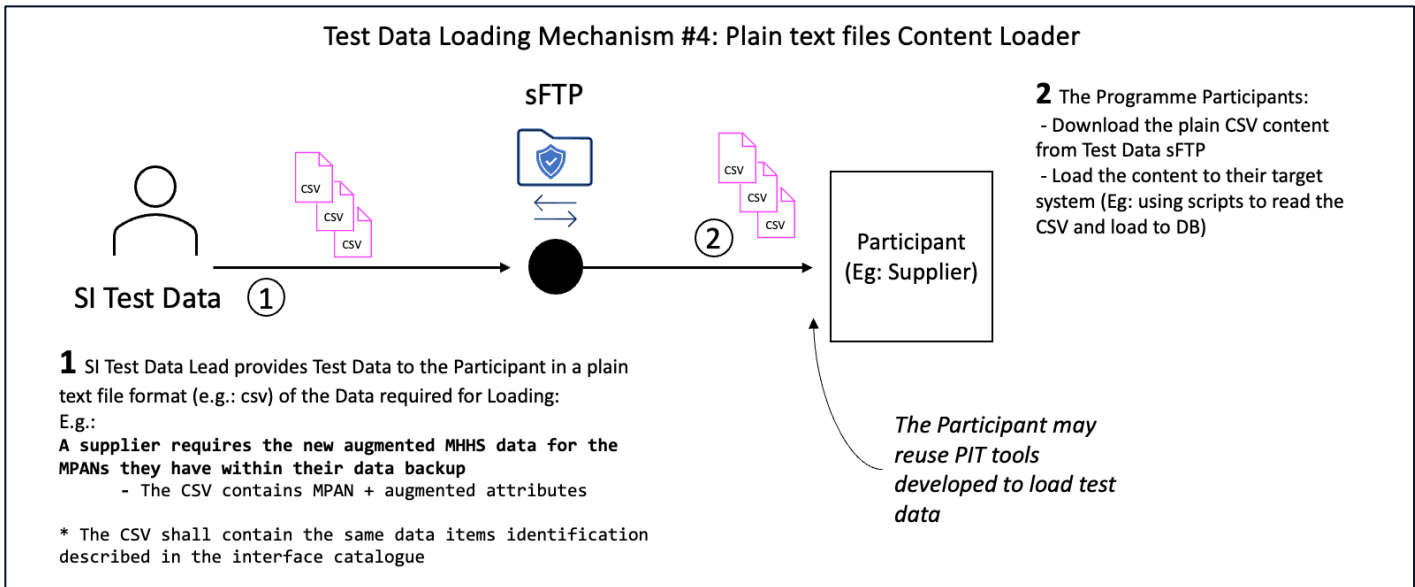

Figure 5: Test Data Loading Mechanism #4: Plain CSV Content Loader

Table 1: Test Data Loading Mechanism Pros and Cons

#	Test Data Loading Mechanism	Pros	Cons	Notes
1	IF/PUB Content Loader	‣ Allow to set-up Test Data independently of Test Case Execution ‣ Allow to set-up Test Data to a given participant without relying on another participant's status. ‣ Failing "Data Registration or migration" Tests Cases, won't block the execution of other tests (Eg: send consumption) ‣ Follow the same data structure as the IF/PUB message (Eg; IF-031)	‣ Require the development/usage of a specific Test Data Load tool ‣ Do not follow the Business Process, then it may create inconsistencies.	Programme Participant may reuse tools developed to load PIT test data
2	DTS Message Content Loader	‣ Allow to set-up Test Data independently of Test Case Execution ‣ Failing "Data Registration or migration" Tests Cases, won't block the execution of other tests (Eg: send consumption) ‣ Follows the same data structure as the DTS message (Eg: D0388 Inventory Data)	‣ Require the development/usage of a specific Test Data Load tool ‣ Do not follow the Business Process, then it may create inconsistencies.	Programme Participant may reuse tools developed to load PIT test data

#	Test Data Loading Mechanism	Pros	Cons	Notes
3	Business as Usual Data Loader	- Do not require development of any testing tool. - It will be executed anyway as part of SIT Functional Test Scenarios. - Less risky to create inconsistent test data (if the registration/migration functions do not have critical bugs)	- Require the "Data Registration or Migration" functions fully functional and without critical bugs. - Unavailable for the early stages of Testing: SIT CIT and not all functionality supported by all Participants until later stages of SIT Functional (e.g. migration processes). - Critical bugs in Registration/Migration functions will block the execution of other tests. - Require the pairing of Participants to send/receive message for Test Data Loading before the execution of the core functions being tested. - Time consuming step to be executed before the execution of any test case.	Can be used only when the registration or migration business process is fully functional for all involved parties The SI End-point can not be used for Ifs where DIP checks the MPAN assignment or ownership
4	Plain CSV Content Loader	- Simple to understand, simple to generate. - It will contain only the minimum data required to be loaded or updated.	Require participants to have specific tools to read CSV and load to their data bases.	Programme Participant may reuse tools developed to load PIT test data

7.4 Test Data Augmentation

Following CP1558 and R0032 implementation in June 2023, new data attributes will be created in the Registration Services. Since the Data Cut, taken in August 2023, won't have all attributes populated. Additionally, there are new Data Items that will only exist from later stages of the Programme. The SI Data Lead will provide test data values to the participants to populate the values for MPANs used in testing. The attributes include:

- Association of Import MPANs and Export MPANs

- Population of Smart Meter Data

- Creation of Connection Type

- Population of Domestic Premises Indicator and other related MPAN attributes

Notes:

1. The spreadsheet [REF-09] MHHS-DEL816 Population of Data Items for Testing will contain, by service, the data items which will be augmented and provided back to PPs from the SI.

   a. The SI is working with the PPs to ascertain a definitive list of data items.

b. The Data Items requiring cleanse will be derived from [REF-08] MHHS-DEL1181 MHHS Programme Data Cleanse Plan.

c. A new release of the spreadsheet is expected by 25 August 2023. The spreadsheet will be fully complete and locked by 11 December 2023 (three months ahead of the kick-off of SIT Functional Tests). By then, the spreadsheet will incorporate all requirements based on detailed Functional Test Cases.

2. To create any given IF/PUB or DTS message for loading Test Data, the SI Test Data Lead will require data from EES data cut. '

3. If the D-message or IF/PUB require data augmentation (eg: Connection Type), the SI Test Data Lead will provide the content of the missing data.

7.5   Test Data Generators

For electricity consumption data, data generators shall be used instead of historical consumption data.

The Data Generator tool, which launched on 24 May 2023, provides realistic test data for the following types of data to use during Pre-Integration Testing (PIT) and Systems Integration Testing (SIT):

- IF-021 – Directly consumable data, consumed by Elexon Central Systems (ECS) among others
- IF-041 – Directly consumable data, consumed by the Data Services

The Data Generator tool fully simulates the above-mentioned types of Meter and Settlement data and produces valid data for testing.

Information on the Data Generator is available on the Simulators & Emulators page of the Collaboration Base. Participants will need their own tool to transform and inject the data into the relevant Service, where appropriate.

Notes:

1. Participants shall **NOT use real domestic customer consumption data** associated with the real MPANs in the Test Environment.

2. If, during the Data Cut, real domestic consumption data is extracted as part of the production data backup and loaded to the participant test environment, the participant shall apply a transformation script to modify and randomise the domestic consumption data.

3. Participants **may use real consumption data for non-domestic** MPANs. It is the responsibility of the participant to analyse the risks and impact of using real consumption data in the test environment. The real consumption data may expose participants' business-sensitive information.

7.6   DIP – Onboarding and Test Data Seeding

Prior to the start of SIT Functional tests, the Programme Participant will be required to follow the DIP Onboarding Process, when DIP IDs will be created and associated with MPID Roles. The association will need to be updated on the ISD data owned by Elexon Central Systems and shared with all PPs.

Once the participant is onboarded to the DIP, the system needs to be seeded with all the MPANs in scope for testing.

The DIP seeding will include two of the load mechanisms (See section 7.3):

1. Mechanism #1 – IF/PUB Content Loader:

   a. The SI Data Lead to provide the IF/PUB-036 content files to DIP test managers to load to test environment.

2. Mechanism #3 – BAU:

   a. A set of MPANs will be reserved/allocated to be used for Testing Scenarios involving the registration messages

7.7   Test Data – Elexon Central Settlement Services

The Elexon Central Settlement Services require a minimum set of registration and consumption data per Grid Supply Point in order to calculate and provide participants with valid Load Shape Data, Market wide Data Service (MDS) and Volume Allocation Run (VAS). The SI shall provide data to enable the generation of valid values for LSD, MDS and VAS systems.

The Load Shape data is used by processing Services to convert Register Readings, or Daily Consumption values into Settlement Period level data.

In order to populate the Elexon Central Settlement Services, two load mechanisms will be required (See section 7.3):

1. Mechanism #1 – IF/PUB Content Loader:

    a. The SI Data Lead to provide IF/PUB-021 json files to Elexon test managers to load to the test environment. It shall have the minimum data amount and variety to allow the generation of valid Load Shape

    b. The SI Data Lead to provide registration json files of IF/PUP- 036. The SI Data Lead shall ensure alignment with Registration Service.

2. Mechanism #3 – BAU:

    a. A set of MPANs will be reserved/allocated to be used for Testing Scenarios involving the registration messages and consumption.

7.8   Test Data – MPRS

In order to populate the Registration Services, four load mechanisms will be required (See section 7.3):

1. Mechanism #1 – IF/PUB Content Loader:

    a. The SI Data Lead to provide IF/PUB-031 and IF/PUB-034 json files to MPRS test managers to load to the test environment for the MPANs used for SIT testing.

    b. The SI Data Lead will ensure the registration data is associated and paired correctly with the Supplier, Meter Service and Data Service appointments.

2. Mechanism #2 – D message:

    a. SI Data Lead to provide text files containing DTN D flow D0312003 (without using the DTN).

3. Mechanism #3 – BAU:

    a. A set of MPANs will be reserved/allocated to be used for Testing Scenarios involving the registration business process and messages

4. Mechanism #4 – CSV:

    a. CSV files containing DB messages for updating LDSO data items. E.g. DB02 and DB05.

7.9   Test Data – SDS and ADS

For populating SDS and ADS test data, three load mechanisms will be required (See section 7.3):

1. Mechanism #1 – IF/PUB Content Loader:

    a. The SI Data Lead to provide IF/PUB-033, 035 and 036 json files to Data Services test managers to load to the test environment for the MPANs used for SIT testing.

    b. The SI Data Lead will ensure the registration data is associated and paired correctly with the Registration Service, Supplier and Data Service appointments.

2. Mechanism #2 – DTS Message Content Loader:

a. The SI Data Lead, while pairing SDS and ADS with Meter Services, will require the Meter Services to send DTS messages containing the meter technical details for the required MPANs

b. The SDS/ADS participant pre-loads the data manually or uses a script to load the inventory.

3. Mechanism #3 – BAU:

a. A set of MPANs will be reserved/allocated for Testing Scenarios involving the full business processes involving all registration messages.

7.10   Test Data – Metering Service

For populating Supplier Registration, Data Service Appointment and Metering Service Appointment, the SI will send data using the following load mechanisms (See section 7.3):

1. Mechanism #1 – IF/PUB Content Loader:

The SI Data Lead to provide IF/PUB-033 and 036 json files to Metering Service test managers to load the information for the allocated MPANs.

For the participant's allocated MPANS, each Metering Service shall load the test environment with test data taken from the Data Cut production backup. The Metering Services test environment will contain the Meter Technical Details (MTD) for the allocated MPANs.

If loading only the allocated MPANs to the test environment is not feasible for any technical reason, the participant may opt to load the content of all MPANs contained in the data backup.

The data shall contain all meter technical details required to generate DTS messages to the Data Providers.

7.11   Test Data – Suppliers

Supplier shall pre-load the test environment with test data taken from the Data Cut Production Backup.

1. Pre-load MPAN and Meter/Data service association:

a. The SI Test Data lead will provide a list/CSV file (load mechanism #4 – See section 7.3) containing the pairing between MPAN, Meter Service and Data Service. The list will contain the new augmented MHHS data. The SI Data Lead will ensure the alignment with Registration Service.

i. The SI Test Data Lead will provide additionally the same data in the IF/PUB-036 format (load mechanism #1 – See section 7.3). The supplier can decide which option to use.

b. The Programme Participant shall load the information to the test environment.

2. BAU:

a. A set of MPANs will be reserved/allocated to be used for Testing Scenarios involving the registration business process and messages

7.12   Test Data – Network Operators

Network Operators shall pre-load the test environment with test data taken from the Data Cut Production Backup.

For service providers allocations, two load mechanisms will be required (See section 7.3):

1. Mechanism #1 – IF/PUB Content Loader:

a. The SI Data Lead to provide IF/PUB-036 json files to LDSO test managers to load to the test environment for the MPANs used for SIT testing.

b. The SI Data Lead will ensure the registration data is associated and paired correctly with the Registration Service, Supplier and Data Service appointments.

    c. The SI Data Lead to provide IF/PUB-043 and 044 json files with Connection Type and Market Segment to LDSO test managers to load to the test environment for the MPANs allocated for those specific tests.

2. Mechanism #3 – BAU:

    a. A set of MPANs will be reserved/allocated for Testing Scenarios involving the full business processes involving all registration messages.

7.13   Test Data – UMSO

For populating UMSO test data, the participant shall extract and load the data from the data cut. The data shall contain all inventory information required to generate D0388 – Unmetered Inventory Data message.

For Registration messages received from the DIP, two load mechanisms will be required (See section 7.3):

3. Mechanism #1 – IF/PUB Content Loader:

    a. The SI Data Lead to provide IF/PUB-033 and 036 json files to UMSO test managers to load to the test environment for the MPANs used for SIT testing.

    b. The SI Data Lead will ensure the registration data is associated and paired correctly with the Registration Service, Supplier and Data Service appointments.

4. Mechanism #3 – BAU:

    a. A set of MPANs will be reserved/allocated for Testing Scenarios involving the full business processes involving all registration messages.

7.14   Test Data – UMSDS

For populating UMSDS test data, three load mechanisms will be required (See section 7.3):

5. Mechanism #1 – IF/PUB Content Loader:

    a. The SI Data Lead to provide IF/PUB-033 and IF/PUB-036 json files to UMSDS test managers to load to the test environment for the MPANs used for SIT testing.

    b. The SI Data Lead will ensure the registration data is associated and paired correctly with the Registration Service, Supplier and Data Service appointments.

6. Mechanism #2 – D Message Content Loader:

    a. The SI Data Lead, while pairing UMSDS with UMSO, will require the UMSO to send D0388 – Unmetered Inventory Data message to the UMSDS for the required MPANs

    b. The UMSDS participant pre-loads the data manually or uses a script to load the inventory.

7. Mechanism #3 – BAU:

    a. A set of MPANs will be reserved/allocated for Testing Scenarios involving the full business processes involving all registration messages.

7.15   Test Data – EES

EES will initially be populated in the test environment with test data from the data cut backup.

In order to populate the EES with the new MHHS data items, appointments of Meter and Data Service, if the MPRS refresh feature is not available, the following load mechanisms will be required (See section 7.3):

1. Mechanism #1 – IF/PUB Content Loader:

    a. The SI Data Lead to provide IF/PUB-036 json files to EES test managers to load to the test environment for the MPANs used for SIT testing.

    b. The SI Data Lead will ensure the registration data is associated and paired correctly with the Registration Service, Supplier, Meter Service and Data Service appointments.

-

7.16   Test Data – DCC

7.16.1   Central Switching Service (CSS)

DCC shall pre-populate the CSS test environment with data extracted from the Data Cut/Backup.

- A full backup of all MPANs is not required for SIT Functional. However, it is required that the CSS contains information for all LDSO SIT Participant MPANs.

    -
    - SI to send DCC list of MPANs to be re-assigned to different Agents/Suppliers
    - DCC to update Agent/Suppliers for the specified list of MPANs

7.16.2   Data Service Provider (DSP)

DCC shall pre-populate the DSP test environment with data extracted from the Data Cut/Backup.

- A full backup of all MPANs is not required from SIT Functional.
- SI to send DCC a list of MPANs to be load by DCC
    - The list will contain approximately 50,000 MPANs (not currently contained in the DCC test environment)
- DCC to update Agent/Suppliers for the specified list of MPANs
- DCC to load approximately 50,000 MPANs to the UIT-B Test Environment
- Connection with actual devices in a wall – not required
    - Stubs can be used for Sending Consumption messages.
    - DCC to emulate/generate consumption data (do not use real consumption).

7.17   Smart metering Data

Most test scenarios require historical consumption data. The data shall be generated using Data Generators. See section 7.5.

Note: the programme won't require consumption history for Smart Meters to be included in the Data Cut.

8   Test Data Anonymisation

Each PP will be allocated a set of suitable test data for each test case in the scope for their role.

All MPANs records used in testing will be allocated unique reference ID that will be used in all communications, including test results and defect logging in ADO.

Due to the MPAN being considered Personal Identifiable Information (PII), it cannot be shared outside of the System Test Environment. Ie: While the Real MPAN can be used in the IF/PUB or DTS messages transferred and processed in the test environment, it cannot be shared in communication means like email, test reports, bug triage, etc.

The programme will provide a table to all participants with Unique Ref ID for the allocated MPANs to be used in communication. For example:

- MPAN Core: 20 1234 1234 123

- Ref ID (For communications and reports): dfa4aba971c132ae07014206e6abb1c6

Note:

- The same anonymisation/obfuscation approach shall be used for Domestic and Non-Domestic participants.

- **NO real domestic consumption data will be used for SIT Tests.**

- Participants may use real non-Domestic consumption/generation to check their processes.

  - It is the responsibility of the participant to analyse the risks and impact of using real non-domestic consumption data in the test environment. The real consumption data may expose participants' business-sensitive information.

8.1 Test Data Anonymisation for Testing Reports and Test Evidence

As the MPAN is considered Personal Identifiable Information (PII) and cannot be shared in Test Reports and any evidence, logs or images attached to Azure DevOps. The participant needs to obfuscate the MPAN while keeping the ability of assurance teams to verify the content.

For Reports and Test evidences:

1. The participant shall remove or obfuscate the unique identifier digits of the MPAN – Digits 11 to 18 of the full MPAN (see Figure 6).

2. For image files, the participants can blur or overlay the unique identifier with any colour graphic shape (e.g.: a white rectangle covering the unique identifier digits).

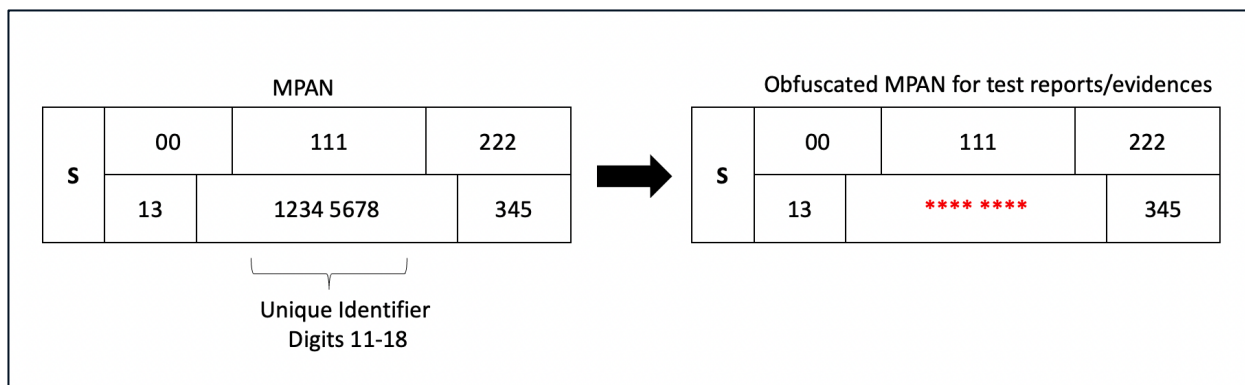3. The same obfuscation approach shall be applied for Domestic and Non-Domestic MPANs

Figure 6 – MPAN obfuscation for Test Reports and evidence

9 Test Data Schedule

Please, refer to [REF-02] MHHS-DEL1259 SIT Functional Testing Approach & Plan v0.1 for the SIT Functional Test Schedule.

Table 2: Functional Test Data Milestones

Milestone	Milestone Date
Test Data Cycle 1 - Loaded	26 January 2024
Test Data Cycle 1 - Ready	9 February 2024 Four weeks before SIT Functional Start – Cycle 1

| Milestone	Milestone Date
Test Data Cycle 2 - Loaded	28 June 2024
Test Data Cycle 2 - Ready	5 July 2024 One week before SIT Functional Start – Cycle 2
Test Data Cycle 3 - Loaded	6 Sep 2024
Test Data Cycle 3 - Ready	13 Sept 2024 One week before SIT Functional Start – Cycle 3
Test Data Cycle Regression - Loaded	18 October 2024
Test Data Cycle Regression - Ready	25 October 2024 One week before SIT Functional Start – Regression
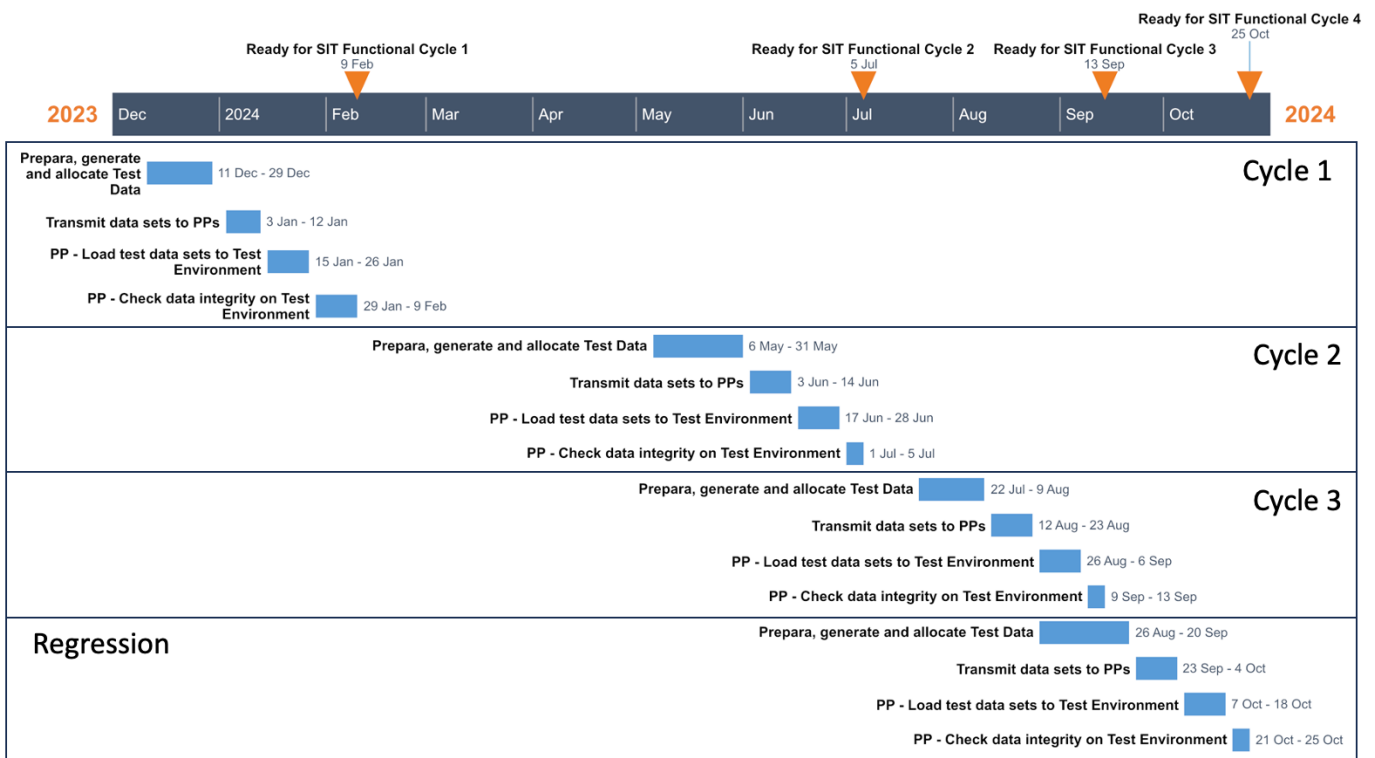
Figure 7: Functional Test Data Schedule

10 Appendix

N/A