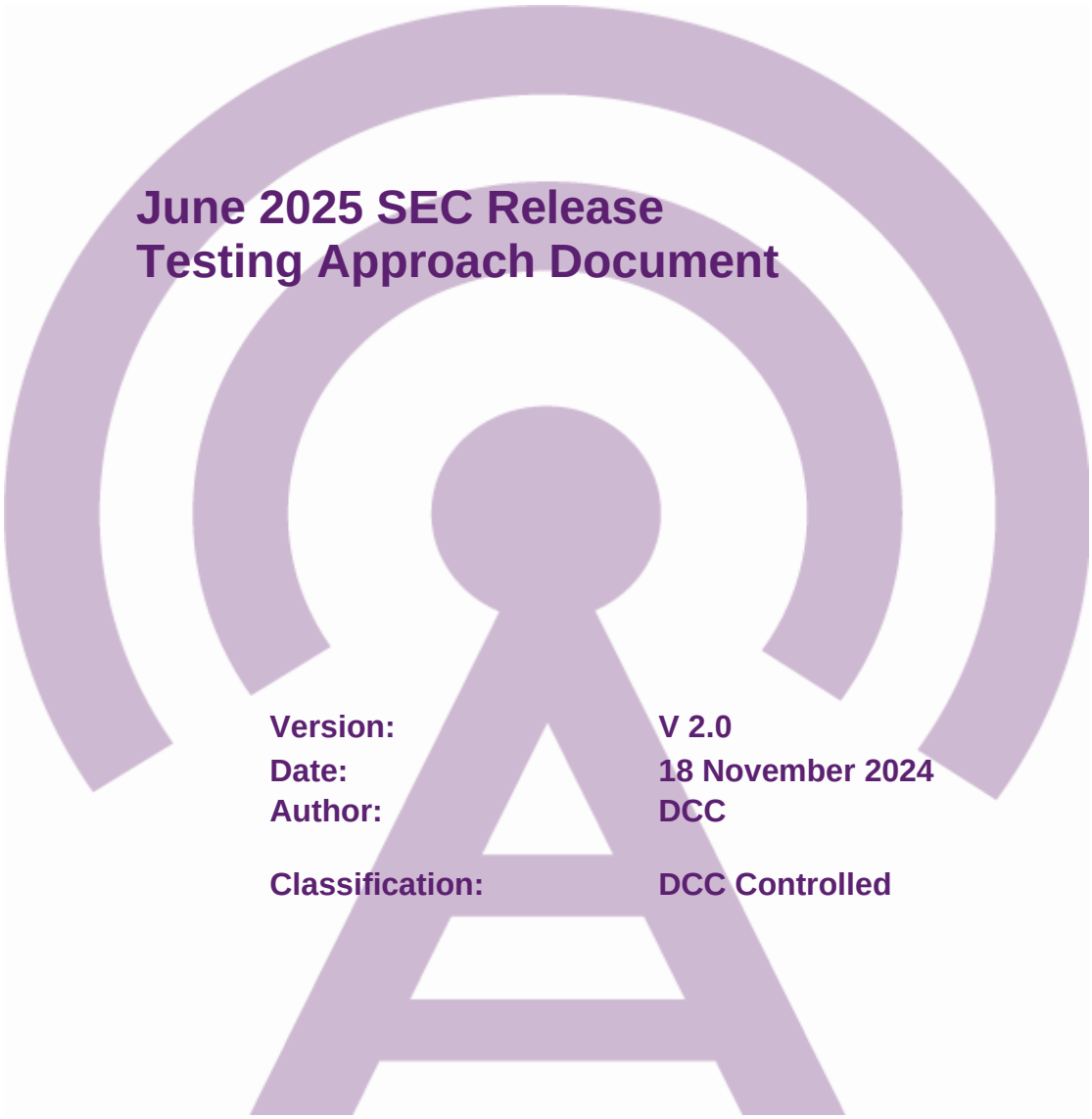


June 2025 SEC Release
Testing Approach Document

Version:	**V 2.0**
Date:	**18 November 2024**
Author:	**DCC**
Classification:	**DCC Controlled**

Document Control

Revision Date	Summary of Changes	Changes Marked	Version Number
18 September 2024	Initial Draft	n/a	0.1
07 October 2024	Internal Review	Yes	0.2
	Final Internal Review	Yes	1.0
	Submitted to TAG119 (30/10/2024 for review Issued for consultation (10 October 2024)	No	1.0
15 Novemebr 2024	Revised version addressing consultation responses received by DCC UIT environment to be used clearly defined throughout the document Update to the testing issue thresholds	Yes	1.1
18 November 2024	Published to TAG120	No	2.0

References

Table 1. References

Ref	Title	Source	Date	Version
1	Glossary of Testing Terms	ISTQB	Mar 2016	3.1
2	June 2025 Release Implementation Document https://smartenergycodecompany.co.uk/documents/sec/june-2025-sec-release-implementation-document-v2-0/	SECAS	5 September 2024	2.0

Where this document references sections of the Smart Energy Code (SEC), those references shall be construed by reference to any intended future variations to those Sections (and the SEC Subsidiary Documents associated with those Sections) which are due to take effect at the June 2025 SEC Release Go Live.

Abbreviations and Acronyms

This document uses standard testing terminology, a glossary of which can be found on the International Software Testing Qualification Board website www.istqb.org

In addition, the meanings of abbreviations and acronyms specific to Section A of the Smart Energy Code and DCC services and systems are shown below.

Table 2. Abbreviations and Acronyms

Abbreviation	Meaning
APC	Auxiliary Proportional Controller
CH	Communications Hub
CHTS	Communications Hub Technical Specification
CPL	Central Products List
CR	Change Request
CSP	Communications Service Provider
DBCH	Dual Band Comms Hub
DCC	Data Communications Company
DSP	Data Service Provider
DUIS	DCC User Interface Specification
ESME	Electricity Smart Metering Equipment
ETAD	Enduring Test Approach Document – Appendix J of the SEC
FAT	Factory Acceptance Testing
FOC	Final Operating Capability
GBCS	Great Britain Companion Specification
GSME	Gas Smart Metering Equipment
HAN	Home Area Network
HCALCS	HAN Connected Auxiliary Load Control Switch
HHT	Hand-held Terminal
IOC	Initial Operating Capability
MMC	Message Mapping Catalogue
MOC	Middle Operating Capability
PIT	Pre-Integration Testing
PPMID	Pre-Payment Meter Interface Device
SAPC	Standalone Auxiliary Proportional Controller
SBCH	Single Band Comms Hub
SEC	Smart Energy Code (The Code)
SECAS	Smart Energy Code Administrator and Secretariat
SI	System Integrator
SIT	Systems Integration Testing
SMETS	Smart Metering Equipment Technical Specifications
SMI	Smart Meter Inventory
SM WAN	Smart Metering Wide Area Network
SP	DCC Service Provider
SRV	Service Reference Variant
TAB	DCC's Test Assurance Board
TAD	Testing Approach Document
TAG	SEC Panel's Testing Advisory Group
TTM	Test Traceability Matrix
UIT	User Integration Testing

Glossary

Table 3 defines terms not listed in Table 2, or otherwise defined in Section A – Definitions and Interpretation - of the Smart Energy Code.

Table 3. Glossary

Term	Meaning
DCC Meter Protocol Emulators	Testing Stubs developed by DCC to emulate the functional aspects of smart metering Devices
Go Live	Deployment date of a change in production
Modified DCC Total System	Means the DCC Total System as modified in order to meet (or to be designed to meet) the DCC's obligations under the Code at the June 2025 SEC Release Go Live.

Table of Contents

1 Introduction

1.1 General

This is the Testing Approach Document to cover the changes being implemented as elements of the June 2025 SEC Release. This approach will be used in conjunction with the SEC Release Implementation Document for June 2025 SEC Release, in accordance with Section D and Section H.

The June 2025 SEC Release includes two system impacting and one documentation modifications:

- MP239: CR5170 – Enduring Solution for Resolving SMETS2 Device Certificate Misalignment Issue,
- MP246: DCC User Access to Metadata via the DCC Self-Service Interface (SSI)
- MP271: Sub-Committee seats for Other Users, Meter Data Retrievers and Registered Supplier Agents

This document sets out the information required of the SEC Release Testing Approach Document, Section D10.18 - D10.20 of the SEC, including the way testing will be conducted by DCC for the June 2025 SEC Release.

1.2 Approval of this Document

Section D10.20 of the SEC states that the DCC shall prepare and consult upon each SEC Release Testing Approach Document and any subsequent amendments. The Panel shall review each SEC Release Testing Approach Document and any subsequent amendments.

The Panel's Testing Advisory Group (TAG), in line with its Terms of Reference, provides support and advice to the Panel in relation to SEC Release Approach Documents.

The following process shall be followed:

- This document shall be produced by DCC, and a draft provided to the Panel's TAG for their review.

In parallel the draft document shall also be issued to SEC Parties for consultation. SEC Parties will have until 7th November 2024 to review and provide feedback via the DCC website. The link to this will also be provided on the SECAS website.

- DCC shall consider the feedback from TAG and the consultation and, where appropriate, will revise the draft document.
- The revised draft shall be presented to the Panel's TAG for recommendation to the SEC Panel for an approval decision.
- The SEC Panel shall consider the views of the TAG and shall:
  - Either Approve the Testing Approach Document
  - Or Reject the Testing Approach Document and specify to the DCC the areas requiring further work

1.3 Revision of this Document

For SEC Modifications and the DCC Change Requests, following approval of this document it:

- Shall be revised by DCC in accordance with any direction to do so made by the SEC Panel
- May be revised by DCC following consultation with the Panel's TAG, provided that:
  - Prior to making any such revision, DCC must present a summary of the views to the Panel's TAG and an explanation of how the DCC has taken them into account.
  - The document may not be revised to the extent that the Panel's TAG directs otherwise.
- May be revised by DCC without consultation where the revision is of a minor typographical nature, or where the revision does not have any material effect on the rights or obligations of SEC Parties or any other person who is entitled to undertake testing in accordance with this document.

2 Scope

Table 4. Testing Scope for June 2025 SEC Release

SEC Modification #			
MP239	Enduring Solution for Resolving SMETS2 Device Certificate Misalignment Issue	CR5170	PIT / SIT
MP246	DCC User Access to Metadata via the DCC Self-Service Interface (SSI)	CR5186	PIT
MP271	Sub-Committee seats for Other Users, Meter Data Retrievers and Registered Supplier Agents (Documentation change)	N/a	N/a

Note: The implementation of CR5186 will functionally tested in PIT, there is no requirement for further testing in SIT or UIT. The June 2025 SEC Release will modify the DCC Total System to accommodate the changes detailed in Table 4.

2.1 Documents for June 2025 SEC Release

Table 5 lists the links to the SEC modification documents that were used to create this Testing Approach Document for the June 2025 SEC Release.

Table 5. Referenced Documents for June 2025 SEC Release

SEC modification link	Number
https://smartenergycodecompany.co.uk/modifications/enduring-solution-for-resolving-smets2-device-certificate-misalignment-issue/	MP239
https://smartenergycodecompany.co.uk/modifications/dcc-user-access-to-metadata-via-the-dcc-self-service-interface-ssi/	MP246
https://smartenergycodecompany.co.uk/modifications/sub-committee-seats-for-other-users-meter-data-retrievers-and-registered-supplier-agents/	MP271
SEC Subsidiary Documents	SEC Appendix
DCC User Interface Specification	Appendix AD
Message Mapping Catalogue	Appendix AF
Definitions and Interpretations	Section A

2.2 Other DCC Testing Approach Documents

This Testing Approach Document and any related Solution Test Plans developed for this Release shall take precedence over other DCC Test documents for June 2025 SEC Release.

2.3 Out of Scope

The following assurance activities are outside the scope of the testing approach for the June 2025 SEC Release:

A. Testing of firmware for Meters and Other Devices (individual manufacturers are responsible for this activity).

B. DCC is not responsible for proving Devices are compliant with SMETS1 and SMETS2 requirements.

C. Testing of the Home Area Network (HAN) except for:

I. Its interaction with the Modified DCC System.

II. Where the HAN is tested as part of System Integration Testing and User Integration Testing.

III. Testing the inter-changeability of Devices connected to the Home Area Network.

3 Governance Approach

The June 2025 SEC Release will follow a standard Release Management approach through the B stream environments.

MP239 (CR5170) will however be delivered in two phases. Phase 1 which includes changes to enhance the DSP certificate confirmation scheme (CCS), will be delivered via the A stream during a maintenance release prior to the June 2025 SEC Release.

The enhancements to the CCS will enable the delivery of MP239 capabilities during the June 2025 SEC Release. These changes will be governed by an Approach to Testing document that DCC will seek approval on from the TAG.

3.1 PIT

PIT will be conducted in the SPs PIT environment and will follow the standard governance approach of a DCC's Test Assurance Board (TAB) agreeing:

- PIT Completion for the DSP delivery; and
- Suitability for promotion into SIT-B.

Post agreement by TAB, the PIT Test Completion Report will be provided to the TAG for information.

At present only one deployment of code / configuration change is planned to be taken into SIT-B. All PIT deliveries and TAB are due to be completed prior to SIT execution commencement.

Note: No Emulator assurance is required for the June 2025 SEC Release, there are no impacting device changes as part of this release. In addition, the previous Emulator version (A.2.0.7) remains unchanged.

3.2 SIT

SIT will be executed in the DCC's SIT-B Environment and will follow the standard governance approach of a (TAB) agreeing:

- SIT completion; and
- suitability for promotion into UIT-B.

Post agreement by TAB, the SIT Test Completion Report will be provided to the TAG for approval.

3.3 UIT

UIT will be executed in DCC UIT environments (UIT-A & UIT-B). The UIT environments shall be made available in accordance with the Enduring Test Approach Document (ETAD).

- UIT-B will enable Parties to test the June 2025 SEC Release functionality for a time boxed 6-week User Testing window

3.4 Path to Live

Path to Live will follow the standard Release Management approach which would see code moved from SIT-A into UIT-A prior to go live and account taken of any findings from User Testing in the UIT environments (UIT-A & UIT-B).

4 Objectives of Testing

4.1 Testing Objectives

The following testing objectives shall apply:

1. Demonstrate that the changes brought into the DCC System by the in-scope items conform to the requirements and do not have any adverse impact on the DCC system

2. Demonstrate that DCC and the component parts of the Modified DCC System and Devices compliant with GBCS technical specifications can operate and interoperate with each other, and with User Systems and to the extent necessary that DCC can comply with its obligations for Security and DCC Services

3. Enable (to the extent that it is reasonably practicable to do so for the June 2025 SEC Release Go Live) Users to test the interoperability of their User Systems with the Modified DCC System together with selected versions of SMETS2 Devices on the CPL or Emulators

4. Demonstrate that Users can continue to successfully install and commission and operate Devices on the CPL using the Modified DCC System

5. Demonstrate that the Modified DCC System can operate successfully within the wider Smart metering ecosystem comprised of multiple Devices operating to different technical specifications in a consistent manner

6. Test end-to-end communication from an authorised User device and back again for all technical specifications in operation, together with security modules

7. Verify that all other functional changes that are part of the June 2025 SEC Release are functionally correct including consequential amendments

8. Ensure that the changes do not materially adversely impact the security risks associated with the Modified DCC System, and that any changes impacting security are identified, tested (where necessary), and accepted. Consideration should be given to the security capabilities in the DCC security architecture including the protection of data and infrastructure.

In respect of the testing objectives described above references to the Smart Energy Code shall be construed as a reference to the version of the Smart Energy Code (including any Subsidiary Documents) which is due to have effect with the June 2025 SEC Release.

5 DCC System Changes and Testing Approach

This section describes the change and testing approach for each testing phase, provide a release timeline. It also provides information on device selection and an environment usage overview.

MP271 is not included in this section as it is a document only change and cannot be tested.

5.1 High Level CR Detail

The elements below form the high-level areas of change which will be applied in the June 2025 SEC Release.

The Functional Heatmap will be provided and added to Appendix A when available. This will detail the SRs, SRVs, Alerts, and other scenarios which will be tested for the changes in the June 2025 SEC Release.

Below is a summary of the specific detail for each change and the high-level view of testing of June 2025 SEC Release new functionality.

MP239 (CR5170) – Enduring Solution for Resolving SMETS2 Device Certificate Misalignment Issue.

As part of Post Commissioning Obligations; Suppliers, and WAN Providers must update the Device certificate. However, for approximately 120,000 cases (as of March 2023), the success response was not processed or received by the Data Service Provider (DSP), causing a certificate misalignment that makes the Device incommunicable.

Without a long-term solution, Suppliers must manually correct each impacted Device. Otherwise, the Devices will not process Service Requests, receive responses, or validate Alerts. This limitation prevents actions such as supporting a Change of Supplier (CoS) and restricts prepayment customers from performing top-up operations. Additionally, each change must be made individually by the DCC, as batch changes are not currently possible.

The CR5170 changes will affect the DSP and DCC Data Science and Analytics (DS&A) by modifying the Certificate Confirmation Scheme (CCS) to resolve uncertainty regarding device Key Agreement (KA) certificates. The solution will attempt retrieval using each possible certificate until the correct one is identified and will enhance Service Audit Trail (SAT) logging to indicate the current stage of CCS processing. It will also introduce a report on devices with potentially incorrect certificates and allow SSMI users to set the "in use" certificates.

The CR5170 will be delivered in two phases as per DCC’s Full Impact Assessment (FIA) which is included the final Modification Report.

Phase 1

Phase 1 will enhance the certificate confirmation scheme (CCS). The Certificate Confirmation Action will be amended so that the processing will loop through each candidate device KA certificate and ACB certificate combination, and on successful response will set the device KA certificate used in the successful request as “in use”.

Phase 1 will also provide a new screen in the SSMI to allow an authorised DCC employee to upload a list of devices for which the CCS should be invoked.

Phase 1 functionality will be delivered via a maintenance release prior to the June 2025 SEC release. This will be governed by an Approach to Testing document (AtT).

Phase 2

Phase 2 will add the enhanced CCS to the install and commission process, and will provide a new screen in the SSI to allow an authorised User (the Responsible Supplier) to request the enhanced CCS to be invoked for a single device.

Phase 2 functionality will be delivered via the June 2025 SEC release and is governed by this Test Approach Document.

MP246 (CR5186) – DCC User access to metadata via the DCC Self-Service Interface

To access metadata for a Device, SEC Section I 1.4 requires all DCC Users to obtain Unambiguous Consent from the relevant Energy Consumer. Currently, compliance with this requirement is only verifiable for "Other Users" through an annual Privacy Assessment. Although all DCC Users are permitted to access metadata, it cannot be confirmed that they have obtained the necessary consent. The SEC Panel has clarified that the intent was never for Other Users to access metadata.

The current issue is that Energy Consumers' metadata can be accessed by DCC Users without obtaining the required Unambiguous Consent, breaching SEC Section I 1.4. This includes the risk that Consumption Data could be captured by unauthorised Users. To address this, the proposed modification will prevent Users from accessing the Meter Read Transactions (MRT) screen within the DCC SSI application by removing all related code, effectively eliminating the MRT function.

The impacted parties include large and small Suppliers, Electricity Network Operators, DCC, and Other SEC Parties. The benefit of this modification is an improved quality of service by ensuring that metadata can only be obtained via the SAT, reducing the risk of SEC breaches.

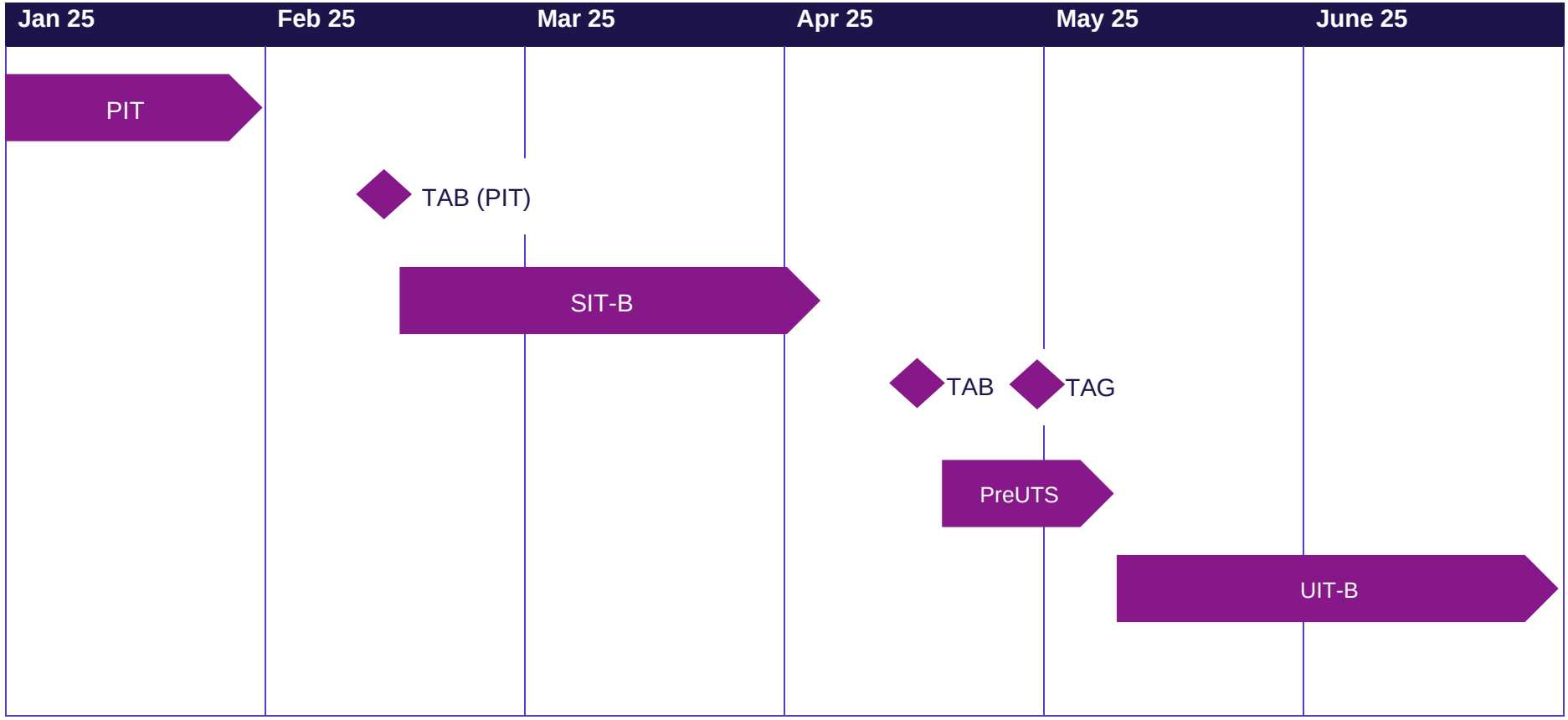
The implementation of CR5186 will functionally tested in PIT, there is no requirement for further testing in SIT or UIT.

As part of the June 2025 SEC System Release the Meter Read Transactions screen (UC_MeterRead_001) will be made inaccessible from the SSI and SSMI applications.

As part of a subsequent maintenance release, the code related to the Meter Read Transactions screen will be removed, targeted for the September 2025 Maintenance Release.

5.2 Draft High-Level Plan

A draft high-level final plan for the June 2025 SEC Release as of 16 September 2024 is shown below. The plan is separate to the Test Approach Document, and TAG will be advised of any material changes.



5.3 Device Selection

The DCC shall recommend which of the existing Devices that are in use in production shall be employed to test the June 2025 SEC Release against.

Emulators will be used for changes which require SMETS2 Devices as outlined in this Test Approach Document, and where real Devices are not yet available in the CPL or the EPCL.

5.4 Description of Test Phases

The June 2025 SEC Release changes will be delivered using a waterfall delivery methodology. The approach to testing of the June 2025 SEC Release will include defined Test Phases.

Table 6 contains the Test Phases / Stages, whether or not a stage is mandatory, organisations involved in delivering testing and the environments to be used.

Table 6 – Testing Phases and Stages

Test Phase	Test Stages	Mandatory (Y/N)	Organisation Involved	Environment Used
PIT	System Test (to include FAT)	Y	DSP DCC	PIT
SIT	Solution Test	Y	DSP CSPs DCC	SIT-B
UIT	UIT Proving / Pre-UTS	Y	SI DCC	UIT-B UIT-A
	User Test	N	Service Users DCC	UIT-B
	User Test	N	Service Users DCC	UIT-A

Note: System capacity testing requirements have been assessed for the June 2025 SEC Release, and as the changes in this release do not materially impact the use of the DCC Total Systems it is deemed that System Capacity testing is not required.

The Test Phases are as follows:

The Pre-Integration Test (PIT) phase covers:

The testing by DCC Service Providers, undertaken individually, to verify that the solution meets the requirements. The DSP and is the only Service Provider that are in scope for June 2025 SEC Release.

Systems Integration Testing (SIT) consists of:

- Solution Testing by DCC Service Providers collectively, to verify the end-to-end functionality using Devices and where not available, Emulators. It also confirms interoperability between the modified DCC System and existing Devices in production.
- Service Provider System Integration Testing to initiate the Quality Gate Review for exiting the SIT phase.

User Integration Testing (UIT) allows:

- Users to test their systems and Devices with the Modified DCC System before changes are made available in the production environment.
- UIT Proving/Pre-UTS will be completed following code deployment into the UIT environments (UIT-A & UIT-B) to test the CR changes and regression testing the UIT environments. The critical aspects of this testing will be completed ahead of opening the service to Testing Participants
- For the June 2025 SEC Release, Users with Devices deployed in Production will be invited to undertake testing of their systems against the Modified DCC Solution and to self-certify the results of this testing to the DCC.
- Users will be invited to complete regression testing before moving to the new June 2025 SEC Release.

5.5 Delivery of Test Phases and Stages

The execution of the testing to support the June 2025 SEC Release will be undertaken in appropriate test environments as per Table 6.

The Test Phases and Stages to support the June 2025 SEC Release will be subject to the DCC quality gating process including the DCC Test Assurance Board (TAB) for Test Phase exits.

The SI will manage the usage of environments (except Service Providers' PIT environments). Should there be any contention in resources this will be escalated to the DCC for determination and any impact notified to Testing Participants.

6 Test Phase Activity Description

This section defines the testing activities and assurance requirements for individual Test Phases.

The provision of the testing deliverables detailed in Section 8 of this document shall ensure that these requirements and focus areas are suitably covered by each DCC Service Provider and each Test Phase and are assured accordingly. All requirements and deliverables for each phase shall ensure that the test objective is met.

6.1 Requirements & Focus Areas for Pre-Integration Testing

The PIT Phase for the June 2025 SEC Release is required to provide assurance of the quality of the Service Provider solutions early in the development cycle.

As an overall requirement, all testing which can be reasonably, and cost effectively undertaken prior to SIT should be undertaken in PIT. Should any testing initially planned for the PIT Phase prove to be untestable during that Test Phase then the test(s) will be added to the scope of testing to be conducted during the SIT Phase. Any such movement will be reported to TAG.

For the June 2025 SEC Release all changes will be delivered and tested in PIT for all the impacted Service Providers.

Table 7 PIT Requirements

Ref	Requirement
PIT.1	DCC Service Provider PIT shall cover all functional areas impacted for testing the June 2025 SEC Release.
PIT.2	DCC Service Providers shall produce and maintain individual PIT approach documents, the System and FAT plans, and shall produce test completion reports and Work off Plans.
PIT.3	DCC Test Assurance will perform assurance activities in PIT across all activities except unit and link testing, as subsequent activities within PIT provide assurance of outputs from those tests.
PIT.4	DCC Test Assurance shall review the PIT test cases for the DSP, where used, for appropriateness and to ensure functional coverage.

6.2 Requirements & Focus Areas for Systems Integration Testing

SIT for the June 2025 SEC Release shall be planned and based on successful testing in PIT. It shall confirm the successful integrated operation of the Service Provider solutions and shall support delivery of final, assured code for User testing.

Solution testing for MP239 is in scope for SIT.

No further functional testing is required in SIT over and above the functional testing in PIT for MP246. Regression testing will verify no adverse impact to the DCC system as a result of MP246 changes.

The SI shall produce a SIT Approach Document detailing the testing to be undertaken during this Test Phase. This document shall be reviewed and assured by the DCC and shall be shared with the Panel's TAG for information in support of the Test Completion Report.

6.2.1 Testing in SIT

Table 8 SIT Requirements

Ref	Requirement
SIT.1	SIT will be undertaken using scenario testing and will ensure that Service Requests are validated for the correctness and consistency of content, alongside the correctness of formatting.
SIT.2	SIT coverage will be proved using a test traceability matrix. This will be used to review SIT progress.
SIT.3	SIT will be designed to make use of automation where practicable to improve testing throughput rates.
SIT.4	SIT will use agreed Devices available in CPL and/or EPCL to perform the Service Request testing.
SIT.5	SIT will include verification of the correct operation of all modified interfaces in the Modified DCC System.
SIT.6	SIT will include verification that the correct end-to-end data is contained in all relevant DCC enterprise system produced report feeds.
SIT.7	Where SIT makes use of the DCC SIT and UIT Emulator, testing must include emulator configuration to provide valid data in a Service Response. A blank / null response cannot result in a passed test. The response **must** include valid data that can be successfully parsed and, where relevant, decrypted, to prove the response data received is as expected based on the emulator configuration for that test.
SIT.8	SIT will ensure that the agreed selection of Devices and Emulators are installed and commissioned in the test environment prior to the deployment of the changes, then deploying the code and carrying out regression testing of the existing functionalities only for backwards compatibility.
SIT.9	Functional Regression Testing will be executed to ensure a change or fix release has not regressed previously passed tests.
SIT.10	Final Functional Regression Testing Cycle will be executed at the end of the Test Phase to ensure repeatability of test results to the most recent prior run
SIT.11	System Regression Testing will be executed to ensure the current production baseline of functionality has not been adversely impacted

6.2.2 Service Provider Witness Testing in SIT

The SIT Phase includes Witness and/or Evidence Testing which allows DCC to witness and or/evidence an agreed subset of the tests carried out in SIT either real time or via post event evidence reviews.
The DCC Systems Integrator will provide DCC with a schedule of when and where tests will be executed and invite DCC to witness via video conferencing giving at least 1 Working Days' notice should there be a change to the agreed schedule.
Witnessing of the test execution, or reviewing evidence of executed tests, will adhere to three key rules.

1. There will be no deviation from test scripts
2. There will be no hands-on execution by the witness
3. Where a gap in testing is witnessed, this will be recorded as an observation for further testing

Witness Testing will be reported by DCC before SIT exit on test completion, test failures and test pass rate as part of SIT Testing.

6.3 Requirements and Focus Areas for User Integration Testing

The provision of User Integration Testing (UIT) environments (UIT-A & UIT-B) and associated services is part of DCCs ongoing activities. This section describes the specific requirements and focus areas for the June 2025 SEC Release.

DCC shall provide a Testing Window (User Testing Window) that allows Users to test the interoperability of its User Systems and Devices (or Emulators where needed) with the Modified DCC System (including via the Self-Service Interface). environments (UIT-A & UIT-B) shall be made available in accordance with the Enduring Test Approach Document (ETAD)–Appendix J of the SEC. Following Code promotion into the environments (UIT-A & UIT-B), environment, DCC will undertake UIT Proving / Pre-UTS to test the upload prior to opening the environment for User testing of the June 2025 SEC Release. DCC shall ensure that all critical tests are completed prior to declaring that the User Testing window is open.

There will be a minimum 6-week period between the completion of priority Pre-UTS and promoting functionality to live operations, where Users will be asked to volunteer to demonstrate that they can successfully operate the new June 2025 SEC Release functionality prior to the release going into production. Users can also carry out User Regression Testing to demonstrate that the June 2025 code does not adversely affect their existing production service. Findings that are shared with DCC by Users will be reviewed by DCC and presented for consideration as part of the Go Live governance.

Whilst Testing Participants may carry out regression testing immediately following the promotion of code into the User Test environments, they are asked to wait until the Testing window is declared open prior to testing any new functionality delivered as part of the June 2025 SEC release.

Should DCC need to reduce the 6-week time boxed User Testing window period, then DCC will present its proposal and rationale to TAG for their agreement. Where TAG agrees to DCC's proposal, then the reduced period shall be adopted. Where TAG and DCC disagree on the duration, then the matter shall be referred to the SEC Panel for determination. Where a reduction to the planned 6-week period is agreed, or a change is made to its planned start date, this shall be promptly communicated to Test Participants.

Table 9 UIT Requirements

Ref	Requirement
UIT.1	UIT will enable Parties to test the June 2025 SEC Release functionality for a time boxed 6-week User Testing window.
UIT.2	UIT will be planned for Parties to be able to test against their systems and Devices ahead of the Release “Go Live”
UIT.3	The deployment of releases into UIT will be subject to specific entry criteria and DCC governance to ensure minimal risk of disruption to ongoing participant testing in the environment
UIT.4	UIT shall include the capability for Users to verify their end-to-end data is operating correctly over DUIS
UIT.5	Volunteer Users with Devices deployed in Production are asked to confirm at least 20 Working Days prior to the start of the UIT Window; • whether they intend to test during the UIT Window and if so, • what they intend to test (eg Regression, new functionality, and impacted SRs) and how much they plan to complete within the UIT Window

It is noted that DCC maintains its obligations to provide and support an integrated environment for the purposes of User Testing, which includes ongoing assurance of the provision of DCC Test Lab and Remote Test Labs used within UIT and demonstrating that the UIT environments (UIT-A & UIT-B) are secure.

6.4 System Capacity Testing

System Capacity testing requirements have been assessed for the June 2025 SEC Release, and as the changes in this release do not materially impact the use of the DCC Total Systems it is deemed that System Capacity testing is not required.

6.5 Security Testing

No specific Security Testing is required over and above the functional testing planned, however, due to the nature of the changes, test results will be reported to DCC Security for review and will be recorded in the both the PIT phases and the SIT phase Test Completion Reports.

7 Test Activities

For each Test Phase, the following activities will be performed:

- Prepare and maintain Solution Test Plans
- Implementation of the testing infrastructure
- Test Phase planning
- Identification of appropriate test scenarios
- Design of test scripts
- Produce a test specification document
- Produce a test traceability matrix, or equivalent
- Design and preparation of test Data, including loading of test Data into the test environment
- Preparation of a test execution schedule
- Execution of testing
- Performance quality gate reviews
- Test Issue management
- Test Issue resolution
- Release management
- Configuration management
- Test progress reporting
- Production of a Test Phase Completion Report
- Test assurance of third-party components
- Definition and execution of a Work off Plan
- Test metrics collected for each test run, execution time, triage cycle time and daily volume report for Test Assurance

7.1 Test Method

For the June 2025 SEC Release, DCC continues to seek further improved testing throughput. By making more effective use of automation in DCC are aiming to increase throughput and regression coverage. DCC shall also seek to measure the effectiveness of the use of automation in SIT across releases by collecting metrics that quantify the coverage and efficiency of automation throughout the overall test pack, which will include both functional and regression tests. More detail will be provided in the SIT approach document, including reporting to demonstrate that expectations around the use of automation have been met.

For manual and automated testing, DCC shall use scenarios based on DCC SMETS2 Business scenarios. The supporting test phase approach documents will specify the detailed testing methodologies employed in each test phase.

Test design for June 2025 SEC Release will have the following critical areas for testing:

- Devices are installed and commissioned in the test environment prior to the deployment of the changes, then deploying the code and carrying out regression testing of the existing functionalities only for backwards compatibility.
- Devices can be installed and commissioned and can operate as per the requirement using the changed code.
- Changes introduced as part of the June 2025 SEC Release are working as per the requirement.

Priority, within the design of testing for the June 2025 SEC Release, shall be on:

- The changes introduced by the scope of the Release
- The functionality and Service Requests that are of highest risk to Users in the production system
- Validating there is no adverse effect on the existing Devices in the DCC system. These will be derived from the heat map and the TTM

Testing will cover both functional and non-functional aspects of the dynamic interaction between solution elements and shall cover, to an agreed level, the DCC Service Request variables – User Role, Command Variant, and mode of operation. Where a changed interface is to be tested, all associated or impacted interfaces shall also be tested. Similarly, testing should account for all elements of the Modified DCC System, for example the internal DCC-Enterprise components that support billing and reporting.

In general, testing with combinations of real Devices will form the basis of a default test setup. Testing with Emulators, which are yet to be introduced into the CPL or EPCL, in SIT shall in general only be conducted where Devices are unavailable to be tested. Where testing makes use of the SIT emulator necessary, testing shall include emulator configuration to provide valid data in a service response. Where new emulator functionality is required, the device will be subject to testing and assurance.

Note: There is no new, device impacting, functionality being delivered in the June 2025 SEC Release. DCC will therefore utilise devices, and emulators where real devices are not available. The emulators that will be utilised have been tested and assured for the November SEC Release, and the GBCS v4.1 Programme.

The tests planned to be executed using an emulator will be reviewed against the known Testing Issues identified against the Emulators. Where the recorded emulator issues could impact the planned tests, then DCC will look to employ alternative Devices available to complete the test. Should this prove impossible, then DCC will promptly discuss with TAG the impact of this on the overall planned testing.

In relation to the design of testing for SIT, consideration has been given to the coverage of DUIS and how testing between regression and new elements is balanced across the interfaces and Communications Hub types and CHTS versions.

7.2 Test Scenarios

Test scenarios may, within the context of the individual Test Phases, be represented by defined sequences of Service Requests and/or other relevant activities.

Each Test Phase will define test scenarios as a deliverable as appropriate, but as a minimum the definition of test scenarios will include:

- Description
- Responsibility for development
- Type (Normal, Exception, Alternative)
- Pre-requisites
- Test conditions
- Verification method
- Traceability to requirements (or use case for DSP PIT)
- Test variations – User Roles, Communications Hub, mode of operation, Command variant, Device, DUIS and GBCS versions

The definition of Test Scenarios for SIT shall include and consider:

- Key common scenarios that will be experienced by the Parties in production
- A relevant subset of scenarios (or Service Request sequences) to reflect Network Operator Party use cases

For SIT, DCC following the start of SIT shall provide an update in the weekly SEC Report, and to the monthly TAG meeting.

Test Scenarios may be updated to take account of activities from live operation, subject to suitable change controls.

Test scenarios must cover exercising all modified / impacted interfaces in DCC Systems in an end-to-end manner verifying functionality as well as that the data is reported correctly.

Where Emulators are needed to be used, test scripts should define the required emulator configuration to provide valid data in a Service Response.

7.3 Regression Testing

7.3.1 Functional Regression Testing

- Predominantly exercises functionality, which is specific to the change being implemented, i.e. not yet existing in Production
- Run on an as required basis where a fix release or change is deployed in SIT
- Intended to ensure the change / fix release has not regressed previously passed functional tests
- Typically scoped in a targeted manner after assessing the change / fix release

7.3.2 System Regression Testing

- A suite of tests which exercises the current baseline of functionality which already exists in Production
- Executed daily on a rolling basis across both SIT-A and SIT-B
- Intended to ensure that the introduction of a change does not inadvertently impact existing functionality
- The test suite is maintained when any material functional change is made to Production

Table 10 – Regression Testing Devices

DUIS	P&C	CH/MMC	Devices
5.2	D5-G4-4.1	GBCS 4.1CH (CHTS1.4(CHM2))	S2v4.2 / S2v3.1
5.2	D5-G4-4.1	GBCS 3.2CH (CHTS1.3)	S2v4.2 / S2v3.1
5.2	D5-G4-4.1	GBCS 2.1CH SBCH/DBCH	S2v4.2 / S2v3.1
5.1	D5-G4-3.0	GBCS 3.2CH (CHTS1.3)	S2v4.2 / S2v3.1
5.0	D5-G4-3.0	GBCS 3.2CH (CHTS1.3)	S2v4.2 / S2v3.1
4.0	D5-G4-3.0	GBCS 3.2CH (CHTS1.3)	S2v4.2 / S2v3.1

8 Deliverables

DCC will follow the testing documentation practices established for earlier releases. These are described at a high level in this section, and specific enhancements and requirements for the June 2025 SEC Release are highlighted.

8.1 By Test Phase

Various deliverables will be produced for each Test Phase. The Test Phase Approach Documents will detail the deliverables required for the individual Test Phase.

The relevant Service Provider for each individual Test Phases will create the deliverable, which will be subject to the established governance processes. Below is a list of responsible Service Providers for various test phases.

- PIT – DSP
- SIT – DCC Systems Integrator

Table 11 describes the generic content and anticipated timing of the deliverables that may be required to be produced for each Test Phase

Note: Pre-UTS is an activity performed by the UIT team, to facilitate the opening of User Testing window.

Table 11 – Deliverables

Deliverable	Description	Test Phase	Timing
Detailed Test Plan	Describes the relevant test phase: the activities, participants, resources, roles and responsibilities, assurance requirements, reporting, success criteria, and other information relating to the execution of the Test Phase. Where relevant, the Test Phase Approach Documents shall also define the entry and exit criteria, and the basis of any risk for regression	PIT SIT Pre-UTS	Following any review cycles, a definitive version shall be submitted to DCC by the relevant DCC Service Providers including CSPs, S1SPs, DCO no later than (10) Working Days before the commencement of test execution.
Test Specifications	Test Traceability Matrix, Test Scenarios and Heatmap	PIT SIT	To be provided to DCC-by-DCC Service Providers including CSPs, S1SPs, DCO no later than (10) days before the commencement of test execution
Test Results	Details may vary by Test Phase – report content and frequency will be defined by the Detailed Test Plan	PIT SIT Pre-UTS	Made available by DCC Service Providers including CSPs, S1SPs, DCO for review by DCC throughout test execution
Test Issue Log	Outstanding Testing Issues	PIT SIT Pre-UTS	Made available by DCC Service Providers including CSPs, S1SPs, DCO for review by DCC throughout test execution

Deliverable	Description	Test Phase	Timing
System Regression Test Pack	A Regression Test pack is a set of test cases run to ensure the core product remains unaffected by new feature additions.	PIT SIT	Access granted to DCC-by-DCC Service provider including CSPs, S1SPs, DCO to review beforehand and monitor throughout
Test Phase Completion Report	Will follow the format and content established for earlier DCC releases and will include. • Overview of testing undertaken and confirmation of test coverage and traceability • Actual number of tests run, passed, failed, and not run • Explanation of any tests not run • Testing Issue IDs and details of the associated failed tests • All the Open Testing Issues outstanding, split by severity • Number and severity of all Testing Issues raised • Explanation of any Testing Issues which have been closed without a fix and successful retest • Specification of test environments, Devices and firmware used • Recommendations for any tests to be added to the next Test Phase • Lessons learnt during the Test Phase	PIT SIT Pre-UTS	DCC will work closely with the DCC Service Providers including CSPs, S1SPs, DCO during test execution window to ensure the completion report is issued on the final day of testing.
Test Scenarios	Shall comprise of planned and sequenced series of Service Requests.	PIT SIT	To be available from DCC Service Providers including CSPs, S1SPs, DCO at the same time as the finalised Solutions Test Plan
Work off Plan	A plan to resolve (fix, retest and close) all assigned outstanding issues. Once the fix is made available, retesting of the issue should be completed within 5 Working Days.	PIT SIT PreUTS	To be provided to DCC-by-DCC Service Providers including CSPs, S1SPs, DCO with the final Test Stage Completion Report.

8.2 Requirements Traceability

The DCC will provide a Requirement Traceability Matrix (RTM) detailing the requirements for each change. This will be provided to the SI. The test teams will use this RTM to generate the required Test Traceability Matrix (TTM).

The DSP will use their own tools to manage their requirements and demonstrate traceability to both the solution design and the Pre-Integration Tests. The DSP will provide DCC with a PIT TTM, extracted from these separate tools.

For the changes that are being implemented by other Service Providers including CSPs, S1SPs, DCO (where applicable) will provide DCC with a PIT TTM individually, mapping requirements to test cases planned for execution.

The scope of testing in both PIT and SIT will be validated by use of a TTM, setting out how each requirement within the scope of the release is met. Should any testing initially planned for PIT be untestable during that Test Phase the test(s) will be added to the scope of testing to be conducted during SIT. Any such movement will be reported to TAG.

The TTM will be generated by the SI, based on the updates to the specifications listed in section 2.1, and will consider the resulting impact of those changes and resulting co-existence of enrolled Devices operating to different variations of versions of those specifications as well as current version of those specifications. Production of the TTM is a requirement for SIT to commence.

At the completion of SIT, any additional tests which have been created during SIT will be added to the TTM.

The TTM will be used by DCC to demonstrate the completion of SIT, alongside the heat map.

9 Test Procedure

This section describes the requirements for the testing process to prove the solution for June 2025 SEC Release.

The Solution Test Plans will define specific Entry and Exit Criteria for the individual Test Phases, with generic requirements for these described below.

The Solution Test Plans will also define specific entry and exit criteria for individual Test Phases, the governance process relating to the approval of the criteria, and the evaluation of success against them.

9.1 Generic Entry and Exit Criteria

Progression through Testing Phases for the June 2025 SEC Release will be gated using generic and specific Entry and Exit Criteria.

The Solution Test Plans will provide detail of the evidence to be gathered in the form of an evidence pack.

9.1.1 Generic Entry Criteria

The following generic Entry Criteria will gate the entry to all Test Phases:

Table 12. Generic Entry Criteria

Entry Criterion	Description
GeEn 1	Solution Test Plans signed off
GeEn 2	Test Phase Completion Certificate for any preceding Test Phase issued, unless advanced agreement from TAG that the Test Phases may overlap
GeEn 3	Solution Test Plans signed off
GeEn 4	Test Specification and heat map prepared, including traceability to Requirements / Design documents
GeEn 5	Test labs, Devices, tools, stubs, environments, and data are assured and accepted as fit for purpose, including external assurance, where applicable
GeEn 6	System Regression test pack has been prepared or updated
GeEn 7	DCC and all relevant Service Providers have confirmed they have resources with the requisite skills and access available to support the Test Phase
GeEn8	Approval to proceed certificate issued by DCC, where contractually required, unless the plan states that Test Phases may overlap, ie from PIT to SIT, where Work-Off plans are in progress

A device selection process will be used to select a subset of Devices, from the CPL, to be used for testing. These Devices will be used to successfully complete SIT

In the case of User Testing in UIT there will be no Test Plan, or Test Specification.

9.1.2 Exit Criteria

The following Exit Criteria will gate the exit of PIT and SIT. All test success criteria are to be achieved, with any exceptions documented and agreed by:

- TAB for PIT
- TAB and TAG for SIT

Table 13 Exit Criteria

Exit Criterion	Description
Ex 1	Scope • Any variations to the scope of testing set out in this TAD documented and agreed
Ex 2	Functional Testing • All planned functional tests run, with any exceptions documented and agreed • A minimum of 90% of functional tests passed
Ex 3	System Regression Testing (SIT only) • Regression testing successfully completed with no new Testing Issues identified • Any exceptions documented and agreed with TAB and TAG
Ex 4	Final Functional Regression Test Cycle (SIT only) • No new Testing Issues detected • Repeatability demonstrated. • Any exceptions documented and agreed with TAB and TAG
Ex 5	Testing Issues • Any Testing Issues closed without a successful retest agreed • Any discounting of Testing Issues agreed • The number and severity of any outstanding Testing Issues is at or below the specified thresholds
Ex 6	Work Off Plans • The Work off Plans for any extant and assigned Testing Issues raised during the Test Phase endorsed • (SIT Only) Any Work off Plans from the preceding PIT Test Phase have been discharged
Ex 7	Test Records • All test results documented, and evidence captured
Ex 8	Testing Issue Logs • A full set of Testing Issue logs have been produced
Ex 9	Test Completion Reports • A Test Exit Report has been produced by the SP and approved by DCC • A Test Completion Report has been produced by DCC and approved by • TAB for PIT • TAB and TAG for SIT
Ex 10	Test Completion Criteria Met • Criteria 1 -9 achieved
Ex 11	Test Completion Certificates Issued • Where required, issuing of Test Completion Certificates agreed by TAB

Where practical, if a test fails with an emulator* / device, it will be retested against another device, if available.

If a Testing Issue arises while using an emulator and the test cannot be run in any other way, The Testing Issues will be discussed with TAG as part of early engagement for transparency and completeness.

9.2 Specific Entry Criteria for Test Phases

Any additional specific Entry criteria for individual Test Phases shall be detailed in the relevant Solution Test Plans.

The following entry specific criteria shall also be applied.

9.2.1 Entry into SIT

The following shall be achieved prior to SIT commencement:

SEn1. DCC to ensure all required devices and Emulators are available 2 weeks before commencement

SEn2. The remaining generic entry criteria has been met at least 1 week before SIT commencement

SEn3. Given that both DSP and CSS can start their SIT using Emulators and the CSS Simulator, the CSS simulator must be made available to DSP 1 week before SIT commencement

Note: TAB may recommend that the SIT Phase can start even if the thresholds set in the PIT Exit Criteria have been exceeded, provided that an agreed Work off Plan is in place. This decision will be reported to the Panel's TAG but is not subject to their agreement.

9.2.2 Entry into UIT

The Entry Criteria for UIT shall include:

UITEn1. Successful completion of testing, assurance and DCC governance of the SIT phase for the functionality to be promoted into UIT

UITEn2. Priority PreUTS is to be completed prior to the start of User Testing to the satisfaction of the DCC

9.3 Acceptance Process Following SIT Completion

Following the agreement of SIT completion

For SEC Modifications, DCC will:

- Notify the Panel and Parties that SIT has ended
- DCC will provide the Panel with copies of the SIT Test Completion Report(s) along with a list of those sections of such reports that it considers should be redacted
- On direction from the Panel, DCC will provide the Parties and Service Providers with copies of the Test Completion Report(s) having first redacted any sections specified by the Panel

9.4 Testing Issues Threshold

Table 14 lists the standard thresholds for outstanding testing issues for the completion of each test phase, as defined in the Service Provider Contracts.

Thresholds shall be by Service Provider for PIT, whereas a single threshold will apply to SIT.

Table 14 – Testing Issues Thresholds

Test Issue Severity	PIT per Service Provider	SIT
1	0	0
2	0	0
3	5	5
4	10	10
5	15	15

9.5 Calculation of Testing Issue Counts

The Testing Issue thresholds are applied as part of the Exit Criteria for relevant Test Phases and apply cumulatively if there are iterative deliveries within a Test Phase.

In the case of PIT the threshold stated is per Service Provider undertaking PIT. To be clear the threshold is not to be measured against the cumulative total across all Service Providers undertaking PIT.

Any Testing Issue found during the PIT Test Phase, which remains open at SIT exit shall be included in the SIT Exit Testing Issue Threshold and will be reported to TAG.

Closures without a Retest

All Testing Issues raised during the Test Phase shall be reviewed to confirm that any that were closed without a retest to confirm that the action was appropriate. Any such Testing Issues shall be listed in the Test Completion Report, grouped by closure reason. The reasons may include:

(a) An Invalid Test

(b) A Duplicate Test

(c) A Confirmed Behaviour

(d) Cannot be Reproduced

All such closures will be presented in line with the working practice agreed with TAG and shall be subject to:

- PIT - TAB endorsement
- SIT - TAB and TAG endorsement

Should DCC identify an additional rationale for closure, then its use will be subject to TAG approval.

Discounting of Testing Issues

DCC may request the discounting of a Testing Issue that can be demonstrated to be:

(a) A Duplicate

(b) Device Manufacturer accepted

(c) A Known Testing Issue

(d) A Pre-Existing Testing Issue

All such discount requests will be presented in line with the working practice agreed with TAG and shall be subject to:

- PIT – TAB endorsement
- SIT – TAB and TAG endorsement

Should DCC identify an additional rationale for closure, then its use will be subject to TAG approval.

Suspected Device Manufacturer Testing Issues

In the case where DCC suspect that a Testing Issue arises from a Device Manufacture defect, DCC shall ensure that it is promptly raised with the relevant Device Manufacturer. In the meantime testing will, where possible, be conducted using an alternative Device to demonstrate the functionality of the DCC System and further corroborate that the failure is expected to arise from a Device defect. Should the inclusion of such Testing Issues result in the Testing Issue threshold being breached, then DCC shall seek agreement that these Testing Issues be treated as exceptions from:

- PIT – TAB endorsement
- SIT – TAB and TAG endorsement
- TAB may judge that the SIT Phase can start even if the thresholds set in the PIT Exit Criteria have been exceeded, provided that an agreed Work off Plan is in place. This decision will be reported to the Panel's TAG but is not subject to their agreement.

Agreeing Testing Issue Severities

As part of confirming the Test Phase completion, DCC shall present all extant Testing Issues identified during testing to TAB for PIT and TAB and TAG for SIT to confirm that the correct Severity has been assigned.

Where the DCC and the Panel's TAG cannot agree on the Severity of a Testing Issue identified in SIT, and this matter impacts achievement of the Test Phase Testing Issue Threshold, the DCC may refer the matter to the Panel for its determination, which shall be final for SEC Modification defects.

9.6 Work off Plans

Work off Plans shall be produced detailing the Testing Issues that are outstanding and a plan for resolving them.

The Service Provider shall resolve all items within the Work off Plan within the following timescales.

- For Severity 3 defects, within 20 Working Days from the TAB meeting
- For Severity 4 defects, within 40 Working Days from the TAB meeting
- For Severity 5 defects, within 60 Working Days from the TAB meeting

The resolution of a Testing Issue will require the Service Provider to fix, retest and close the Testing Issue. Exceptions to these timescales may be proposed by the Service Provider as part of their proposed Work Off Plan but this shall be subject to TAB approval.

If the Service Provider becomes aware that the timescales for the Work off Plan are not going to be met, the Service Provider shall promptly produce a correction plan for approval by TAB.

If a Test Phase Completion Certificate has been issued subject to completion of a Work off Plan, and the Work off Plan has not been completed within the applicable time, then DCC may revoke the Test Phase Completion Certificate unless the failure relates solely to Severity 5 test issues.

10 Test Result Management & Reporting

Test Result Management and Reporting is to be provided to DCC by the DSP, CSPs, S1SPs, DCO (where applicable) for PIT and the SI with input from SPs for the SIT and UIT Test phases, on a frequency to be detailed in the Solution Test Plans.

10.1 Tracking & Reporting

HP's Application Lifecycle Management (ALM) Test Management tool will be used to manage testing and Testing Issues in SIT. In the case of PIT, a Service Provider may employ a different tool to manage Testing and Testing Issues.

All requirements, scripts, tests, execution results and defects are to be maintained in ALM. Connectivity between requirements, tests and defects is to be maintained for traceability and reporting purposes.

Overall responsibility of maintaining traceability of test and defects lies with the SI for all Test Phases.

The SI shall provide enhanced visibility and reporting of the progress, completion, and coverage of testing for SIT across a few parameters. This should include test automation metrics previously referenced in Section 6.

10.2 SIT Completion Reports

DCC will produce its own Test Completion Reports when it considers that the Exit Criteria specifies in this document have been met. The report will include:

- An overview of the Testing undertaken
- Details of any Variances from this Testing Approach Document
- Details of any De-scoped Scenarios, Requirements or Test Cases
- A summary of the results of testing
- The total count of extant Testing Issues and their severities
- Information on any Testing issues closed without a retest
- Information on any Testing Issues that DCC is proposing be discounted
- Information to support the Severity assigned to any extant Testing Issues that are not subject to discounting
- An assessment of the proposed Work Off Plan
- Any observations
- Confirmation of how the specified Exit Criteria have been met.

This report, together with any relevant independent assurance reports, will be provided to the TAB, Panel's TAG, and the Panel.

11 Acceptance and Test Assurance

DCC has established processes for the acceptance of testing activity completion – these will continue for the June 2025 SEC Release. The DCC's Test Assurance Board (TAB) will conduct quality gate meetings for test phase exit and review Test Completion Reports before, where required, issuing Test Completion and Approval to Proceed Certificates.

11.1 Service Provider Self Assurance

Service Providers will continue to assure their own PIT activities against this Testing Approach Document and their specific PIT Phase and Test Plan. Service Providers will also continue to make their relevant testing deliverables available to the other Service Providers and exchange constructive comments to ensure solution and testing compatibility.

11.2 Test Assurance by DCC

DCC will continue to assure Service Provider testing using the processes and activities established for earlier releases, and will include the following methods, at times determined by the individual Solution Test Plans:

- Test Assurance Board quality gates
- Test Witnessing
- Test Observation
- Product Inspections
- Document Review

11.2.1 Quality Gating

DCC will continue to operate the Quality Gating process developed for prior Releases and enhanced through experience. The Quality Gate process provides:

- Controlled entry of functionality into subsequent Test Phases
- Confirmation that the scope of tests shall provide adequate assurance of the changes introduced to the DCC System
- Formal and objective evidence that test criteria have been met for a Stage / Phase
- Transparency of test activities and outcomes to facilitate DCC Test Assurance
- Formal evidence for signoff of Service Provider test milestones and/or associated payments
- A mechanism for managing remedial work associated with closure of test stages / Phase

The Quality Gates for PIT and SIT exit are operated as TAB gates.

11.2.2 Test Witnessing

DCC will agree, in advance, with the SPs, including the CSPs, S1SPs, DCO (where applicable) and DSPs, which tests it wants to witness during Factory Acceptance Testing (FAT). Details of these tests (which will be a subset of System Tests for FAT will be described in the FAT plans.

The SPs will provide DCC with a schedule of when the tests will be executed and invite DCC to witness on-site or via MS Teams. The witness will have the skills required to fulfil the role. The SP will provide the witness with relevant documentation and access. DCC Test Assurance must be given full access to attend and witness such testing.

Execution of the agreed set of tests will be performed by the relevant SP test analyst, and there will be:

- No deviation from the scripts (e.g., in response to “what if” questions raised by witnesses)
- No hands-on execution by witnesses
- Where a gap in testing is witnessed, this will be recorded as an observation for further testing

Testing Issues raised during witnessing will be entered into the relevant Test Issue Management tool and progressed through the Test Issue Management process.

As far as possible, any queries and issues arising during the witnessing period will be addressed at the time with the relevant Subject Matter Experts (SMEs). A wash-up session will be convened at the end of the witnessing period to discuss the outcome of witnessing and to agree any outstanding queries and issues.

11.2.3 Test Observation

With prior agreement with the SPs, including the CSPs, S1SPs, DCO (where applicable) and the DSPs, on the timing, duration, and scope, DCC staff may observe test execution and test issue management activities during System Testing and Solution Testing in order to familiarise themselves with SP processes and the systems under test. The DCC observers will have the skills required to fulfil the role.

12 Test Resources

This document will not provide detail of the DCC internal teams or the Service Providers who will be undertaking the actual testing but does provide details of the DCC Test Assurance Team and Testing Services Team who are responsible for assuring compliance with this Testing Approach Document.

This section also describes the Testing Stubs which will be used, and the other Testing Tools.

12.1 DCC

Notwithstanding, any organisational change at DCC affecting the structure of the team, dedicated DCC resources will support the assurance of testing described in this document.

The functions and services delivered by the DCC shall include:

a) Test Assurance – responsible for reporting progress to industry, assuring the progress of testing, including witnessing, and observing testing within PIT, SIT, reviewing test plans, scripts, and scenarios; co-ordinating with Product and Design teams to provide Device assurance, assuring reporting by Service Providers, providing evidence and documents into the TAB meetings, conducting TAB meetings;), maintaining this Testing Approach Document, submitting evidence and reporting to Panel as required

b) Testing Issue Management – responsible for operating the issue management process; including chairing the Issue Resolution Board and reporting on issues for all Test Phases except PIT. Responsible for producing reports on Testing Issues, including providing regular reporting to DCC problem management on issues potentially affecting the DCC production solution

c) Testing Services – responsible for being the point of escalation for Testing Participants, approving entry into UIT and associated entry criteria, responsible for supporting user testing and managing relationships with Testing Participants; reporting on user testing

12.2 Test Stubs

This Testing Approach Document allows for the use of Testing Stubs, where appropriate, across each of the Test Phases to support entry into and completion of those phases. Individual Service Providers, DCC and Testing Participants may utilise Testing Stubs to simulate or emulate elements of the solution which are either not available or practical for use in the relevant test phase.

The utilisation of test stubs, in particular Device Emulators, will only be utilised if a real Device does not exist.

For example, within SIT, a User Simulator will be used to act in the role of a DCC User.

DCC uses a variety of device Emulators capable of emulating:

- ESME (incl. APC and ALCS)
- SAPC
- GSME
- IHD
- PPMID
- HCALCS
- HHT (used to deliver service requests locally over the HAN)

Each emulated Device can operate in single or dual band mode.

The Emulators have specific functionality which will be used to generate test scenarios for DUIS 5.3, GBCS v4.2 and SMETS2 v5

The Emulators have been utilised since June 2023 SEC Release, and where subject to separate assurance during that release. As the emulator version has not changed a separate TAB approval is not required.

Note: Emulator Assurance for June 2025 SEC Release is not required as it will use the same emulator that was used November 2024 Release, GBCS 4.1 and ECoS Programmes

There are no firmware changes required for June 2025 SEC Release therefore CSP / S1SP scope of PIT will not test end-device functionality. End-device functionality will begin testing in SIT.

12.3 Test Laboratories

The DCC will provide a test lab facility and supporting services to enable Parties to test with their own Devices and DCC Communications Hubs and SM WAN infrastructure in the User Integration Testing environment.

13 Roles and Responsibilities

All parties involved in the June 2025 SEC Release testing shall:

- Follow Good Industry Practice, as define in the SEC
- Take all reasonable steps to facilitate achievement of the testing objectives
- Ensure that all Testing Issues are evaluated for the potential impact on the DCC production solution and its Users, at the point of raising the issue or during triage, and recorded as such on the test management tool

13.1 DCC Systems Integrator

DCC shall ensure that the SI will manage SIT and be responsible for the following activities:

a) Producing and maintaining the SIT Test Plan

b) Ensuring that SIT activities are carried out in accordance with the SIT Approach, the SIT Test Plan

c) Overall planning and control of SIT, including chairing entry Quality Gates between FAT and Solution Test, and between Solution Test and User Interface Testing

d) Maintaining Risk, Assumption, Issue, and Dependency Logs for SIT

e) Leading the design and creation of test scenarios, test scripts, test data and test environments for SIT

f) Preparing test execution and environment usage schedules for SIT

g) Supporting the other SPs in their assigned test preparation and execution activities within SIT

h) Managing Testing Issue resolution, and supporting SPs in the resolution process for selective Test Phases

i) Producing the Test Stage Plans, Test Specifications, Test Traceability Matrices, Progress Reports, and Test Completion Reports for SIT

j) Operating the master Configuration Management Plan

k) Operating the master Release Schedule

l) Operating the Environment Plan

m) Support the Interoperability Test Events

13.2 DCC Service Providers

DCC shall ensure that the Service Providers shall support the Systems Integrator in:

- Planning and control of test phases
- Design and creation of test scenarios, test scripts, test data and test environments
- Preparing test execution and environment usage schedules
- Diagnosing Testing Issues
- Producing Test Plans, Test Specifications, TTM, Progress Reports, and Test Completion Reports
- Contributing to the master Configuration Plan
- Contributing to the master Release Schedule
- Contributing to the Environment Plan
- Establish, maintain, and control their own test environments, in terms of software / hardware configuration and access control

For tests within their agreed test boundary, under the direction of the Systems Integrator:

- Execute and monitor test scripts
- Capture evidence
- Report progress
- Resolve Testing Issues for their solution elements and undertake PIT testing (including regression testing) of any fixes required.

13.3 DCC

DCC shall:

a) Comply with its obligations under this Testing Approach Document (this document)

b) Ensure that activities attributed to Service Providers that are described in this document are undertaken

c) Use its reasonable endeavours to ensure that SIT is completed as soon as is reasonably practicable to do so

d) Enter into agreements with Device manufacturers to provide and support Devices for use in SIT, following appropriate qualification or selection activity

e) Support the DCC Systems Integrator in the planning, control, and operation of testing

f) Assure planning, preparation and execution activities undertaken by the DCC Systems Integrator and Service Providers as detailed in this document and through the Test Traceability Matrix

g) Operate and Chair the DCC TAB process to review and approve the DCC Test Completion Reports and Service Provider Work Off Plans. TAB shall issue t Approval to Proceed certificates (where applicable) and Test Completion Certificates, and shall grant approvals of Test Phase Completion Reports

h) Participate in Quality Gate Reviews

i) Agree with the DCC Systems Integrator and Service Providers Tests to be witnessed

j) Witness the execution of SP SIT

k) Specify, procure, provide, and maintain the DCC Meter Protocol Emulator Devices and Service

l) Appoint and manage the independent audit and assurance activities described in this document (where applicable)

Note: No independent audit and assurance activities are proposed for this Release.

14 Environments

The June 2025 SEC Release will use the standard release approach through the B - stream DCC environments.

These environments are available as required by the plan for the June 2025 SEC Release. Specific deliverables relating to the management and use of environments, particularly co-existing with other programmes, will be published by DCC. This will clarify the approaches to usage of the environments by the June 2025 SEC Release and other projects. DCC will also present regular portfolio level updates to TAG on use of environments.

14.1 Code Management

DCC will operate a process to merge code changes into the test environments used by the June 2025 SEC Release. The SIT Approach Document will provide detail of the frequency of the operation of this process.

15 Appendices

15.1 Appendix A - Functional Heat Map

The Functional Heat Map is currently work in progress and will be included in the Test Phase (PIT, SIT) Completion Reports.

15.2 Appendix B – Device Selection Process

DCC Test approach/planning workshops are to be held to determine the Devices to be used in SIT. The attendees will include the SIT test team, the DCC product team, the DCC Devices team and DCC Test Assurance. The device selection will take a risk-based approach to selecting appropriate meter sets.

Device selection considerations will include the following:

- Current production use (“Day 1”)
- Soon-to-be production use (“Day 2”)
- The testing of all Comms Hub types
- The Meter Manufacturer used for each meter was based on availability and stability of required meters and as per the contract with DCC.
- Real ESME and GSME Devices to be used for regression device sets using combinations which were already available in production / testing.
- Emulators will only be used for testing the new functionality where real Devices are not available, eg GBCS4.2 [Device SLS version S2V5]
- Real PPMID Devices will be used as per the device availability.