

SEC Appendix AQ

SEC Variation Testing Approach Document for the CH&N Arrangements

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1. Definitions and Interpretation

- 1.1. In this SEC Variation Testing Approach Document for CH&N SEC Variations (this “CH&N SVTAD”), except where the context otherwise requires, the expressions in the left-hand column within Table 1.1 shall have the meanings given to them in the right-hand column within Table 1.1. Where not defined in this CH&N SVTAD, words beginning with a capital letter used in this document are defined in Section A of the SEC.
- 1.2. Where there are conflicts between this CH&N SVTAD and any related CH&N Test Approach Document or CH&N Test Coverage Document, this CH&N SVTAD shall take precedence.
- 1.3. Where obligations are expressed in respect of DCC Service Providers in this CH&N SVTAD, a CH&N Test Approach Document or a CH&N Test Coverage Document, these shall be construed as obligations on the DCC. Where text is included in this CH&N SVTAD, a CH&N Test Approach document or a CH&N Test Coverage Document which does not explicitly place obligations on a Party, the Panel, or Testing Participant, these shall be construed as obligations on the DCC.

Table 1.1 CH&N SVTAD Definitions

Term	Meaning
CH&N Arrangements	means arrangements for utilising the newer forms of next-generation wireless mobile telecommunications technology for the secure telecommunications platform used (or to be used) for the purposes of communicating with Enrolled Smart Metering Systems.
CH&N Mandated User Testing Document	means any document prepared pursuant to Clause 6 that sets out the approach to mandatory User Testing.
CH&N Release	means those changes to all or part of the DCC Total System that are planned to be implemented at the same time, as set out in the Joint Industry Plan, and which are necessary to support the delivery of the CH&N SEC Variations.
CH&N SEC Variations	means the variations to the SEC that are planned to support the introduction of and transition to the CH&N Arrangements as published by the DCC and/or the Secretary of State from time to time.

Term	Meaning
CH&N Solution	means the Sub-Systems delivered or changed for the purposes of the CH&N SEC Variations, including the Data Services Provider Sub-System, the 4G Communications Hubs (4GCH), Device Manager(s), Order Management System(s), Logistics, and the associated part of the SM WAN that will comprise 4G mobile communications technology.
CH&N Test Approach Document	means a document produced pursuant to Clause 4.1.
CH&N Test Coverage Document	means a document produced pursuant to Clause 4.2.
Completion Report	means a report that is produced setting out evidence demonstrating how the criteria for the completion of testing has been met.
Component Integration Test Stage	means a test stage focusing on verifying individual interactions between Sub-Systems.
Data Services Provider, or DSP	means the DCC acting from those systems identified in part a) of the definition of DCC Live Systems.
Device Manager	means a Sub-System utilised, amongst other things, to manage the interactions between the 4GCH and the rest of the Modified DCC Total System.
Joint Industry Plan (JIP)	means the part of the joint industry plan that is agreed at the Department for Energy, Security and Net Zero's smart metering design group that relates to the 4G Communications Hubs and Network Programme.
June 2024 SEC Release	means the SEC Release planned to go live in June 2024.
Link Test Stage	means a test stage focusing on the testing of interfaces and interactions within a Sub-System.
Logistics	means a Sub-System utilised to manage the logistics processes for the delivery of 4GCH.

Term	Meaning
Modified DCC Total System	means the DCC Total System as will be modified as a result of each CH&N Release.
Order Management System(s)	means a Sub-System utilised to manage the forecasting, ordering and manufacturing process for 4GCHs.
Pre-Integration Test Phase (“PIT”)	means the test phase that is inclusive of the Unit Test Stage, Link Test Stage, System Test Stage for a new or change to a Sub-System. Optionally PIT may also include a Component Integration Test Stage.
Sub-System	means an element of the Modified DCC Total System, in respect of which changes will be tested independently for the purposes of the Unit Test Stage, Link Test Stage, and System Test Stage .
System Test Stage	means a test stage focusing on verifying that a Sub-System as a whole meets specified requirements.
Systems Integration Test Phase (“SIT”)	means the test phase focusing on verifying the end-to-end operation of the Modified DCC Total System that will exist as a result of the CH&N Release that is the subject of the test phase.
TAG	means the Panel’s Testing Advisory Group.
Testing Baselines Requirements document (“TBRD”)	a document published by the Secretary of State from time to time setting out baseline versions of the Smart Energy Code for the purposes of test exit decisions
Testing Issue Thresholds	means the maximum number of extant Testing Issues that may be permitted at completion of a test phase.
Unit Test Stage	means a test stage focusing on the testing of individual hardware or software components within a Sub-System.

Term	Meaning
User Testing	means testing by one or more Users of all or part of any changes to the Modified DCC Total System in respect of a CH&N Release.

2. General

- 2.1. This document is the SEC Variation Testing Approach Document for the CH&N SEC Variations.
- 2.2. Section X11.7 of the Code requires that the DCC and each person other than the DCC that participates in (or is required to participate in) testing under a SEC Variation Testing Approach Document shall comply with the SEC Variation Testing Approach Document.
- 2.3. Section X11.8 of the Code specifies that Section H14 of the Code (Testing Services) and the Enduring Testing Approach Document shall apply in respect of testing under a SEC Variation Testing Approach Document as if such testing was a Testing Service under Section H14.34 (Modification Implementation Testing); and each participant in such testing shall be deemed to be a Testing Participant for such purposes.
- 2.4. This CH&N SVTAD sets out:
- (a) the framework for the testing that is required to be undertaken for the introduction of the CH&N SEC Variations;
 - (b) the arrangements that apply to the development of CH&N Testing Approach Document(s) for each CH&N Release;
 - (c) the arrangements that apply to the development of CH&N Test Coverage Document(s) for each CH&N Release; and
 - (d) the rules to apply to the development of any CH&N Mandated User Testing Document(s) for each CH&N Release; and
 - (e) the rules to apply to the development of a methodology for the selection of devices to be used in testing.
- 2.5. Each of the documents described in Clause 2.4 (b)-(d) may be produced:
- (a) as separate documents for the version of the Modified DCC Total System that will exist for each CH&N Release;
 - (b) as separate documents for each of PIT and SIT in respect of a CH&N Release;
 - (c) in the case of PIT for a CH&N Release, as separate documents per Sub-System; or
 - (d) as any combination of the aforementioned permutations,
- as the DCC considers appropriate. Each document shall clearly state the CH&N Release(s) to which it pertains, and where combined, the DCC shall state in the combined document the individual parts of which it is comprised.
- 2.6. Testing undertaken pursuant to this CH&N SVTAD shall be performed by the DCC and any other Party that participates in it in accordance with Good Industry Practice.
- 2.7. The DCC shall not commence any tests in respect of a CH&N Release (including for individual Sub-Systems in PIT) until the CH&N Test Approach Document(s) and CH&N Test Coverage Document(s) that set out the approach to and coverage of those tests has been approved by the TAG.

- 2.8. Where the CH&N Test Approach Document produced pursuant to Clause 4.1.1 does not set out the approach to the entirety of testing that will be undertaken during the test phase to which the document relates (PIT and/or SIT) in respect of a CH&N Release, this shall be clearly stated in the CH&N Test Approach Document. The DCC shall subsequently seek TAG approval of an updated CH&N Test Approach Document(s) as and when the remaining approach to testing is planned. As set out in Clause 2.7, the DCC shall not commence any tests without a CH&N Test Approach Document setting out the approach to those tests having been agreed pursuant to Clause 4.1.2 or 4.1.4.
- 2.9. Where the CH&N Test Coverage Document produced pursuant to Clause 4.2.1 does not set out coverage of the entirety of testing that will be undertaken during the test phase to which the document relates (PIT and/or SIT) in respect of a CH&N Release, this shall be clearly stated in the CH&N Test Coverage Document. The DCC shall subsequently seek TAG approval of an updated CH&N Test Coverage Document(s) as and when remaining tests are planned. As set out in Clause 2.7, the DCC shall not commence any tests without a CH&N Test Coverage Document agreed pursuant to Clause 4.2.2 or 4.2.4 setting out the coverage of those tests.

Timetable for Testing

- 2.10. Test phases shall be commenced in the timescales that are necessary to facilitate testing in accordance with the milestones on the Joint Industry Plan.

CH&N Testing Objective

- 2.11. The objective of testing undertaken pursuant to this CH&N SVTAD (the “CH&N Testing Objective”) is to demonstrate that the DCC and the component parts of the Modified DCC Total System in respect of each CH&N Release operate and interoperate with User Systems and Smart Metering Systems to the extent necessary for the DCC to comply with the relevant requirements that will exist in the SEC that pertain to that CH&N Release.

Test Entry Criteria

- 2.12. The fulfilment of the following Entry Criteria is required to permit entry into PIT for a Sub-System or SIT in respect of each CH&N Release:
- (a) test plan signed off by the DCC;
 - (b) all relevant Testing Approach Documents and Test Coverage Documents approved by the TAG;
 - (c) Test Completion Certificates for any precursor test phase issued;
 - (d) test specification prepared, including the production of a test traceability matrix;
 - (e) confirmation that the required test laboratories, Devices, tools, stubs, environments and data are in place, secure and are ready for testing; and
 - (f) an approval to proceed certificate for the test phase has been issued by the DCC.

3. Modification of the CH&N SVTAD

3.1. This CH&N SVTAD:

- (a) shall be modified by the DCC in accordance with any direction to do so made by the Secretary of State. The DCC shall consult with Parties concerning any proposed modification to this document in accordance with any direction to do so by made by the Secretary of State;
- (b) may be modified by the DCC following consultation with Parties and other relevant persons, the TAG, the Authority, and the Secretary of State, provided that:
 - i. prior to making any such modification, DCC must present to the Secretary of State a summary of the consultation responses received and an explanation of how the DCC has taken them into account; and
 - ii. it may not be modified to the extent that the Secretary of State directs otherwise; and
- (c) may be modified by DCC without consultation where the modification is of a minor typographical nature, or where the modification 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.

4. Creation and Modification of the CH&N Test Artefacts

4.1. CH&N Testing Approach Document(s)

- 4.1.1. Subject to Clause 6, the DCC shall produce each CH&N Test Approach Document(s) in accordance with the requirements in Clause 2.5, which shall include the approach to testing for Sub-Systems in PIT and for the Modified DCC Total System within SIT in respect of each CH&N Release including:
- (a) the proposed amendments to this Code that are the subject of or which pertain to the testing, an explanation of the associated changes to the DCC Total System, and the testing objective;
 - (b) the scope of the CH&N Release(s) to which the Testing Approach Document relates;
 - (c) the principles and approach to apply to PIT(s) and SIT(s);
 - (d) the testing environments to be used;
 - (e) whether devices are to be used in PIT and/or SIT for a CH&N Release and if so, the applicable CH&N Device Selection Methodology;
 - (f) ~~the process to be followed in selecting devices for use in PIT(s) and SIT(s);~~
 - (g) the process for resolving Testing Issues, the applicable Testing Issue Thresholds for use in the relevant PIT completion(s) and relevant SIT completion(s) and the process for excluding Testing Issues;
 - (h) the exit criteria for testing to complete successfully for the relevant PIT and for the relevant SIT;
 - (i) any perceived risks associated with the approach to testing and the proposed mitigations;

- (j) the approach to providing for assurance of the testing undertaken; and
- (k) matters to be included in any Completion Reports for the relevant PIT. The DCC may combine a PIT Completion Report in respect of a CH&N Release for a Sub-System with other PIT Completion Reports in respect of other CH&N Releases pertaining to the same Sub-System, and where it does so, this shall be clearly stated in the combined Completion Report; and
- (l) matters to be included in any Completion Report for the relevant SIT in respect of the CH&N Release.

4.1.2. The DCC shall submit each draft CH&N Testing Approach Document in respect of a CH&N Release to the TAG for review (and such submission by the DCC and review by the TAG may take place prior to this Clause 4.1.2 coming into effect); and:

- (a) where the TAG and the DCC can reach an agreement, the relevant draft CH&N Testing Approach Document shall be updated by the DCC as necessary and deemed to be final; or
- (b) where the TAG and the DCC cannot reach an agreement, the matters of disagreement shall be referred by the DCC to the Secretary of State for determination. The Secretary of State's decision on such matters shall be final and binding for the purposes of this Code and the relevant draft CH&N Testing Approach Document shall be updated by the DCC as necessary and deemed to be final.

4.1.3. The DCC shall comply with each CH&N Testing Approach Document in respect of a CH&N Release.

4.1.4. Revisions to a CH&N Testing Approach Document finalised pursuant to Clause 4.1.2:

- (a) may, from time to time, be submitted by the DCC to the TAG for agreement in accordance with the provisions of Clause 4.1.1, and the provisions of Clause 4.1.1 shall apply (again) to the revised version of the document; or
- (b) shall be made by the DCC in accordance with any direction to do so issued by the Secretary of State. The DCC shall consult with TAG concerning any such proposed revision in accordance with any direction to do so issued by the Secretary of State.

4.2. CH&N Test Coverage Document(s)

4.2.1. Subject to Clause 6, the DCC shall prepare each CH&N Test Coverage Document in accordance with the requirements in Clause 2.5, which shall set out the depth and breadth of testing required in the relevant PITs and relevant SIT in respect of a CH&N Release and shall include:

- (c) the scope (breadth) and coverage (depth) of testing against requirements for the relevant Sub-System (in the case of PIT) and the Modified DCC Total System (in the case of SIT), identified as groupings of functional and non-functional requirements;
- (d) where a Test Coverage Document covers both a PIT test phase and SIT, whether the identified requirement shall be tested in PIT or SIT;

- (e) where the TAD in respect of PIT or SIT for the CH&N Release specifies that Devices will be used in testing, the list of Devices selected to be utilised in the relevant PIT or relevant SIT (as the case may be), pursuant to the applicable CH&N Device Selection Methodology referenced in the TAD ; and
- (f) any perceived risks associated with the scope and coverage of testing and the proposed mitigations.

4.2.2. The DCC shall submit each draft CH&N Test Coverage Document in respect of a CH&N Release to the TAG for review (and such submission by the DCC and review by the TAG may take place prior to this Clause 4.2.3 coming into effect) and:

- (a) where the TAG and the DCC can reach an agreement, the relevant draft CH&N Test Coverage Document shall be updated by the DCC as necessary and deemed to be final; or
- (b) where the TAG and the DCC cannot reach an agreement, the matters of disagreement shall be referred by the DCC to the Secretary of State for determination. The Secretary of State's decision on such matters shall be final and binding for the purposes of this Code and the relevant draft CH&N Test Coverage Document shall be updated by the DCC as necessary and deemed to be final.

4.2.3. The DCC shall comply with each CH&N Test Coverage Document in respect of a CH&N Release and shall take all reasonable steps to complete the tests set out in each CH&N Test Coverage Document in accordance with the milestones on the Joint Industry Plan.

4.2.4. Revisions to a CH&N Test Coverage Document finalised pursuant to Clause 4.2.3:

- (a) may, from time to time, be submitted by the DCC to the TAG for agreement in accordance with the provisions of Clause 4.2.3, and the provisions of Clause 4.2.3 shall apply (again) to the revised version of the document; or
- (b) shall be made by the DCC in accordance with any direction to do so issued by the Secretary of State. The DCC shall consult with TAG concerning any such proposed revision in accordance with any direction to do so issued by the Secretary of State.

4.3. CH&N Device Selection Methodology (CH&N DSM)

4.3.1. Subject to Clause 4.3.2 and 4.3.3, the DCC shall prepare a document (the "CH&N Device Selection Methodology") for each CH&N Release which shall set out the process to be followed to select devices to be used for testing in the relevant Sub-System PITs and relevant SIT in respect of that CH&N Release.

4.3.2. A new CH&N DSM does not need to be prepared by the DCC where:

- (a) the relevant Testing Approach Document for PIT and/or SIT in respect of a CH&N Release states that an existing CH&N DSM shall apply, or
- (b) where the CH&N Release is not required to test with any Device, as set out in the Testing Approach Document for that CH&N Release.

4.3.3. ACH&N Device Selection Methodology shall not apply to testing for the CH&N Release that comprises part of the June 2024 SEC Release that is tested pursuant to Clause 6. Instead, the

DCC shall run tests for that CH&N Release using the devices set out in the test approach document for the June 2024 SEC Release.

- 4.3.4. The DCC shall submit each CH&N Device Selection Methodology to the TAG for review (and such submission by the DCC and review by the TAG may take place prior to this Clause 4.3.3 coming into effect) and:
- (a) where the TAG and the DCC can reach an agreement, the relevant draft CH&N Selection Methodology shall be updated by the DCC as necessary and deemed to be final; or
 - (b) where the TAG and the DCC cannot reach an agreement, the matters of disagreement shall be referred by the DCC to the Secretary of State for determination. The Secretary of State's decision on such matters shall be final and binding for the purposes of this Code and the relevant draft CH&N Device Selection Methodology shall be updated by the DCC as necessary and deemed to be final.
- 4.3.5. Revisions to any CH&N Device Selection Methodology finalised pursuant to Clause 4.3.3:
- (a) may, from time to time, be submitted by the DCC to the TAG for agreement in accordance with the provisions of Clause 4.3.3, and the provisions of Clause 4.3.3 shall apply (again) to the revised version of the document; or
 - (b) shall be made by the DCC in accordance with any direction to do so issued by the Secretary of State. The DCC shall consult with TAG concerning any such proposed revision in accordance with any direction to do so issued by the Secretary of State.

5. Test Completion for PIT and SIT in respect of a CH&N Release

- 5.1. Completion of testing for:
- (a) PIT for each relevant Sub-System in respect of a CH&N Release; and
 - (b) SIT in respect of a CH&N Release,
- shall, in each case, only complete when the Panel determines that the exit criteria for completion as set out in the relevant Testing Approach Document have been met.
- 5.2. When the DCC considers that such completion ought to occur, the DCC shall prepare a Completion Report as provided for in the relevant CH&N Testing Approach Document. The DCC shall:
- (a) notify the Secretary of State, the Authority, the Panel, and the Parties that the DCC considers that testing has been completed for the test phase and, in the case of PIT, Sub-System in question in respect of the CH&N Release;
 - (b) provide the Authority, the Panel, and the Secretary of State with copies of the Completion Report and a list of the sections of such report that the DCC considers should be redacted prior to publication; and
 - (c) review the supporting documentation and evidence with regards to the relevant exit criteria with the TAG.

- 5.3. The Panel shall confirm the completion of testing for PIT for a Sub-System in respect of a CH&N Release and SIT in respect of a CH&N Release (as the case may be), or shall highlight where it believes the exit criteria have not been met.
- 5.4. Where the Panel confirms the completion of testing for the relevant test phase (subject to the Panel and the DCC reaching an agreement regarding resolution of any issues raised by the Panel) the Completion Report shall be updated by the DCC as necessary and deemed to be final.
- 5.5. Where the Panel declines to confirm the completion of testing for the relevant test phase, the DCC shall update the relevant Completion Report to reflect resolution of any issues where the DCC and the Panel reached an agreement, and the DCC shall then either:
- (a) refer the matters where the Panel and the DCC are in disagreement to the Secretary of State for determination; or
 - (b) continue with testing (and Clause 5.2 shall apply again).
- 5.6. Where a referral has been made by the DCC pursuant to Clause 5.5, the determination of the Secretary of State shall be final and binding for the purposes of this Code as follows:
- (a) where the Secretary of State agrees that testing for the relevant test phase is complete, the relevant Completion Report shall be updated by the DCC as necessary, and the contents shall be deemed to be final; or
 - (b) where the Secretary of State disagrees that testing for the relevant test phase is complete, the DCC shall continue with testing (and Clause 5.2 onwards shall apply again).
- 5.7. The DCC shall publish the final Completion Reports for the relevant test phase as soon as reasonably practicable, which shall be anonymised and redacted where directed by the Panel, on the DCC Website. The DCC shall notify the Panel, the Secretary of State, the Authority, and the SEC Parties of the publication of the reports.
- 6. Dual Testing Governance for SEC Modifications and CH&N SEC Variations in the same SEC Release**
- 6.1. It is acknowledged that the CH&N SEC Variations required to Appendix AD (the DCC User Interface Specification) are planned to be implemented as part of the June 2024 SEC Release. Rather than producing a CH&N Test Approach Document and a CH&N Test Coverage Document in respect of those CH&N SEC Variations, the DCC shall provide for all of the matters that would normally be set out under those documents in respect of the CH&N SEC Variations to Appendix AQ be set out in a test approach document to be agreed by the TAG that also includes testing of the Modifications that comprise the June 2024 SEC Release, provided that:
- (a) the entry criteria set out in Clause 2.10 shall apply in respect of the CH&N SEC Variations comprising part of the June 2024 SEC Release, and
 - (b) where the TAG and the DCC cannot reach an agreement on the approach to and/or coverage of the testing for the CH&N SEC Variations, the matters of disagreement shall

be referred by the DCC to the Secretary of State for determination. The Secretary of State's decision on such matters shall be final and binding for the purposes of this Code and the June 2024 SEC Release testing approach document shall be updated by the DCC as necessary and deemed to be final in respect of the CH&N SEC Variations.

- 6.2. The DCC shall comply with the test approach document for the June 2024 SEC Release insofar as it relates to the CH&N Variations.
- 6.3. The provisions of Clause 5 shall apply in respect of completion of testing of the CH&N Variations that comprise part of the June 2024 SEC Release, including that where the Panel and the DCC cannot reach an agreement on whether testing has completed in respect of the CH&N SEC Variations, the matters of disagreement shall be referred to the Secretary of State for determination. It is acknowledged that the Completion Report in respect of the CH&N SEC Variations comprising part of the June 2024 Release shall form part of the Completion Report for the June 2024 SEC Release.

7. Mandatory User Testing (if Required)

- 7.1. Where the DCC considers that User testing is required prior to implementation of a CH&N Release, it shall set out its proposals for User testing in a draft CH&N Mandated User Testing Document for the CH&N Release, including those Users that should be required to participate in the testing and the User Role in which they are required to participate; the entry requirements for those Users required to participate in the testing, the approach to testing; the arrangements for test completion; the process for resolving testing disputes; and notification of test completion. In developing any CH&N Mandated User Testing Document, the DCC shall consult with the TAG, Parties, and other relevant stakeholders prior to the submission of the document to the Secretary of State.
- 7.2. Following consultation under Clause 7.1, the DCC shall submit each draft CH&N Mandated User Testing Document to the Secretary of State, indicating:
 - (a) why the DCC considers the draft to be fit for purpose;
 - (b) copies of the consultation responses received; and
 - (c) any areas of disagreement that arose during the consultation process and that have not been resolved.
- 7.3. The DCC shall comply with any direction given by the Secretary of State to re-consider, re-consult, and/or re-submit the draft document(s).
- 7.4. Should a CH&N Mandated User Testing Document be approved by the Secretary of State for a CH&N Release, the DCC and each Party other than the DCC that participates in (or is required to participate in) testing, as set out in such approved document, shall comply with that CH&N Mandated User Testing Document for that CH&N Release.

8. Interoperability Issues arising in UIT environments

- 8.1. Prior to the completion of the LSC volume manufacturing milestone set out in the Joint Industry Plan, where interoperability Testing Issues arise during testing in environments used for User testing between the Communications Hub(s) and other HAN-connected Devices, the DCC shall triage and investigate the issue (in conjunction with relevant experts both internal and external) and:
- (a) where the DCC determines that the Communications Hub is non-compliant with the baseline version of the SEC specified in the Testing Baseline Requirements Document (“TBRD”), the DCC shall take the steps necessary to rectify and close the issue, or
 - (b) where the DCC considers that the Communications Hub is compliant with the baseline version of the SEC specified in the TBRD, the DCC shall provide to the Secretary of State a description of what the issue is and the results of its investigation, including a view of how the issue should be rectified and shall refer the matter to the Secretary of State for consideration. The Secretary of State shall determine how the Testing Issue should be rectified and shall notify its decision to the DCC and other stakeholders.