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 1	means that part of the CH&N solution that provides a service utilising SBCH.
CH&N Release 2	means that part of the CH&N solution that provides a service utilising DBCH.
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 next generation Communications Hubs, Device Manager(s), Logistics and the associated Smart Metering WAN(s).
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.
Device Manager	means a Sub-System utilised to manage the interactions with the SBCH or DBCH within the Modified DCC Total System.
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 forecasting, ordering, delivery and return of SBCH or DBCH.
Modified DCC Total System	means the DCC Total System as will be modified as a result of CH&N SEC Variations.
Pre-Integration Test Phase ("PIT")	means the test phase that is inclusive of the Unit Test Stage, Link Test Stage, System Test Stage and Component Integration Test Stage for a Sub-System.
Single Band Communications Hub ("SBCH")	means as defined in Appendix H of the Code.

Term	Meaning
Sub-System	means an element of the Modified DCC Total System, that will be tested independently for the purposes of the Unit Test Stage, Link Test Stage and System Test Stage of PIT.
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.
TAG	means the Panel's Testing Advisory Group.
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.
User Testing	means testing by one or more Users of all or part of any changes to the Modified DCC Total System.

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);

(c) the arrangements that apply to the development of CH&N Test Coverage Document(s); and

(d) the rules to apply to the development of any CH&N Mandated User Testing Document(s).

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 CH&N Release 1 and for CH&N Release 2;

(b) as separate documents for each of PIT and SIT;

(c) in the case of PIT, as separate documents per Sub-System; or

(d) as any combination of the aforementioned permutations,

as the DCC considers appropriate. 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 testing for any PIT or SIT activity (including for individual Sub-Systems in PIT) until the corresponding CH&N Test Approach Document(s) and CH&N Test Coverage Document(s) have been approved by the TAG.

Timetable for Testing

2.8. Test phases shall be commenced in the timescales that are necessary to facilitate testing in accordance with the DCC's delivery plan for Communications Hubs and Networks produced pursuant to Condition 13B of the DCC Licence.

CH&N Testing Objective

2.9. 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 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 once it has been amended to include CH&N SEC Variations.

Test Entry Criteria

2.10. The fulfilment of the following Entry Criteria is required to permit entry into PIT for a Sub-System or SIT:

(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. The DCC shall produce each CH&N Test Approach Document 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 including:

(a) the proposed amendments to this Code that are the subject of the testing, an explanation of the associated changes to the DCC Total System, and the testing objective;

(b) the principles and approach to apply to PIT(s) and SIT;

(c) the testing environments to be used;

(d) the process to be followed in selecting devices for use in PIT(s) and SIT;

(e) the process for resolving Testing Issues, the applicable Testing Issue Thresholds for use in the relevant PIT completion and SIT completion and the process for excluding Testing Issues;

(f) the exit criteria for testing to complete successfully for the relevant PIT and for SIT;

(g) any perceived risks associated with the approach to testing and the proposed mitigations;

(h) the approach to providing for assurance of the testing undertaken; and

(i) matters to be included in any Completion Reports for the relevant PIT and SIT.

4.1.2. The DCC shall submit each draft CH&N Testing Approach Document 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.

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

4.1.4.1. may, from time to time, be submitted by the DCC to the TAG for agreement in accordance with the provisions of Clause 4.1.2, and the provisions of Clause 4.1.2 shall apply (again) to the revised version of the document; or

4.1.4.2. 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. 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 PIT and SIT and shall include:

(a) 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;

(b) where a Test Coverage Document covers both a PIT test phase and SIT, whether the identified requirement shall be tested in PIT or SIT;

(c) the list of Devices selected to be utilised in the relevant PIT or SIT (as the case may be), having followed the process to select Devices set out in the applicable CH&N Testing Approach Document; and

(d) 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 to the TAG for review (and such submission by the DCC and review by the TAG may take place prior to this Clause 4.2.2 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 and shall take all reasonable steps to complete the tests set out in each CH&N Test Coverage Document in accordance with the milestone plan published by the DCC for the CH&N Arrangements.

4.2.4. Revisions to a CH&N Test Coverage Document finalised pursuant to Clause 4.2.2:

4.2.4.1. may, from time to time, be submitted by the DCC to the TAG for agreement in accordance with the provisions of Clause 4.2.2, and the provisions of Clause 4.2.2 shall apply (again) to the revised version of the document; or

4.2.4.2. 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

5.1. Completion of testing for:

(a) PIT for each Sub-System in respect of CH&N Release 1;

(b) SIT in respect of CH&N Release 1;

(c) PIT for each Sub-System in respect of CH&N Release 2; and

(d) SIT in respect of CH&N Release 2

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;

(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 CH&N Release 1, SIT for CH&N Release 1, PIT for a Sub-System in CH&N Release 2 or SIT for CH&N Release 2 (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. Mandatory User Testing (if Required)

6.1. Where the DCC considers that User testing is required prior to implementation of the CH&N Variations in respect of CH&N Release 1 or CH&N Release 2, it shall set out its proposals for User testing in a draft CH&N Mandated User Testing Document for CH&N Release 1 or CH&N Release 2 (as the case may be), 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.

6.2. Following consultation under Clause 6.1, 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.

6.3. 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).

6.4. Should an CH&N Mandated User Testing Document be approved by the Secretary of State for CH&N Release 1 or for CH&N Release 2, 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 CH&N Release 1 or for CH&N Release 2, as the case may be.