

SEC Appendix AY

SEC Variation Testing Approach Document for the Virtual WAN Solution

Table of Contents

1. Definitions and Interpretation3

2. General6

3. Modification of the VWAN SVTAD8

4. VWAN Testing Approach Document.....8

5. VWAN Test Coverage Document..... 10

6. Test Completion 10

7. Interoperability Issues arising in UIT environments..... 12

1. Definitions and Interpretation

- 1.1. In this SEC Variation Testing Approach Document for the Virtual WAN Solution (hereafter “VWAN 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 VWAN 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 VWAN SVTAD and the related VWAN Test Approach Document, or any Test Coverage Document this VWAN SVTAD shall take precedence.
- 1.3. Where obligations are expressed in respect of DCC Service Providers in this VWAN SVTAD, or the VWAN Test Approach Document and the Test Coverage Document these shall be construed as obligations on the DCC. Where text is included in this VWAN SVTAD, or the VWAN Test Approach 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 VWAN SVTAD Definitions

Term	Meaning
4G Device Manager	means a Sub-System utilised, amongst other things, to manage the interactions between the 4G Communications Hub and the rest of the Modified DCC Total System.
Completion Report	means a report that is produced setting out evidence demonstrating how the criteria for the completion of testing have been met.
Data Services Provider, or DSP	means the DCC acting from those systems identified in part a) of the definition of DCC Live Systems.
Device Model Combination	This comprises of 1 x ESME, 1 x GSME, 1xVWCH and 1xVWD
Joint Industry Plan	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 VWAN Arrangements
Modified DCC Total System	means the DCC Total System as it will be modified to enable the delivery of services following the introduction of the VWAN Solution, and which, for the avoidance of doubt, includes VWCH.

Term	Meaning
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.
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.
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 the VWAN Release.
Virtual WAN Arrangements (VWAN Arrangements)	A general description of the overall arrangements supporting the implementation of the new internet-based communications solution for smart metering. This includes the Virtual WAN Solution, VWDs and the supporting changes to the regulatory framework.
Virtual WAN Communications Hub (VWCH)	A Communications Hub that has the capability to connect to a VWD.
Virtual WAN Device (VWD)	A device that can connect to and convey messages between a VWCH and the DCC’s VWP interface via the consumers’ broadband and the internet.
Virtual WAN Provider (VWP)	New functionality in DCC that will allow messages to be conveyed to and from Smart Metering Systems over the internet, the consumer’s broadband, a VWD and a VWCH. The Virtual WAN Provider will also connect to existing DCC Systems.
Virtual WAN Release (VWAN Release)	means the changes delivered as part of the VWAN Solution
Virtual WAN Reliant Premises (VWAN Reliant Premises)	A premise or premises in which there is installed a VWAN SMS.

Term	Meaning
Virtual WAN SEC Variations (VWAN SEC Variations)	means the variations to the SEC that are planned to support the introduction of and transition to the VWAN Arrangements as published by the DCC and/or the Secretary of State from time to time.
Virtual WAN Smart Metering System (VWAN SMS)	A Smart Metering System that relies on the Virtual WAN Solution to exchange messages with the DCC.
Virtual WAN Solution (VWAN Solution)	The technical solution supporting the VWAN Arrangements which includes the new DCC capability to route messaging to and from with Smart Metering Systems via VWDs over the internet and consumer's broadband connection (the VWP), as well as VWDs themselves and VWCHs.
Virtual WAN Test Approach Document (VWAN Test Approach Document)	means a document produced pursuant to Clause 4.1.

2. General

- 2.1. This document is the SEC Variation Testing Approach Document for the Virtual WAN Arrangements (hereafter “VWAN SVTAD”).
- 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 VWAN SVTAD.
- 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 VWAN SVTAD 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 VWAN SVTAD sets out:
 - (a) the framework for the testing that is required to be undertaken for the introduction of the VWAN SEC Variations;
 - (b) the arrangements that apply to the development of VWAN Testing Approach Document(s) for the VWAN Solution;
 - (c) the arrangements that apply to the development of VWAN Test Coverage Document(s) for the VWAN Solution; and
 - (d) the rules to apply to the DCC’s selection of Devices where Devices are 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 the VWAN Solution.
 - (b) as any combination of the aforementioned permutationsas the DCC considers appropriate.
- 2.6. Testing undertaken pursuant to this VWAN 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 the VWAN Solution (including for individual Sub-Systems in PIT) until the VWAN Test Approach Document(s) and VWAN Test Coverage Document that set out the approach to and coverage of those tests has been approved by the TAG.

- 2.8. Where the VWAN Test Approach Document produced pursuant to Clause 4.1 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 SIT) in respect of the VWAN Release, this shall be clearly stated in the VWAN Test Approach Document. The DCC shall subsequently seek TAG approval of an updated VWAN 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 the VWAN Test Approach Document setting out the approach to those tests having been agreed pursuant to Clause 4.1 or 4.2.
- 2.9. Where the VWAN Test Coverage Document produced pursuant to Clause 5 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 SIT) in respect of the VWAN Release, this shall be clearly stated in the VWAN Test Coverage Document. The DCC shall subsequently seek TAG approval of an updated VWAN 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 the VWAN Test Coverage Document agreed pursuant to Clause 5.1 or 5.2 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

VWAN Testing Objective

- 2.11. The objective of testing undertaken pursuant to this VWAN SVTAD (the “VWAN Testing Objective”) is to demonstrate that the DCC and the component parts of the Modified DCC Total System in respect of the VWAN 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 the VWAN Release.

VWAN 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 the VWAN 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 VWAN SVTAD

3.1. This VWAN 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 those documents in accordance with any direction to do so 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, the 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;
- (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. VWAN Testing Approach Document

4.1. The DCC shall prepare a draft VWAN Testing Approach Document, which shall include the approach to testing for the VWAN Release including:

- (a) the proposed amendments to this Code that pertain to the testing, an explanation of the associated changes to the Modified DCC Total System, and the testing objective;
- (b) the scope of the VWAN Release to which the VWAN Test Approach Document relates;
- (c) the principles and approach to apply to SIT;
- (d) the testing environments to be used;
- (e) whether devices are to be used in testing and if so which ones;
- (f) the requirements (if any) for security testing;
- (g) the requirements (if any) for system capacity testing;
- (h) the process for resolving Testing Issues, the applicable Testing Issue Thresholds for use in SIT completion and the process for excluding Testing Issues;
- (i) the exit criteria for testing to complete successfully;
- (j) any perceived risks associated with the approach to testing and the proposed mitigations;
- (k) the approach to providing for assurance of the testing undertaken; and
- (l) matters to be included in the VWAN Release Testing Completion Report (to be prepared pursuant to Clause 6).

- 4.2. The DCC shall submit the draft of the VWAN Testing Approach Document in respect of the VWAN Release to the TAG for review (and such submission by the DCC and review by the TAG may take place prior to this Clause 3.1 coming into effect); and:
- (a) Where the TAG and the DCC can reach an agreement, the relevant draft VWAN 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 VWAN Testing Approach Document shall be updated by the DCC as necessary and deemed to be final.
- 4.3. The DCC shall comply with the VWAN Testing Approach.
- 4.4. Revisions to the VWAN Testing Approach Document finalised pursuant to Clause 4.2:
- (a) may, from time to time, be submitted by the DCC to the TAG for agreement in accordance with the provisions of Clause 4.2, and the provisions of Clause 4.2 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.
- 4.5. The DCC must test against one Device Model Combination in PIT and SIT provided that:
- (a) in the case of PIT, where a VWD is not available to be used, then DCC may use a VWD emulator, for the sake of clarity an emulator is a stub and/or harness to simulate the VWD behaviour
 - (b) in the case of SIT, where a VWD is not available to be used the DCC may initially use a VWD emulator, however as part of SIT exit, DCC must have undertaken tests with a real VWD device, except as directed by the Secretary of State and
 - (c) in the case of SIT, a device set without a VWD will be used for regression tests which will be the same device set that was used for SIT testing of the 4G CH&N Arrangements.
- 4.6. The device set with a VWD selected by the DCC should comprise of the device set which is expected to be in use in the initial operation of the VWAN Arrangements.
- 4.7. The DCC shall document its use of emulators, and which device set(s) it shall be using and for what purpose in the relevant VWAN Testing Approach Document. Where the specific device set(s) are not known when the VWAN Testing Approach Document is first agreed, the DCC shall subsequently update the VWAN Testing Approach Document to list the device set(s) when they are known. For the avoidance of doubt, this part of the VWAN Testing Approach Document or any updates to include this information are not subject to the agreement process set out in Clauses 4.4 and 4.5.

5. VWAN Test Coverage Document

- 5.1. The DCC shall prepare the VWAN Test Coverage Document in accordance with the requirements in Clause 2.4, which shall set out the depth and breadth of testing required in PIT and SIT in respect of the VWAN release 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) any perceived risks associated with the scope and coverage of testing and the proposed mitigations.
- 5.2. The DCC shall submit each draft VWAN 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 5.2 coming into effect) and:
- (a) where the TAG and the DCC can reach an agreement, the relevant draft VWAN 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 VWAN Test Coverage Document shall be updated by the DCC as necessary and deemed to be final.
- 5.3. The DCC shall comply with the VWAN Test Coverage Document in respect of the VWAN Release and shall take all reasonable steps to complete the tests set out in the VWAN Test Coverage Document in accordance with the milestones on the Joint Industry Plan.
- 5.4. Revisions to a VWAN Test Coverage Document finalised pursuant to Clause 5.2:
- (a) may, from time to time, be submitted by the DCC to the TAG for agreement in accordance with the provisions of Clause 5.2, and the provisions of Clause 5.3 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.

6. Test Completion

- 6.1. Completion of testing for:
- (a) SIT in respect of the VWAN Release,
- shall, only complete when the Panel determines that the exit criteria for completion as set out in the relevant Testing Approach Document have been met.

- 6.2. When the DCC considers that such completion ought to occur, the DCC shall prepare a Completion Report as provided for in the VWAN Testing Approach Document. The DCC shall:
- (a) notify the Secretary of State, the Authority, the Panel, TAG and the Parties that the DCC considers that testing has been completed in respect of the VWAN Release;
 - (b) provide the Authority, the Panel, TAG, 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.
- 6.3. The Panel shall confirm the completion of testing for SIT in respect of the VWAN Release (as the case may be) or shall highlight where it believes the Exit Criteria have not been met.
- 6.4. 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.
- 6.5. Where the Panel declines to confirm the completion of testing for the relevant test phase, the DCC shall update the 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 6.2 onwards shall apply again).
- 6.6. Where a referral has been made by the DCC pursuant to Clause 6.4 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 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 6.2 onwards shall apply again).
- 6.7. The DCC shall publish the final Completion Report for the SIT test phase, 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 report.

7. Interoperability Issues arising in UIT environments

7.1. Prior to the end of the Soft Launch, where interoperability Testing Issues arise during testing in environments used for User testing between the Communications Hub(s) or VWAN Provider and VWD or 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 VWCH or VWP 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 VWCH or VWP 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.