

**DRAFT**  
**Highlights of the Testing Teleconference**  
**Held on 27 January 2009 (15:00 to 17:22 UTC)**

## **Introductions**

This was a teleconference to review the updates to draft 9-2LE Merging Unit Publisher Test Procedures, finalize the Test Procedures Change List (TPCL), review the draft Strict Checking SCL Document, and cover action items and pending future activities for Testing. The agenda and invitation to participate was sent out to all the individuals on the Testing E-Mail List on 21 January 2009. Draft reference documents had been sent out and/or posted earlier. (We had initially selected the date for today's teleconference at our meeting last December 3.) The Teleconference was held on January 27 starting at 15:00 UTC (10 AM US East Coast, 7 AM West Coast and 16:00 Europe Time). The Teleconference lasted for 2 hours 22 minutes and was adjourned at 17:22 UTC. Jack Robinson kept the minutes (this document).

## **Participants**

The following people participated in the Teleconference:

- Etherden, Nicholas --- STRI
- Hoga, Clemens --- Siemens
- Janssen, Marco --- Utinovation, UCAlug QAP Editor
- Muschlitz, Bruce --- Chair Testing SubCommittee
- Robinson, Jack --- UCAlug and Testing SubCommittee Secretary
- Schimmel, Richard --- KEMA, IEC 61850 Test Procedures/ Issues Editor
- Steinhauer, Fred --- Omicron, IEC 61850 Editor
- Tan, JC --- KINECTRICS
- Wycinka, Marcin --- AREVA-TD

## **REFERENCES:**

- A. Teleconference 3 December 2008 Minutes, Jack Robinson, Dated 8 December 2008
- B. E-Mail Teleconference 27 January Announcement/ Agenda, Posted 21 January 2009, Bruce Muschlitz
- C. Test Procedures for Merging Units 9-2LE Publisher, Revision 0.3, with 3 December Meeting Comments, Richard Schimmel Editor, Dated 8 December 2008
- D. Strict Type Checking SCL File (ZIP Format), Bruce Muschlitz, Posted 21 January 2009
- E. Test Procedures for Merging Units 9-2LE Publisher, Revision 0.4, Richard Schimmel Editor, Dated 27 January 2009
- F. Draft Test Procedures Approved Change List (TPCL) against Server Version 2.2, Richard Schimmel Editor, Dated 27 November 2008

## **Opening Remarks**

Bruce Muschlitz, Testing Subcommittee Co-Chair, conducted the teleconference. We first reviewed the agenda (see Reference B). Given time, we will cover additional issues. Jack Robinson kept the minutes.

## **Approval of 3 December 2008 Minutes**

There are no recommended changes to the minutes of our most recent (December 3, 2008) teleconference, Reference A, and they are approved.

## **Testing of Merging Units/ 9-2 LE Publisher**

We reviewed the status of the most recent Draft 9-2LE Merging Unit Publisher Test Procedures and discussed pending changes. Richard submitted an update, Reference E, Revision 0.4, just prior to this meeting.

Changes include converting requirements of 9-2LE into abstract test cases. For example, 1-PPS input requirement was added. This 1-PPS requirement started a long discussion on what the test should include because unsynchronized sampling is also useful (but not allowed!) for real-world merging units. We agreed to review the new version and be prepared to comment at the DistribuTECH meeting next week: Specifically "Should the requirement for 1-PPS input (and synchronized sampling) be removed?"

KEMA is using the draft procedures to start the practical testing. During the testing we expect the test procedures will be updated one or more times.

## **Strict SCL Checking**

Bruce has prepared a draft document covering SCL Checking (Reference D). Participants did not have enough time to review the draft SCL schema, which was sent out on January 21. Bruce made the point that users should not use the schema for other than the intended purpose. The schema are intended as a sanity check on content and format. The ReadMe Document in the Referenced ZIP File defines the intent of the Strict SCL Checking. Vendors agreed to run their favorite SCL instance files against the schema and provide feedback. All will review the content and recommendations in the ReadMe Document.

## **Time Quality/ Clock Failure**

We discussed the use of the ClockFailure bit: Part 7-2 has this bit as mandatory, but PIXIT allows for no support of this bit. Testing of this bit is tied to SNTP support. Part 7-2 does not clearly describe usage of these bits (to the level of detail required for testing).

Richard will write brief descriptions of these bits and send out on the Testing E-Mailer. If no comments are received within 1 week, Richard will submit a formal TISSUE against 7-2 Edition 1.

## Test Procedures Approved Change List

As discussed at our 14 October and 3 December teleconferences we have initiated a more formal process for tracking changes to the UCAlug documents. In particular, we agreed to start an activity to track pending UCAlug IEC 61850 Server Test Procedure changes in the "Test Procedures Approved Change List" (TPCL).

These changes include clarifications to the test steps both to correct text and to clarify expected results. Problems that are uncovered during device testing that impact the IEC 61850 Standard are taken back through the TISSUES Process. However, there are some problems that relate only to the content of the Test Procedures. The UCAlug is the owner of the Test Procedures and so has the responsibility for tracking changes. Given the long time lag between major versions, we have a need to track interim changes that may impact testing.

The TPCL will be referenced in the Device Test Report to clarify the status and content of the applicable Test Procedures used for the given test. (We still have an action item to document the TPCL in the Testing Quality Assurance Program.)

The most recent TPCL draft, Reference F, is dated November 27, and includes all comments discussed at our earlier teleconferences. Originally, the date in the title served to identify the approved changes and the list content. "ServerRevision2.2" identifies the document against which the changes are pending. We agreed to add a version number to the document title. Reference F will be identified as Version 1.0. Jack took an action item to post the TPCL in the same area as the final, approved Test Procedures. This area of the Testing Web Site is visible to both UCAlug Members and Testing SubCommittee and Working Group Members.

Bruce had posted some possible additions to the TPCL (see Reference B). We discussed these additions, which relate to the Server Tests v2.2, Tests Cases CtlN2 and CtlN4 SBOes:

CtlN2 sends second select from same client, CtlN4 sends second select from a different client: Part 7-2 (Ed1) is not clear on the actions to be taken under this condition.

Tissue 334 resolves for CtlN2 "return "Response- with an appropriate Add Cause" and Part 7-2 (Ed2 CDV) is more clear : "All control requests for the selected control object from other clients [after a select from this client] shall generate a negative response".

The Issues are:

- a. For CtlN2, does a second select extend the select timeout (without error), or a "no-operation" (without error), or cancel the select (with error)?
- b. For CtlN2, what is value of LastAppIError.Error (choices are "No error" or "Unknown" or "timeout test not OK" or "operator test not OK"?)
- c, for CtlN2, what is the value of LastAppIError.AddCause (choices are "select-failed" or "command-already-in-execution" or a new value?
- d. for CtlN4, what is value of LastAppIError.Error and LastAppIError.AddCause (it is clear that this is an error with no effect on the first client's select)?

We need to consider if the Test Procedures should be changed to allow PIXIT-specified behavior for the above choices. If no other comments are received by 3 February, Richard will add the PIXIT-specified resolutions to the TPCL. We will release this as TPCL Version 1.1.

## **SNTP and Source (UDP) Port**

IEC 61850-8-1 (Edition 1 and CD of Edition 2) requires usage of SNTP for time sync. SNTP (RFC2030) requires a source port of 123. Both the newer SNTP (RFC 4330) and existing NTP (RFC 1305) make no requirements for the source port (they actually assume an ephemeral port will be used). Usage of a fixed source port (such as 123) is known to cause problems with NAT (Network Address Translation) used in typical networks.

Bruce agreed to write a TISSUE against 8-1 Ed1 stating that "SNTP 2030 will be used but the restriction that the UDP source port must be 123 will not be enforced for this part". Bruce will send a copy of the TISSUE to all for review before sending out to the TISSUE Working Group.

## **Other Issues/ Next Meetings/ Conclusion**

Bruce noted that CPRI will be participating in the Testing Meetings/Discussions. CPRI has applied to the UCAIug as an IEC 61850 Tester. Bruce will add the CPRI representative Arunachalam Vaidyanathan (varun@CPRI.in) to the Testing E-Mail List and specifically invite him to upcoming scheduled meetings.

IEC 61850 Client Testing: Clemens Hoga asked about the status of Client Testing. Bruce noted that the Client Test Procedures have been approved as Version 1.0, dated March 2008. KEMA has submitted a formal request in accordance with the UCAIug Testing Quality Assurance Program to be accredited as an IEC 61850 Client Tester. Bruce and Richard covered the status of the Tester approval: KEMA is working with the Audit Task Force to resolve some open questions on the sample Client Test Traces. KEMA successfully reran some of the tests but 2 tests are still missing. KEMA can perform one test using the provided test SNTP server but another test must await custom programming by KEMA. KEMA will discuss the situation with their customer to decide on a course of action: 1) Delay release of the certificate until KEMA is ready to run all tests, or 2) Issue certificate which clearly indicates that some (specific) tests were not performed.

We agreed to meet informally at DistribuTECH to discuss 9-2LE Testing Procedures. We arranged to meet at the EnerNex booth (#1523) at 11:30 3 February (next Tuesday). The following people plan to attend: JC Tan , Edwin Melenhorst, Fred Steinhauser, Christoph Brunner, and Marco Janssen. Also, we will invite Herb Falk and George Schimmel. A Siemens representative will probably attend. Bruce will send the meeting notice to the Testing and UCAIug E-Mailers and directly to Christoph Brunner (Editor of the 9-2LE Document), Clemens Hoga (Siemens representative), Stephan Gerspach (ABB representative) and Kevn Hill (AREVA representative). The agenda is 9-2LE Testing (and 1-PPS removal).

We also decided to meet informally in Grenoble at the IEC meeting. Given the schedule constraints in Grenoble, we expect that we would have no more that 2 hours for our Testing Meeting. Bruce to send a note to Christoph asking him to schedule a time during the start of the Grenoble meeting.

We set a date for our next teleconference: 3 March 2009 at 15:00 UTC. Bruce will send out a notice for the this teleconference as soon as possible.

We set a date for a possible face-to-face meeting in Pittsburgh following the PSRC Meeting (Thursday, 14 May from 1 to 6 PM and Friday, 15 May from 8 AM to Noon).

The teleconference was adjourned at 17:22 UTC.

## Teleconference Action Items

*Includes open action items from our 3 December Teleconference.*

1. Continue Client Test Procedures/ Initial Device Test Activity. KEMA has the lead and is maintaining a change list.
2. GOOSE Performance Testing. Future activity. Need to assign an editor to take the lead.
3. Consider preparation of GOOSE Implementation Agreement. Need for user document.
4. Update of the Testing QAP Documents is needed to cover Client Testing, the Client Certificate, and the use of the Test Procedure Change List (TPCL).
5. Jack will release the most recent published TPCL (dated November 27) to the same area of the UCAlug Website as the final Test Procedures (UCAlug Corporate Members). This area of the Website is also viewable by members of the Testing Subcommittee/Working Groups. This TPCL will be identified as Version 1.0.
6. Testing to consider if the Test Procedures should be changed to allow PIXIT-specified behavior for the Select-Before-Operate Test Cases CtIN2 and CtIN4. Richard will add the PIXIT-specified resolutions to the TPCL, which will be identified as Version 1.1.
7. Review the draft Strict SCL Check Document. Vendors agreed to run their SCL instance files against the schema and provide feedback. All to review the content and recommendations in the ReadMe Document. Initial responses due on 3 February.
8. Richard will write brief descriptions of the TimeQuality/ Clock bits and send out on the Testing E-Mailer. If no comments are received by 3 February, Richard will submit a formal TISSUE against 7-2 Edition 1.
9. Bruce to write a TISSUE against 8-1 Ed1 stating that "SNTP 2030 will be used but the restriction that the UDP source port must be 123 will not be enforced for this part". Bruce will send a copy of the TISSUE to all for review before sending out to the TISSUE Group.
10. Bruce will add the CPRI representative Arunachalam Vaidyanathan (varun@cpri.in) to the Testing E-Mail List and specifically invite him to upcoming scheduled meetings.
11. Bruce to setup Meeting at DistrubuTECH for next Tuesday.
12. Bruce to setup Meeting at Grenoble. Coordinate with Christoph Brunner.
13. Setup next Testing teleconference to review documents and to resolve open issues. Tentatively scheduled for 3 March 2009 starting at 15:00 UTC (10 AM US East Coast, 7 AM West Coast and 16:00 Europe Time). Bruce and Jack will coordinate.
14. Possible Testing Meeting in parallel with the PSRC May 2009 Meeting. Bruce and Jack to coordinate.