



UCA® International Users Group
10604 Candler Falls Court
Raleigh, NC 27614
Tel: +919-847-2241, Fax: +919-869-2700
<http://sharepoint.ucausersgroup.org>

Overview of the UCA International Users Group Testing Quality Assurance Program

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The UCA International Users Group (UCAlug) is a not-for-profit consortium of leading utility user and supplier companies dedicated to promoting the integration and interoperability of electric/gas/water utility systems through the use of international standards-based technology. The Users Group is an International Organization that strongly supports open standards and free exchange of information. The activities of the UCAlug include training and educational programs, disseminating technical and business information, sponsoring promotional programs in coordination with industry trade events, providing a forum for members to coordinate their efforts with the various technical committees setting the standards, and implementing testing and product certification programs. Focus has been on IEC 61850, "Communication Networks and Systems in Substations", the Common Information Model/Generic Interface Definition (CIM) per IEC 61970/61968, and OpenAMI/DR for advanced metering and demand response.

The UCAlug Charter was written to complement the activities of international standards organizations. For example, the UCAlug works closely with, and coordinates through, the IEC. The Convener of IEC TC57/WG10 (IEC 61850) is on several UCAlug committees and is an advisor to the Board. The Editor of the Testing Quality Assurance Program (QAP) was the editor of Part 10, Testing Requirements, of IEC 61850. Further, many members of TC57/WG10 are on the UCAlug Technical Subcommittee for the resolution of 61850 issues (Tissues). The Users Group does not write standards but does work closely with standards organizations for technology transfer, resolution of issues and assisting users with testing and product implementation. One major focus of the UCAlug Charter is the Testing Quality Assurance Program (QAP).

The UCAlug Testing Committee/Working Groups have developed three major sets of documents to support testing: 1) The Testing Quality Assurance Program (QAP) Master Document which defines the overall process, 2) Test System Accreditation/Recognition giving the rules and procedures for Test Center qualification, and 3) Product Test Procedures with details on how to conformance test devices and how to report results. The UCAlug Test Procedures define conformance tests in a "type test" format where a well-defined test driver in a controlled environment runs through a sequence of steps, checks alternatives and options, and checks proper response to error conditions. This helps to ensure conformance to the standards and provides the end user a high level of confidence that systems will interoperate. It is important to note that interoperability is dependent on implementation of identical services, optional features, and resolved Technical Issues of the standard. Separate interoperability tests are usually performed to verify correct system functionality.

The UCAlug works closely with TC57/WG10 to resolve Technical Issues, called Tissues, which are identified during development and interoperability testing via feedback into the UCAlug Testing QAP process. The IEC procedures define methods for making changes to the standard through formal proposals to the IEC committees. The IEC national committees vote on the proposed changes to a standard and issue amendments. After two approved amendments are made a new version of the standard is issued. The standardization process is relatively slow, may take many months or years, and therefore is not suitable for quick resolution of issues that may arise from the application of the standard. The impact of this slow process is that experiences from the application of the standard may never be available until a later stage and therefore may not be used in a standardized and coordinated way. The UCA International Users Group, in close co-operation with the IEC TC 57 WG10, has therefore established a process for the *relatively fast resolution of technical issues* (Tissues) with the IEC 61850 standard. An accelerated process is now in place to ensure a timely response to technical issues to minimize the impact on active projects utilizing the standard. This process is organized and executed under the UCAlug 61850 Technical Committee which includes many members of TC57/WG10. Tests for resolved Tissues are added to the UCAlug Test Procedures so that users may be assured that products are as current as possible. The UCAlug members implementing the standard have the added benefit of timely issue resolution enabling early adoption of the technical solution prior to the amended standard being published.

The establishment of the UCAlug Quality Assurance Program (QAP) for Product Testing and Test System Accreditation and Recognition provides a major benefit to UCAlug members by improving the cost effectiveness of the testing process. Approved Test Centers must provide their procedures, test results, and ISO 9000 certificates (or equivalent) to the UCAlug in order to prove they are working according to the User Group guidelines. Product Certificates issued by an Accredited/Recognized Test Center will show the conformance blocks tested with positive result, the unique identification of the product tested, test center version, test systems used, and the version of Technical Issues (Tissues) which have been resolved in the product. Vendors who have received certificates participate in the Users Group Quality Assurance Program and are required to provide feedback on problems encountered in field implementation. Audits are completed periodically to ensure that testers and vendors are complying with the UCAlug Testing Quality Assurance Program.

The UCAlug presently has eighty six (86) corporate members and over five hundred (500) individual members from twenty-six (26) countries. Further information, the UCAlug Charter, public documents, access to the working areas and discussions, resolved Tissues, and an invitation to join the Users Group may be found at: www.ucainternational.org



Kay Clinard

President, UCA International Users Group