Unapproved Minutes

IEEE/PES Transformers Committee
Standards Subcommittee Meeting
April 13, 2011 San Diego, CA

1. Opening Remarks

Following welcoming and introductions, Chair, William Bartley summarized the recent activities of the Transformer Standards activity for the six-month period of Oct 1 2010 to April 1, 2011. The Transformer Committee is responsible for approximately 90 active standards, plus 43 projects for new standards and revisions. For the full STANDARDS REPORT see the TC website (The link is: http://www.transformerscommittee.org/meetings/S2011-SanDiego/Minutes/S11-StandardsStatusReport.pdf).

There have several changes at the IEEE to be aware that include changes to the Ballot Process, Changes in personnel with IEEE Staff Liaison - Matt Ceglia having been moved up within the IEEE. Matt's expert advice and contributions to the Standards SC and TC was recognized by the Chair and our appreciation was noted. The temporary IEEE-SA Staff Liaison is Erin Spiewak.

Also, the IEEE International Coordinator is Jodi Haasz. The Chair announced that Vice Chair, Steve Antosz, will be directly involved with the interface for the Standards SC regarding the International Standards coordination.

The IEEE TC requirements to have quorum present was reiterated.

2. Meeting Attendance

The Standards Subcommittee met on Wednesday, April 13, 2011, at 4:30 PM. A role call showed 25 members in attendance constituting a quorum. Over all 50 attended with, 25 quests including 3 that requested membership.

3. Approval of previous meeting minutes

The Chair asked if there were any comments or corrections to the previous meeting minutes, and motioned for approval. There where no comments to the meeting minutes from the Fall 2010 meeting in Toronto, Ontario, Canada; and the minutes were approved.

4. Working group reports.

- **Cont. Revision of C57.12.00 – Steve Snyder** reported the following:

  This is essentially a working group of one person. There are no meetings. The purpose of the WG is to keep track of and compile all the work being done in various TF/WG/SC's for inclusion in the continuous revision of C57.12.00 in a consistent manner. This WG coordinates efforts with the companion Standard C57.12.90 so that they publish together. The goal is to issue new Standards every 2 to 3 years.

  Standard C57.12.00 was published September 2010.

  At present there are no new items known to me. Once it is decided to move ahead with new revisions to C57.12.00-2010 and C57.12.90-2010, then a PAR will be submitted and a revised draft document will be created.

  Respectfully submitted, by Steven L. Snyder, WG Chair, on April 9, 2011

- **Cont. Revision of C57.12.90-2006 – S. Antosz** reported the status of as:

  Introduction

  This is essentially a working group of one person. There are no meetings held. The purpose of the WG is to keep track of and compile all the work being don in various TF/WG/SC's for inclusion in the continuous revision of C57.12.90 in a consistent manner. This WG coordinates efforts with the companion Standard C57.12.00 so that they publish together. The goal is to issue new Standards every 2 to 3 years.

  Past Revisions

The most recent publication of C57.12.90 was done in October of 2010. Here is a list of the significant revisions:

- Subclause 5.3. Resistance measurement methods has been changed to promote the voltmeter-ammeter method over the bridge method.
- Subclause 5.4. Resistance measurements connections and reporting have been added.
- New subclause 9.5.5. Provides a test method for zero-sequence impedance measurement on transformers with interconnected windings.
- Subclause 10.2.2.1. Switching impulse wave polarity has been changed to require negative polarity instead of an option between positive or negative polarity.
- Subclause 10.3.1.1. Full-wave impulse testing has been completely rewritten.
- Subclause 10.3.1.3. Chopped-wave impulse testing has been completely rewritten.
- Subclause 10.3.2.5. Nonlinear protective devices has been completely rewritten.
- Subclauses 10.5 to 10.10. Low-frequency tests have been revised.
- Former subclause 10.10.5. Deleted temperature correction factors of insulation power factor.
- New Annex B. Factors for conversions from 50 Hertz to 60 Hertz and vice versa.

Future Revisions

Changes *already approved* for the next revision:

- New sub-clause 10.2.5 Connection of neutral terminal during switching impulse tests by Pierre Riffon's WG Revision to Impulse Test in Dielectric Test Subcommittee. Submitted on 4/27/09.
- Revisions to Clause 12 Short-circuit tests and new Annex on Connections diagrams for testing three-phase transformer using alternate single-phase source by Marcel Fortin's Task Force in the Performance Characteristics Subcommittee. Submitted in Fall 2009.
- Revision to sub-clause 10.3.2.4 Tap connections during lightning impulse test by Pierre Riffon's WG Revision to Impulse Test in Dielectric Test Subcommittee. Submitted on 10/28/10.

There has been *ongoing work* in several groups which may result in changes for the next revision. Timetables for completion are not known.

- Revision to Clause 11 Temperature-rise tests by Paulette Payne Powell's WG in the Insulation Life Subcommittee.
- Revision to Clause 13 Audible Sound by Ramsis Girgis' TF/WG in the Performance Characteristics Subcommittee.
- Possible revisions of Clauses 6 & 7 Polarity & Phase-relation and Ratio tests from Mark Perkins' PCS WG for Revision of C57.12.90 in the Performance Characteristics Subcommittee.
- Other possible revisions to Sub-clauses 10.2 to 10.4 from Pierre Riffon's WG for Revision to impulse tests.
- Other possible revisions of Sub-clauses 10.5 to 10.10 from Bertrand Poulin's WG for Revision of low frequency tests.
- There was an old action item from 2004 about adding a new clause on Single-Phase Excitation Tests chaired by Bruce Forsyth in the Dielectric Test Subcommittee. This special dielectric test keeps getting lost even though all discussions seem to produce agreement to add the test. Status unknown. Just noting here, if in case someone wants to revive this yet again.

Summary

As can be seen from the above lists, most of the major clauses of the document have been recently reviewed or are presently in the process of review; therefore, the Standard can be considered to be in pretty good shape.

Once it is decided to move ahead with new revisions to C57.12.00-2010 and C57.12.90-2010, then a PAR will be submitted and a draft revised document will be created. Until then, this WG of one will just wait for the ongoing work to proceed to conclusion.

Respectfully submitted, by Stephen Antosz, WG Chair, on April 4, 2011

- **PC57.12.70 Terminal Markings Revision – S. Shull –**

The Chair explained the invitation to ballot on PC57.12.70 Standard Terminal Markings and Connections for Distribution and Power Transformers would be issued this week (actually was issued on Thursday, 4/14/2011) and all are encouraged to participate.

WG on Revision of IEEE C57.152 (old 62) –Jane Verner –

This was the ninth meeting for this Working Group. After introductions, the attendees totaled 95, (65 Guests, 30 of 53 the Members, and 7 requesting membership) allowing for a quorum. It was asked if any patents were related to the work of the group; there were none.

The fall 2010 Toronto meeting minutes were approved. Committee membership was reviewed with regard to quorum rules.

Draft 4.1 has been issued and posted on the website. Dan Sauer has offered many comments.

We held one web meeting since the Toronto meeting when we discussed the following:

> Section 6.1.2 - Ratio/ Polarity/Phase: A team comprised of John Herron, Ajith Varghese, Brian Penny, Mario Locarno, Tauhid Ansari and Peter Werelius contributed to the section. This section needs to be added to the draft.

John Herron gave presentation on Induced Voltage Testing. Power electronic testing equipment is now available to allow more frequent induced voltage testing of power transformers in the field. Previously this test was primarily a factory test. John provided a preliminary copy of text for the guide. Mark Perkins and Craig Stiegemeier provided comments on the document as well. After comments are finalized they will be added to the Guide.

We agreed to add a new section on Applied Voltage Testing. A small task force was nominated to author this section on Applied Voltage. The task force will be comprised of John Herron, Polo Rodriquez, Bill Chiu, Mark Perkins, Bo Blackmon, Charles Garner and Roger Hayes

On other new business a request was made to eliminate data such as power factor for new transformers being test. After much discussion it was agreed to include this data as it provides benefits for the users and many test sets are programmed with these limits anyhow. Jerry Corkran also noted several editorial areas where the Draft 4.1 is now different than the parent standard. The WG agrees these items require resolution prior to ballot; and once the PC57.152 guide is published, the continuous revision process should remain synchronized with parent standards to avoid the condition that IEEE 62 is in.

The Work Plan spreadsheet has been updated to show progress. All sections have been presented, reviewed and revised except Induced Voltage Testing and Applied Voltage.

The document now comprises 35 sections which are authored by many different persons. The document will be reorganized to put Safety closer to the beginning and to flow more logically. For example the core, coils and insulating fluids will be grouped together. Each section that has a parent standard will be sent to the Working Group Chairman for that Standard to review and insure that the proposed draft is in line with parent standard. A 60 day reply period will be given.

The WG hopes to finish basic comments and final edits with a ballot among the WG before Boston.

Oleg Roizman mentioned that the Moisture in Oil Section has been updated to reflect work of this specific Task Force of relative saturation. He and Miak Koch provided comments and their proposed changes will be discussed in a web meeting in the near future.

- **TASK FORCE on IEEE-IEC CROSS REFERENCE – J. Sim** - the following was reported:

  The IEEE-IEC Cross reference report is complete and posted to the website. The report link is: http://www.transformerscommittee.org/subcommittees/standardsc/IEEE-IEC-CrossRef/S11-IEEE-IEC-ComparisonReport.pptx and it will be made available to the IEC, especially TC14, TC36 and a few other committees. Note the report has an embedded completed comparison adobe file that is also separately posted with the following link: http://www.transformerscommittee.org/subcommittees/standardsc/IEEE-IEC-CrossRef/S11-IEEE-IEC-ComparisonDocument.pdf

  TF Report Summary

  The comparisons are based on the latest published standards unless identified otherwise

  It is the directive of the Standards Subcommittee to publish this comparison study each time a major standard (IEEE C57.12.00, C57.12.90, or IEC 60076-1, 2, 3, 4, 5…) is approved and published

  The purpose of this study is to provide list of major differences between IEEE and IEC standards to the members of the group working on these documents

  In addition to these major documents, we will include comparisons of other standards and guides commonly used for Power Transformers

  It is hoped that the readers would consider harmonizing the standards as best as they can as they develop these standards for the industry.

  Submitted by Jin Sim, in March 2011

  The TF Chair recognized the contributions of the TF members ask requested those present to stand and expressed his appreciation of their efforts.

  The Standards SC voted to accept the report and was so moved, seconded and accepted.

- **TASK FORCE on IEEE-IEC Harmonization – Jeewan Puri -**

  The TF Chair explained there no meeting and that initial draft of the harmonization procedure that is the action item for the IEEE (Ms. Jodi Haasz) has not yet been received by the TF Chair and there is little to report at this time. Jeewan will continue follow through to determine progress and promote the development of the procedure.

  The Chair noted the newly appointed Standards SC IEC coordinator will also be to assist in this effort.

5. Old Business

No old business was raised.

6. New Business

There are two requests for new business was raised.

- There was a proposal for new Task Force, presented by Dr. Valery Davydov to development new document called: **Moisture in Insulating Systems of Gas Insulated & Liquid Immersed Transformers & Reactors** (The link to the presentation is: http://www.transformerscommittee.org/subcommittees/standardsc/NewBusiness/Valery'sProposal-Moisture-NewTF-UnderStdsSC-Extended-ForWebPageOfStdsSC_28Apr11.pdf , in the New Business of IEEE TC Standards SC webpage). Following the questions and suggestions

discussion it was agreed the presentation would be posted to allow time for review and then be an agenda item for the Fall 2011 meeting Boston.

- There was a proposal by Patrick McShane for a Task Force to create a reference white paper to be used to harmonize the use of fluid, oil, and liquid terminology across all the transformer standards. The motion to vote to form the TF that was seconded & the motion passed. The SC Chair asked if C Patrick McShane agreed to the TF Chair when asked by the SC Chair.

7. Adjournment

The motion to adjourn by Chair made and hearing no objections; the meeting adjourned around 5:45PM.

Respectfully Submitted

Kipp J. Yule

Standards SC