1. **Opening Remarks**

The Chair, William Bartley opened the meeting and summarized the recent activities of the Transformer Standards activity for the six-month period October 1, 2012 to March 6, 2013. In the last five months, 6 new Standards and 1 Revision were approved by Standards Board /REVCOM. In this same period, Standards Board /NESCOM approved 1 PAR for a new standard; 2 PARs for Corrigenda; 1 PAR modification, and 3 PAR extensions. This total includes a Standard and 3 PARs that were approved just a few days before the spring committee meeting. The Transformer Committee is responsible for almost 100 standards, plus over 55 PARs, projects for new standards and revisions. For the full Standards Report see the TC website via the following link:

<http://www.transformerscommittee.org/meetings/S2013-Munich/Minutes/S13-StandardsReport.pdf>

The Chair reminded everyone that there are all the due dates for submittal to NESCOM and REVCOM along with past tutorials, presentations and instructions on the process, links to MyBallot with instructions, references and templates for preparing standards that can be found by a link from the Standards subcommittee page of the Transformers Committee website or directly at:

 <http://www.transformerscommittee.org/subcommittees/standardsc/StdsDevelopment.htm>

The Chair reminded everyone that the revision cycle has changed and an overview of the 10 year maintenance cycle for revising standards can be found at:

<http://standards.ieee.org/develop/revisestds.html>

1. **Meeting Attendance**

The Standards Subcommittee met on Wednesday, March 20, 2013, at 4:30 PM. A role call showed 18 members in attendance not achieving quorum at the meeting. Overall there were 66 attendees, 18 members, 48 guests, including 13 that requested membership upon tabulation of the circulated rosters with 7 meeting the established criteria.

1. **Approval of previous meeting minutes**

The Chair asked if there were any comments or corrections to the previous meeting minutes and without quorum no action could be taken. There were no comments to the meeting minutes of the Fall 2012 meeting in Milwaukee, Wisconsin; and the minutes were approved.

1. **Working group reports.**
	* **Continuous Revision of C57.12.00 – Steve Snyder** reported the following:

The purpose of this WG is to 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. A new PAR was requested in April 2011 and approved June 16, 2011 to cover the ongoing work for the continuous revisions. This PAR is good through December 31, 2015.

The Performance Characteristics Task Force working on stabilizing windings has finished their work, which will result in a small revision to the document. There are three (3) other PCS issues underway at present, and those topics should be fully addressed by the middle of 2013. There were a few negative ballot comments from the prior ballot pertaining to Dielectric Tests, Insulation Life, and Insulating Fluids. I am aware of progress occurring on the dielectric test tables, but I am unaware of what’s occurred in the other Subcommittees. I think those items should be completed or reviewed before we move forward with a new revision.

At the Milwaukee meeting, I was informed of a possible equation error in standard C57.12.00. This issue will be investigated by me and a few ballot resolution “volunteers” to determine appropriate action, if any. The Dielectric Tests Subcommittee is discussing changes to Table 5, which they’ll forward to me when complete.

I still expect by mid-2013 to start soliciting input from all Subcommittees to determine if they have changes ready for inclusion in the next revision cycle.

Respectfully submitted, by Steven L. Snyder, WG Chair, on March 20, 2013

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

This is essentially a working group of one person. There was no meeting held. The purpose of the WG is to keep track of the work being done in various TF / WG / SC for inclusion in the continuous revision of C57.12.90 in a consistent manner.

**Summary**

The new PAR was approved on June 15, 2011. It is valid until Dec 31, 2015. There has not been much activity since March 2013.

***Future Revisions***

Changes *already approved* for the next revision:

* New subclause 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 subclause 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.
* Revisions to subclauses 10.2.1,10.3 and 10.3.3 which increases the number of full wave impulse waves applied from one to three. This is the same as IEC
* Revisions to Clauses 6 & 7 Polarity & Phase-relation and Ratio tests from Mark Perkins’ PCS WG for Revision of C57.12.90. Final survey circulated in Sept 2011.
* Revisions to Subclause 11.1 which reversed the order of appearance of the two methods of simulated loading for temperature test.
* Revisions to Subclause 11.2.2 which revised items “a” through “f” of the hot resistance measurement procedure for temperature test.

**Pending work**

* Revision to Subclause 11.1.2.2 Loading back method for Temperature-rise tests by Paulette Payne Powell’s WG in the Insulation Life Subcommittee.
* Revision to Clause 13 Audible Sound by Ramsis Girgis’ TF in the Performance Characteristics Subcommittee.
* Other possible revisions to subclauses 10.2 to 10.4 from Pierre Riffon’s WG for revision of impulse tests.
* Other possible revisions to subclauses 10.5 to 10.10 from Bertrand Poulin’s WG for revision of low frequency tests. Maybe some change due to Class II PD testing on 69 kV, xfmrs >15 MVA.
* Other possible revisions to subclause 9.5 Zero Phase Sequence Impedance from Mark Perkins PCS WG for Revision of C57.12.90.

Respectfully submitted by Stephen Antosz, WG Chair, on March 2013

* **WG on Revision of IEEE PC57.152 (old 62) – Jane Verner**

The Working Group met on March 19, 2013 and began with introductions of all. A total of 54 people with 28 guests were in attendance, including 26 members and 8 requesting new membership. We had a quorum.

The Milwaukee Fall 2012 meeting minutes were approved with motions by John Herron and Dan Sauer and approved by the WG.

Since the Milwaukee meeting Drafts 7.0 and 7.1 were recirculated via My Ballot. REV COM approved Draft 7.1 on March 6, 2013. Final editorial review will take place to add voters name and fix any typos before the document is published sometime this summer.

A special thank you to the volunteers on the ballot resolution

* + Kipp Yule
	+ Loren Wagenaar
	+ Charles Sweetser
	+ Mario Locarno
	+ Wally Binder
	+ Peter Balma
	+ Tom Prevost
	+ Tom Lundquist
	+ Gary Hoffman

Since this document is for continual revision, a listing of items mention on ballot resolution and those impacted by other standards were discussed for future revision of C57.152

1. Field Sound Testing Methodology (no existing standards for field testing) The majority favored some guide on sound testing in the field but it was agreed the proper location for this information should be further reviewed.
2. Field inspection information – PAR does not mention any visual inspection but included in the Guide. The PAR could be revised beyond diagnostic tests to include inspections going forward.
3. Alignment with other transformer standards (for example C57.12.90 on PD limits) PD limits on just transformers will be difficult to determine in the field due to influence from other factors in the substation and environment. PD limits are in C57.113.
4. Automation equipment calibration (example fiber optics, temperature monitors or DGA devices are not mentioned in this guide - expand auxiliary equipment sections). It was agreed that this is a reasonable topic to consider.
5. Moisture in insulating fluids will need revision as other documents are revised. Task forces for moisture in insulating systems and moisture in insulating fluids are holding meetings on these topics.
6. Resistance Measurement formula information could be added to future revisions.
7. Dynamic Resistance Measurement for On Load Tap Changers and regulators is a new technology that could be considered.
8. More information on regulators was suggested especially when not bypassing regulators the testing should be done in neutral position.

A tutorial on PC57.152 versus IEEE 62 will be held on Thursday March 21 at 9:30 AM.

The meeting was adjourned at 8:35 AM.

Respectively submitted by Jane Verner – WG Chair

* **TASK FORCE on Recommendations to the IEEE Transformer Committee (TC) on Recommended Changes, Deletions, and Insertions Related to Normalizing the References of Insulating Liquids Throughout the IEEE TC Standard Series – P. McShane–TF Chair**

Patrick McShane called the meeting to order at 1:45pm on March 19, 2013. To establish a quorum, the PC generated list was used to call out the members names. From the response, it was determined that a quorum was established. Steve asked that everyone fill out the attendance sheet as it was circulated.

Patrick reviewed with the group the organization and officers of the TF. Ten of the approximately 90 standards have been reviewed and reports submitted. The most recent reports will be added to Annex B of the White Paper Recommendations for Revisions. Bill Henning reported that he had completed the term review of C57.131 and indicated each item for possible revision. However, he was having issues determining what to recommend what term to propose based on the information that he had in hand. Patrick indicated that the information had not gotten posted as soon as he had hoped and he believed that the currently posted white paper would help answer his questions. Sue McNelly committed that in her review of this paper, she did see how this information would help Bill with his concern. Patrick commented that some places where this term had been used are very appropriate. The suggestion was made that we needed a “help” document to define these points. This led to a discussion concerning the need to replace every oil reference.

Patrick suggested that, while the white paper draft gives essential information, we might need another appendix to address this. Jerry Reeves made a motion that we assign a sub group to develop a glossary of terms so that these issues could be clarified for those reviewing the standards. It was seconded by Bill Henning. To start the motion discussion, Patrick re-covered the major points of the white paper on this issue. During the discussion, Jerry Murphy said that he believed that this discussion of terms had already been done. He proceeded to show us a excel spreadsheet that he had submitted to Patrick. However, in the discussion by the group it was found that there was still a concern that consistency would need to be established and this glossary would help in providing this guidance. A vote was taken and the motion passed with no negatives. The next step was to ask for volunteers for this group. Since Jerry Reeves had made the motion, he was assigned as chair. Patrick McShane, Clair Claiborne, Jim Rasco and Dave Hanson volunteered to participate in the group. Jerry Reeves said that the Glossary Group would provide the deliverable to Patrick McShane by July 1st. Patrick would then add this as Appendix D in the white paper and have it reposted to the web site so that everyone could continue their review process. Ben Henning commented that he would provide his revised spreadsheet to Steve Shull by April 10th.

Steve Shull committed to developing a composite spreadsheet of Jerry Murphy, Ben Henning, and others and providing it to the web master to be posted. With this the meet was called to adjournment.

Respectively submitted by Steve Shull – TF Secretary

1. **Old Business**
	* None
2. **New Business**
* The Chair reported that Jin Sim has retired from SPX and announced he would not be as regularly involved with the Transformers Committee and the subcommittee gave a round of applause for Jin’s service to the subcommittee. The Chair appointed Vinay Mehrotra, who accepted before those in attendance, to take over Jin’s former position on the subcommittee as the chair of the TF for Continuous Review of IEEE-IEC Cross Reference.
1. **Adjournment**

The meeting was adjourned by Chair without objection; the meeting adjourned around 5:10pm.

Respectfully submitted by Jerry R. Murphy, Standards SC Secretary