

## **Annex L Standards Subcommittee – Unapproved Minutes**

**April 5, 2017**  
**New Orleans, LA**  
**USA**

**Chair: Jerry Murphy**  
**Vice Chair: Kipp Yule**  
**Secretary: Daniel Sauer**  
**Standards Coordinator: Jim Graham**

The Chair, Jerry Murphy opened the meeting calling for a show of members to establish quorum which was met.

### **L.1 Meeting Attendance**

The Standards Subcommittee met on Wednesday, April 5, 2017, at 4:30 PM. A show of hands indicated 18 of 34 members in attendance at the beginning of the meeting which met the quorum requirement. Overall the attendance roll showed there were 85 attendees, 21 members, 64 guests, including 13 that requested membership upon tabulation of the circulated rosters and will be reviewed for eligibility. Phil Hopkinson moved to approve the agenda with second by Jim Graham; motion was carried with unanimous acclamation approving. Jerry then requested a review of the Vancouver minutes; motion was made by Steven Snyder and seconded by Bruce Forsyth which was carried with unanimous acclamation approving.

### **L.2 Chair's Remarks**

Jerry stated that Kipp was not able to make this meeting, but we look forward to his return at the Louisville meeting. Additionally, Jerry mentioned that the RFID system appeared to be working, so please make sure you tap-in, but for the present also make sure you sign the paper rosters.

### **L.3 Working group reports**

#### **L.3.1 Continuous Revision of C57.12.00-2015 – Steve Snyder**

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 current standard was approved by the IEEE-SA Standards Board on December 5, 2015, with an official publication date of May 12, 2016. The standard is good for 10 years, but is under continuous revision and will be next balloted when sufficient new material is available.

A new PAR to cover the ongoing, continuous revisions to the document was requested on November 4, 2016, and approved February 17, 2017. This PAR is good through December 31, 2021.

As agreed at the Fall 2016 Standards Subcommittee meeting, any new material provide to me for inclusion in the next revision, will first be presented to this subcommittee for the "official" vote of approval. As of this date, no new material has been received.

Respectfully submitted by Steven L. Snyder, WG Chair, on April 5, 2017

### L.3.2 Continuous Revision of C57.12.90-2015 & Cor. corrections – Steve Antosz

The purpose of the WG is to keep track of the work being done in various TF/WG/SC's for inclusion in the continuous revision of C57.12.90 in a consistent manner. This is a working group by committee. There are no meetings held.

#### Summary

The new Standard C57.12.90-2015 was approved by the Standards Board on December 15, 2015. It was published on March 11, 2016.

#### Status

Shortly after the document was published in March 2016, one error and one omission was discovered in the document.

- There is an error in Equation (2) in subclause 8.3 Waveform correction of no-load losses, where the exponent “2” was lost during editing. It needs to be added back.
- There is a sentence in 10.8 Induced Tests for Class II Power Xfmrs, that refers to this test being applied to terminals 115 kV and above. Since Class II now extends down to 69 kV, this sentence needs to be revised, changing the 115 to 69.

It was decided that these should be corrected immediately, so a corrigendum was done. The number and title of the balloted version was *PC57.12.90-2015/Cor1/D3.1 Standard Test Code for Liquid-Immersed Distribution, Power, and Regulating Transformers Corrigendum 1: Editorial and Technical Corrections*. It was balloted at the end of 2016. The Corrigendum ballot closed successfully on Jan 16, 2017. 118 of 137 people voted (88%); 100% approved, 2% abstain. 3 comments, none meaningful, nothing to change. It was approved by IEEE-SA Standards Board Review Committee (SASB RevCom) at their March 23, 2017 meeting, and should be published soon.

Motion to proceed with a new PAR for C57.12.90; moved by Steve Antosz, Seconded by Vinay Mehrotra; carried with unanimous acclamation approving.

#### **FUTURE REVISIONS AND PENDING WORK**

Since this is a continuous revision document, there continues to be ongoing work in the various Task Forces.

Changes *already approved* for the next revision:

- Changes to 9.3.1 Wattmeter-voltmeter-ammeter method from Mark Perkins' PCS WG for Revision of C57.12.90. Final survey circulated in late 2015.
- Add in subclause 10.3.1 and 10.3.1.1 Lightning Impulse, the following words in red; by Pierre Riffon's WG Revision to Impulse Test in Dielectric Test Subcommittee. Submitted on 11/4/2016. These subjects have been surveyed within the Dielectric Tests SC and within the TF. The 4<sup>th</sup> survey got a 100% approval rate.

10.3.1 Impulse tests shall be made without excitation. The impulse waveshape parameters such as peak voltage, front time and tail time are determined on the test voltage curve which is obtained after having processed the recorded curve using the test voltage function method, as defined in IEEE Std. 4.

##### 10.3.1.1 Full-wave test

The test wave rises to crest in 1.2  $\mu$ s and decays to half of crest value in 50  $\mu$ s from the virtual time zero. The crest value shall be in accordance with the assigned basic impulse insulation level (BIL), subject to a tolerance of  $\pm 3\%$ ; and no flashover of the bushing or test gap shall occur. The tolerance on

virtual front time should be  $\pm 30\%$ , and the tolerance on time to half of crest should be  $\pm 20\%$ . However, as a practical matter, once the manufacturer has proven that they have test equipment limitations, the following shall be considered:

a) If the standard impulse shape cannot reasonably be obtained because of low winding inductance or high capacitance to earth and the resulting impulse shape is oscillatory so that the relative overshoot magnitude exceeds 5 % then the front time may be increased to reduce the overshoot amplitude. In all cases, the front time shall not exceed 2.5  $\mu\text{s}$  regardless of the overshoot amplitude.

Note 1: The overshoot can be reduced by increasing the front resistor value of the impulse generator. The use of low inductance connections between the impulse generator and the tested transformer are also recommended.

pending work

- Possible future addition of a new clause for a Load Tap Changer Performance Test, from Hakan Sahid (formerly Mark Perkins) PCS TF for Revision of C57.12.90.
- Possible future revision to subclause 10.8.2 from Bertrand Poulin's TF regarding a limit of pressure applied inside a transformer tank during induced voltage test. Ongoing work continues. Latest proposed addition to paragraph 10.8.2: The pressure inside the transformer tank during induced test must not be increased by artificial means by more than 3.5 kPa (0.5 psi) over its normal operating pressure. Should the pressure be increased by more than this value for any reason such as the use of an oil conservator installed in the test facility higher than the one made for the transformer, the customer must be made aware of this fact and approve it before proceeding with the test.
- Other possible revisions to subclauses 10.2 to 10.4 from Pierre Riffon's TF for revision of impulse tests. Ongoing work continues ...
- Other possible revisions to subclauses 10.5 to 10.10 from Bill Griesacker's TF (formerly Bertrand Poulin) for revision of low frequency tests. Ongoing work continues. A TF has been formed to look at reducing the limit for PD level Failure Detection in 10.8.5.
- Possible additional revisions to Clause 13 Audible Sound by Ramsis Girgis' TF in the Performance Characteristics Subcommittee.

Respectfully submitted by Stephen Antosz, WG Chair, on April 5, 2017

### **L.3.3 Corrigenda for C57.12.70 – Steve Shull**

Steve Shull called the meeting to order and introductions were made. The roster was circulated. The names of those in attendance are recorded in the AM system. To establish a quorum, a members list was displayed on the screen and those who saw their names were asked to hold up their hand. From this count of hands, it was determined that a quorum was established. A motion was made by Lee Mathews and seconded by Cory Morgan to accept the agenda as shown. The motion passed unanimously. The Patent Slide statement calling for Essential Patent Claims was read and no patents were brought up. A motion was made by Cory Morgan to accept the minutes of the Fall 2016 meeting. This was seconded by Lee Matthews. The motion passed unanimously. Under Old Business, the chair stated that he believed that all of the suggested changes as brought up from the last meeting had been made in the document he handed out to the group. Steve requested that all members and guests review this for correctness. If errors were found, Steve asked that these be marked on the appropriate sheet. He further requested that these be scanned and sent back to Him. Any comments will need to be received by May 1<sup>st</sup> to be considered. Steve will incorporate them into the document and distribute them to the

Working Group. This will once again be reviewed in view of the hope that it can be moved to ballot at the fall meeting. There wasn't any new business and the meeting was adjourned. A meeting will be required at the upcoming fall meeting in Louisville, Kentucky.

Respectfully submitted by Jerry Murphy, WG Vice-Chair, on April 4, 2017.

**L.3.4 WG Standard Transformer Terminology C57.12.80**

1. Chair's remarks: This was the initial meeting for the working group. The PAR was approved by IEEE Standards Association Board on March 23, 2017.
2. Quorum was achieved with six of six members present.
3. A call for essential patents was made. No essential patent issues were reported.
4. This was the initial meeting, so no previous meeting minutes were available.
5. The agenda for this meeting was approved by acclamation.
6. Technical topics
  - a. The chair made a request for new terms to be included, or redefined. One known issue was to develop a definition for wind turbine GSU transformers.
  - b. No motions were made this meeting.
7. Next meeting—October 31, 2017 Louisville, LA

Respectfully submitted by Jim Graham, WG Vice-Chair, on April 5, 2017.

**L.3.5 TASK FORCE for Comparison of IEEE & IEC Standards for Cross Reference**

This task force did not meet and has nothing to report at this time.

**L.3.6 Corrigenda for C57.163**

The corrigenda was approved by RevCom and will be published later this year.

**L.4 Old Business**

- Don Platts asked about the status of the What goes Where project that Kipp Yule was working on. The chair, Jerry stated that this work had been completed and that he would forward the info to Adcom as well as Sue for posting to the website.

**L.5 New Business**

Craig Stiegemeier announced that the tutorial on Thursday, April 6 would cover field testing of OLTCs and further noted that there will be a guide Task Force on this topic forming at the next meeting.

**L.6 Adjournment**

The meeting and was adjourned by the Chair without objection at 4:55 p.m.

Respectfully submitted by Daniel M Sauer, Standards SC Secretary