1. Dry Type Transformers Subcommittee

October 22, 2014

Washington, DC

Chair: Charles Johnson  
Secretary: Casey Ballard

# Introductions and Approval of Agenda and Minutes

The Subcommittee met on October 22, 2014 at 1:30 PM in the Ash Grove ABC Room of the Sheraton Premiere at Tysons Corner Hotel. There were 17 of 23 members present (therefore we had a quorum of 74%), and 10 guests present, 3 guests requested membership. The attendance roster will be kept in the AMS.

The agenda was approved unanimously after a motion from Sanjib Som and a second from Jeewan Puri.

The minutes of the Savannah, GA meeting were approved unanimously after a motion from Tim Holdway and a second from Jewan Puri.

# Working Group/Task Force Reports

The next order of business was the presentation of the reports of the various working groups and task forces. See the following sections for the individual reports:

## IEEE PC57.12.01 - Dry Type General Requirements Chair Tim Holdway

The working group met in the Great Falls Room of the Sheraton Premiere at Tysons Corner Hotel

The meeting was called to order at 1:45 PM by Chairman Tim Holdway

The meeting was convened with 19 members (out of 27 – therefore a quorum was reached with 70% attending) and 10 guests present. The attendance was reported in the AMS.

The agenda was approved unanimously.

Motion: Chuck Johnson

Second: Mark Gromlovits

The minutes of the Savannah, March 24, 2014 meeting were approved unanimously.

Motion: Carl Bush

Second: Kerwin Stretch

**Old business**

* The Draft 7 of the document is now at REVCOM
* As previously approved the document will be opened up for revision immediately after it is published

**New business**

* The Chair questioned how the membership of the WG would be affected by the continuous revision process. It was suggested that the Chair contact the Chair from C57.12.00 or C57.12.90 to see what precedent they had set.
* The Chair covered the following updates in Draft 7
  + Took out definitions of “Product Standards”
  + Re-worded clause 5.10.3.5
  + Modified Tables 9, 15, and 16
  + Minor punctuation changes
* The Chair then opened up the floor for suggestions on topics for the next revision and asked that all proposals be made in writing at least 1 month prior to the next meeting in San Antonio. The Secretary will provide an Excel based tool used in other working groups for the Chair to distribute. The following topics were discussed
  + Addition of 75kV BIL for 8.3kV system class by Carl Bush
  + Change minimum BIL value of 15kV system class from 60kV to 95kV BIL by Chuck Johnson
  + PD levels proposed by Phil Hopkinson
  + QC impulse testing by Phil Hopkinson
  + Table 15 Short Circuit Final Conductor Temperatures by Rick Marek
  + Clause 7.10 Calculation of winding temperature during a short circuit by Kipp Yule
  + Proposal by Vijay Tendulkar that were postponed (example is adding 240 ͦC to Table 9)
  + Equation 8 and the exponent 2? Did someone confirm that it was necessary?
  + Forced Air (FA) ratings moved from C57.12.51 by Tim Holdway
  + System temperature ratings for 180/185 and 150/155 by Roger Wicks
  + Altitude correction for dielectric testing by Rick Marek
* Chuck Johnson called attention to the differences between the two types of insulation systems used in dry-type transformers – solid-cast and resin-encapsulated. He clarified that ‘open ventilated’, VPI, or VPE were all resin-encapsulated.

Next meeting: Spring 2015, San Antonio, TX, April 12-16, 2105.

With no further business, the meeting was adjourned at 2:51 PM.

Chairman: Tim Holdway

Vice Chairman: Casey Ballard

## IEEE PC57.94 - WG Dry Type O&M Guide Chair Dave Stankes

The working group met in the Ash Grove A Room of the Sheraton Tysons Hotel.

The meeting was called to order at 4:45 PM by Chairman David Stankes.

The meeting was convened with 14 out of 21 members (enough for a quorum) and 4 guests present with 1 requesting membership.

A motion to approve the agenda was proposed by Charles Johnson and seconded by Tim Holdway; the motion was approved by voice vote with none opposing or abstaining.

The Chair reviewed PAR revision (changes to Scope and Title) that was approved at June 2014 Revcom meeting.

The Chair showed on screen the proposed changes to current Draft 8 including addition of missing headings and modification of various units found in the standard in order to comply with current IEEE document/style requirements. The chair also presented recommendation for headings found in clause 7.3.1 through 7.3.4 not found in Draft 8. A motion to approve changes was proposed by Tim Holdway and seconded by Roger Wicks. During the discussion Roger had a question regarding use of “non-ventilated” terminology which was resolved without any further changes. The motioned was passed by unanimous vote.

A review of the sentence in Clause 6 Testing section regarding Trending test found it to be acceptable as written.

A discussion regarding the need for a more clear definition of “clean dry” air used in the document was conducted. The Chair reviewed ISO air quality standard that may be used to quantify quality of air and showed various sections for clean dry air was referenced. Mark Gromlovits raised the concern that reference use of (clean dry) compressed air may lead to misuse and possible damage, but agreed to leave this in since document stated that “low pressure not over 1.7 bar” be used. Final Conclusion: The group agreed that it should left to users to interpret “clean and dry”.

Roger Wicks mentioned three standards mentioned in Purpose clause (C57.12.50, 51 and 52) that were listed in the Bibliography but not in normative reference, and questioned whether or not this was the proper place. It was decided to request comment by editorial board, and Chair will ask Erin Spiewak where standards only listed in Purpose should reside or whether purpose to be modified to drop reference to C57.12.50, 51, and 52. Roger also volunteered to forward various typo error he uncovered in the document.

In clause 4.7 reference to C57.12.55 has reference to IEEE, and this will be removed.

There are several references to safety and protection. It was decided to retain these and allow editorial board to comment.

Then came the question whether this should be sent to ballot. Chuck Johnson proposed to send this to sub-committee this was seconded by Casey Ballard. During discussion, Roger asked for confirmation that the Draft that would be submitted would include: 1) finished abstract and introduction, 2) corrections to various typo errors, 3) Clause Headings as proposed and approved at WG meeting and 4) unit corrections as proposed and approved at WG meeting, 5) correction to C57.12.55 Reference The chair confirmed, and Tim Holdway clarified that new draft incorporating these would be new Draft 9. The motion was carried by all 14 members present voting yes . Chuck Johnson stated that Chair needs to mention during his report that this is new business requested.

The motion to adjourn was proposed by Tim and seconded by Kerwin Stretch.

Submitted 10/22/14

D. Stankes

## IEEE C57.12.91 - Dry Type Test Standard Chair Derek Foster

The working group met in the Ash Grove A meeting room of the Sheraton at Tysons Corner Hotel.

The meeting was called to order at 3:15 PM by Chairman Derek Foster

The meeting was convened with 7 members and 11 guests present with 4 requesting membership. The attendance was reported in the AMS.

The agenda for meeting was approved unanimously.

Motion: Carl Bush

Second: Casey Ballard

The minutes of the March 25, 2014 Savannah meeting were approved unanimously.

Motion: Mark Gromlovits

Second: Tim Holdway

**Old business**

* Discussion of topics for the new PAR
  + No load loss correction for temperature to support 12.01 note 7 on page 3
    - Casey Ballard’s proposal is complete. Derek with share it with the group by e-mail.
  + QC impulse test method to insert into 12.01 Table 16
    - Kerwin Stretch and Tim Holdway agreed to make a proposal on a name for this procedure – QC impulse, routine impulse, and production impulse have all been suggested.
    - Chuck Johnson proposed to describe this test in C57.12.01 as a regular impulse test minus the chopped waves.
    - Vijay and Mark G. both stated their opposition to including the QC impulse as a routine test.
    - Chuck Johnson made a motion to not include QC impulse in C57.12.91. The motion was seconded by Mark G. A vote was taken with 6 voting for and 2 against. Motion PASSED and QC impulse will not be included in C57.12.91.
  + Moving the PD Test method from 12.01 into 12.91 Section 10
    - There was general agreement that as this was recently covered in 12.01 it would not be considered in 12.91 for this revision cycle.
    - Vijay mentioned that guidance on how to perform the PD test is missing. Per the group the test procedure is defined in C57.124.
    - C57.124 in mentioned in the normative reference but is not mentioned anywhere else in C57.12.91. This will be corrected.
  + Dielectric testing at a different altitude than the installation altitude – related to 12.01 Table 1 and Annex A
    - Tim Holdway will work with Rick Marek to make a proposal for the group
  + Sound level measurement in Section 13
    - Casey Ballard with contact Ramsis Girgis to determine the status of the sound testing procedure from 12.90 and 60076-10
  + Update all drawings using new CAD software
    - Casey Ballard agreed to lead this effort but no longer has access to a drafting department to make the drawings. It is estimated that approximately 30 drawings will need updated. Mark G., Kerwin S., and Chuck Johnson. each agreed to take 10 drawings and have them updated by drafters at their companies.
    - Casey will check on the best formats, templates, etc. to have the drawings produced in.
  + Inclusion of environmental testing from IEC 60076-11 for E0/E1/E2
    - Martin Navarro agreed to make a formal proposal and check on what is necessary to incorporate the appropriate portions of IEC into C57.12.91
    - Mark G asked that everyone carefully review the IEC standard and understand what these tests entail prior to our next meeting.
  + Inclusion of thermal shock testing from IEC 60076-11 for C0/C1/C2
    - Martin Navarro agreed to make a formal proposal and check on what is necessary to incorporate the appropriate portions of IEC into C57.12.91
    - Mark G asked that everyone carefully review the IEC standard and understand what these tests entail prior to our next meeting.
  + Inclusion of calibration requirements
    - In the previous meeting Don Kline suggested that this should be added and will be voted on by the TF and SC. Casey mentioned that Don seems to have been referencing an expired standard. ISO 17025 seems to be the correct standard.
    - The question was raised as to how calibration is handled in C57.12.90.
  + Heat run method with non-sinusoidal loads
    - Tim Holdway brought up a discussion from C57.110 and will be added to the list of items to be voted on
  + Impulse polarity – positive versus negative
    - Chuck Johnson explained some of the history and technical differences of positive versus negative impulse wave shapes.
    - There was discussion regarding the whether or not to change to negative impulse to align with IEC. General consensus of the group was that we would continue with the positive wave as standard but should reference negative waves and the differences between the two in an informative annex.

**New business**

* Kerwin Stretch will serve as Secretary for the working group
* Discussion on heat run test method
  + Jagdish Burde questioned why the two part temperature rise test method (no-load plus load loss) was used for dry type transformers as opposed to the total loss method commonly applied to oil filled transformers.
  + Chuck Johnson gave a detailed explanation of the various types of temperature tests that are allowed under the current standard and stated that in general the two part method is “conservative”
  + Prior to the next meeting, Jagdish will put together a comparison of the temperature test methods in C57.12.90 and C57.12.91.
  + Casey Ballard asked if the intention was to limit the scope of the PAR to specific topics or open the entire standard. This will be an agenda item \ discussion point for the spring meeting.
* Tim Holdway reminded everyone to send any additional topics for voting and discussion to the Chairmen ASAP.

Next meeting: Spring 2015, San Antonio, TX, April 12-16, 2105.

With no further business, a motion was made by Mark Gromlovits to adjourn with a second by Tim Holdway. With no objections, the meeting was adjourned at 4:15 PM.

Chairman: Derek Foster

Secretary: Kerwin Stretch

## IEEE PC57.12.51 - Dry Type Product Standard “> 500kVA Ventilated” Chair Sanjib Som

The working group met in the Ash Grove A Room of the Sheraton Tysons Hotel. This was the initial meeting of the working group.

The meeting was called to order at 1:45 PM by Chairman Sanjib Som

The Chairman asked Tim Holdway if he would serve as the Vice Chairman / Secretary of the WG and Tim agreed.

The meeting was convened with 24 attendees. Since this was the initial meeting, those who wanted to be, would automatically become members. 17 requested membership and 7 requested to be guests.

**Old business**

* Since this was the initial meeting, there was no old business

**New business**

* The Chair stated we have a PAR and it has been approved
* Casey Ballard stated we will need to review the document for the word “safety” and remove
* Chuck Johnson stated the new C57.12.01 standard that is at RevCom now includes up thru 69 kV where this document only goes thru 34.5 kV.
* Both Rick Marek and Casey Ballard commented that this document closely mirrors C57.12.01 and may not even need to be re-published. A TF of Shankar Nambi, Chuck Johnson, Tim Holdway, and Mark Gromlovits agreed to review and compare both C57.12.01 and C57.12.51. This TF will recommend to our WG one of three options:
  + The document is so close to C57.12.01 that we should just let it expire and not re-publish
  + Make major changes where the only items in this document are those that are not in C57.12.01 and should not be included
  + This document needs to be viable and therefore review and update and have re-published
* Casey Ballard requested the Chair send out the latest revision of C57.12.51 to the WG members. The Chair agreed to do so
* Jerry Murphy stated that we may also want to review C57.12.50 and see if we need to combine it with our document, C57.12.51. Jerry said that he would review both documents. At this time, a discussion was held about the TF and Jerry reviewing all three documents and making one recommendation. Jerry agreed that he would work on the TF and the other members of the TF agreed to review all three documents.
* Chuck Johnson said that he would get a pdf file of C57.12.50 and send out to the TF members
* A discussion was also held on the Title of the standard and whether the word “Power” should be included or changed to “Distribution”. Again, the TF will take a look at that as well.

With no further business, the meeting was adjourned at 12:01 PM.

Motion: Chuck Johnson

Second: Casey Ballard

Next meeting: Spring 201, San Antonio, TX April 12-16, 2015.

Chairman: Sanjib Som

Vice Chairman: Tim Holdway

# Old Business

There was no old business.

# New Business

## C57.94 Ballot

Dave Stankes made a motion that the draft of C57.94 that was approved by the WG with a super majority be approved by the SC to progress toward balloting. Tim Holdway seconded and the motion carried unanimously.

## C57.12.58 Transient Analysis

Roger Wicks agreed to be the chair for the revision of this document.

## C57.12.60 Thermal Aging

Casey Ballard agreed to be the chair for the revision of this document.

## C57.124 Partial Discharge Guide

Kerwin Stretch agreed to be the chair for the revision of this document.

## Chair’s Comments

* The PES Technical Council is interested in new products/technologies in order to prepare for them more quickly
* IEEE’s documents need to focus more on performance and function instead of on design types
* All minutes from the TFs and WGs are due to the SC Chair by the end of 10/22/14.
* There will be a new public review policy where anyone can comment without IEEE, PES, or SA membership.
  + This concerned the attendees and further details are needed.
* A succession plan is required for all the TF/WG/SC Chairs. Please submit yours in writing to Chuck before the next meeting

# Adjournment

Being no further business, the meeting adjourned at 2:35 PM upon the motion from Sanjib Som and a second from Vijay Tendulkar.

Chairman: Charles Johnson

Secretary: Robert Casey Ballard