

# **Transformers Committee Standards Luncheon**

# **Standards Development**

**Monday March 25, 2019**

**Speakers:**

**Jim Graham**

**Malia Zaman**



# Standards Luncheon topics

- I. C57.12.00 & C57.12.90 Revision Process  
– *Jim Graham*
- II. WG Basics: PAR Process – *Michelle Turner*
- ☐ Q&A - all



IEEE / PES / TRANSFORMERS COMMITTEE

## Standards Report

To: Members of Transformers Committee March 25, 2019  
From: Jim Graham, Standards Coordinator

### Executive Summary

This report covers Transformers Committee Standards activity from September 28, 2018 through March 21, 2019. During this time one new standard and two revisions to standards were approved by the Standards Board. Approvals for two additional standards are pending.

During this same period, the Standards Board approved one PAR for a new standard, six PARs for Revisions, two PARs for extension, two PARs for deletion, and one PAR for compendium.

Standards scheduled for 2019 expiration are listed below. One standard (C57.121) was intentionally allowed to expire. Four (4) standards are on a ParCom agenda for approval, the remaining four are in the sponsor ballot process.

All standards are scheduled to expire in 2019. Two of these standards (C57.121 and C57.121) will be intentionally allowed to expire. Four (4) standards are in development.

Seven PARs are scheduled for 2019. Two are in draft development and five are in ballot process.

### In This Report:

I.	Standards approved	pg. 2
II.	PARs approved	pg. 2
III.	Standards Board 2017 Meeting Schedule	pg. 3
IV.	Transformer Committee Ballot Status	pg. 4
V.	Transformer Committee PAR Status	pg. 5-9
VI.	Transformer Standards Status	pg. 10-16
Appendix A Transformer Committee Organization Chart		
Appendix B IEEE Standards Association Meeting Schedule - 2019		

Fall 2019 Report is available now on our website

Thanks Susan!

# Where is the STANDARDS REPORT ?

Latest Mtg Minutes | IEEE PES Tra x +

transformerscommittee.org/meetings/lastmeetingminutes/

HOME / MEETINGS / LATEST MTG MINUTES

## MEETINGS

### LATEST COMMITTEE MINUTES – Fall 2019 Columbus

[Minutes of previous meetings](#)

NOTE: Meeting minutes are considered unapproved until they are approved at the next meeting held.

**Executive Reports:**

- Main Minutes .
- [Chair's Report](#) R2 26Oct2019
- [Vice Chair's Report](#) 26Oct2019
- [Secretary's Report](#) 10Oct2019
- [Standards Status Report](#) 26Oct2019 / [Summary Report](#) 27Oct2019
- [Editor's Report](#) .
- [Treasurer's Report](#) 27Oct2019
- Recognition and Awards . / Presentation .

**Reports of Technical Subcommittees:**

- [Administrative](#) – Minutes
- Annex A: [Bushings](#) – Minutes .
- Annex B: [Dielectric Test](#) – Minutes .
- Annex C: [Distribution](#) – Minutes .
- Annex D: [Dry Type](#) – Minutes .

**Here it is !!!!**

*(on Transformers Latest Minutes page)*

Submission Deadline for the  
last Standards Board meeting in  
2020 is Tuesday,

**October 13<sup>th</sup>  
2020**



# Description of the Process We Follow for Continuous Revision of IEEE Std C57.12.00 General Requirements and IEEE Std C57.12.90 Test Code

- ▶ IEEE/PES Transformers Committee
  - ▶ October 2019
  - ▶ Stephen Antosz



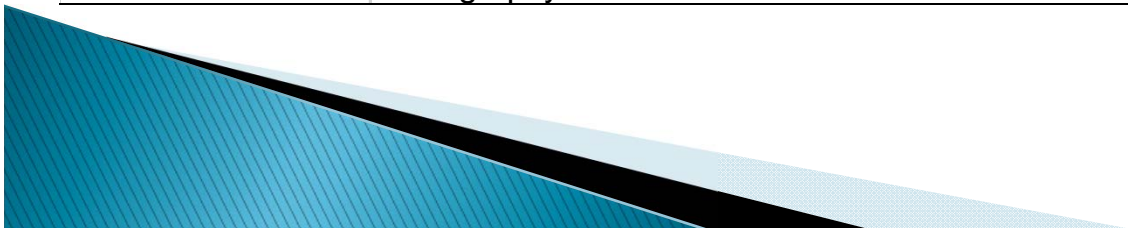
# Overview

- ▶ C57.12.00 & C57.12.90 provide the foundation for many of the documents in the C57 Series.
- ▶ They are updated every few years to capture the current state of transformer technology and manufacturing processes.
- ▶ Change topics are continuously being worked on in the various Task Forces, which are part of various Subcommittees. Once they are complete, they are passed to the WG in the Standards Subcommittee for inclusion in the next ballot cycle.



# C57.12.00 Subcommittee Responsibility Matrix

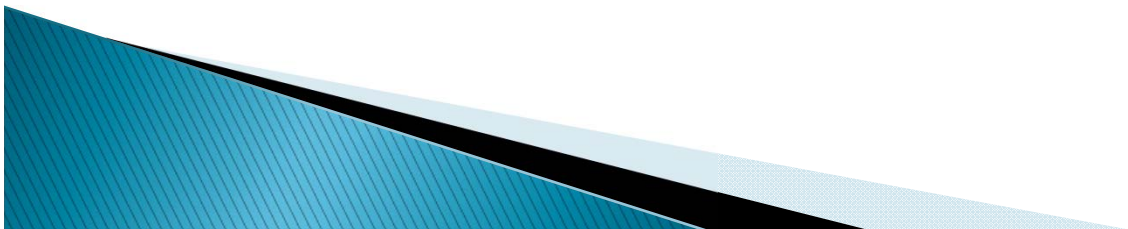
Clause	Description	Responsible Subcommittee
1-3	Scope, Purpose, References, Definitions	Standards
4.1 & 4.3	Usual & Unusual service conditions	Performance Characteristics
4.2	Loading at other than rated conditions	Insulation Life
5.1 - 5.9, 5.12	Ratings, Cooling class, Frequency, kVA, Voltage, Polarity, Impedance, Losses, Nameplates	Performance Characteristics
5.10	Insulation levels	Dielectric Tests, Distribution xfmrs
5.11	Temperature rise and loading conditions	Insulation Life
6.1	Bushings	Bushing SC
6.2, 6.4, 6.5, 6.7	Accessories, Thermal wells, Tank pressure, Grounding	Performance Characteristics
6.3	Bushing current transformers	Instrument Transformers
6.6	Liquid insulation system	Insulating Fluids
6.8	Minimum external clearances (phase-to-phase)	Dielectric Test
7.1 - 7.4	Short-circuit requirements, Components, Base kVA, Winding temp	Performance Characteristics
8.1 - 8.4, 8.6 - 8.7	Routine, design, other tests, Frequency conversion, Test Data	Performance Characteristics
8.5	Determination of thermal duplicate temperature-rise data	Insulation Life
9.1 - 9.4	Tolerances for ratio, impedance, losses, and loss accuracy	Performance Characteristics
10	Connection of transformers for shipment	Performance Characteristics
Annex A	Cooling class designations	Performance Characteristics
Annex B	Front-of-wave test levels	Dielectric Test
Annex C	Reference load sound power levels	Performance Characteristics
Annex D	Bibliography	Standards and Others





# C57.12.90 Subcommittee Responsibility Matrix

Clause	Descriptions	Responsible Subcommittee
1-3	Scope, Purpose, References, Definitions	Standards
4	General	Standards
4.1 - 4.4	Types of tests, test requirements, test sequence, Instrumentation	Perf Char, Dielectric, Insul Life
5.1 - 5.4	Resistance measurements	Insulation Life
6.1 - 6.3	Polarity and phase-relation tests	Performance Characteristics
7.1 - 7.3	Ratio tests	Performance Characteristics
8.1 - 8.6	No-load losses and excitation current	Performance Characteristics
9.1 - 9.5	Load losses and impedance, Zero sequence impedance	Performance Characteristics
10.1 - 10.11	Dielectric tests, Impulse, Applied, Induce, PD, Power factor, Megger	Dielectric Tests
10.4 & 10.7	Impulse & Induced tests for distribution & Class I transformers	Dielectric Tests, Distribution xfms
12.1 - 12.5	Short-circuit test connections, requirements, procedure, proof	Performance Characteristics
13.1 - 13.7	Audible sound test measurements	Performance Characteristics
14	Calculated data	Performance Characteristics
Annex A	PD measurement using RIV instrumentation and failure detection	Dielectric Test
Annex B	50/60 Hertz frequency conversions	Performance Characteristics
Annex C	Connections for short-circuit testing	Performance Characteristics
Annex D	Bibliography	Standards and Others



# Task Forces for C57.12.00 & 12.90

## Performance Characteristics Subcommittee

- PCS Revisions to 12.00  
Chair, Tauhid Ansari
- PCS Revisions to 12.90  
Chair, Hakan Sahin
- Audible Sound Revisions to 12.00 & 12.90;  
Chair, Ramsis Girgis
- Short-circuit revisions; Inactive,



# Task Forces for C57.12.00 & 12.90

- Dielectric Test Subcommittee

- Revisions to Low Frequency Tests  
Chair, Bill Griesacker
- Revisions to Impulse Tests for 12.00 & 12.90  
Chair, Pierre Riffon

- Insulation Life Subcommittee

- Revisions to Temperature Tests; Inactive.



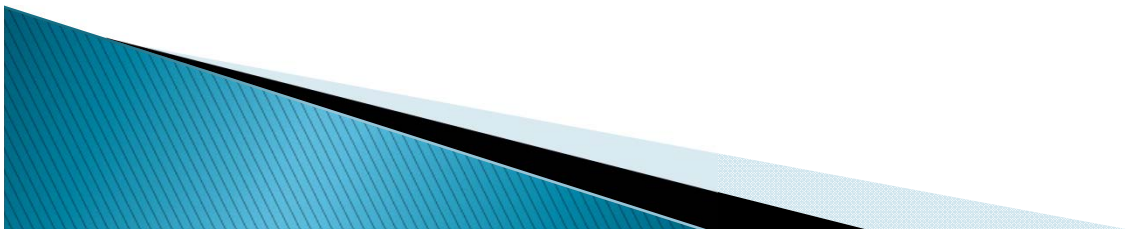
# Working Groups for C57.12.00 & 12.90

- Standards Subcommittee
- WG for Continuous Revisions to 12.00; Chair, Steve Snyder
- WG for Continuous Revisions to 12.90; Chair, Stephen Antosz
- PAR responsibility resides with these Working Groups, not the Task Forces.
- When the document is ready for sponsor ballot, the WG Chair moves it forward via IEEE-SA's MyProject system.
- WG membership consists of the Task Force Chairs and the Subcommittee Chairs. And this same group becomes the ballot resolution committee after balloting and recirculations.



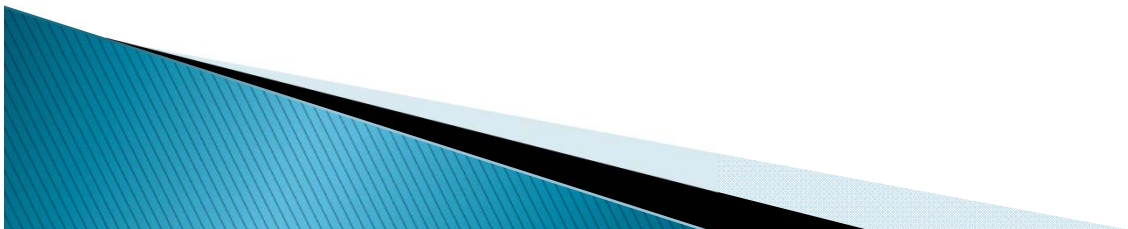
# Past process

- Due to the many technical subjects covered by these standards, suggestions and questions to be considered in each revision have been delegated to the Subcommittee whose scope is most clearly aligned with the issue.
- The subcommittee then works through the issues that have been delegated to them, and frequently forms task forces focused on specific items.
- The Subcommittee and/or task forces work to reach consensus and then propose new or revised clauses to be added to C57.12.00 or C57.12.90



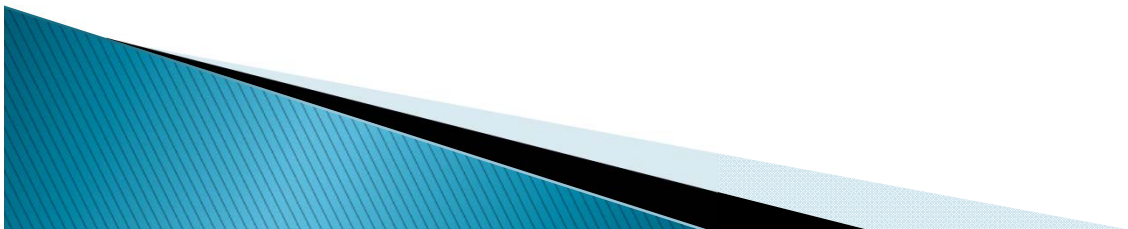
# Past process

- In most subcommittees, progress is reported in Subcommittee meetings and minutes of the task forces are provided.
- The TF comes to consensus of its members via surveys. Once the TF completes its work, it passes it up to its respective SC Chair. The SC membership then votes to approve the topic (simple majority needed) to be forwarded to the WG in the Standards Subcommittee for inclusion in the next revision ballot of the document.



# Process revisions and updates

- Working group process needs to be enhanced to be open to all who wish to participate
- Working group meetings and minutes are required. Should we have a WG meeting?
- All decisions require consensus of the working group, with motions and votes as required



# Process revisions and updates

- The working group shall reach consensus that the revised document is ready to move to ballot, followed by process vote of the Standards Subcommittee
- None of these things preclude the working group from establishing a schedule and cutoff date for changes and additions to the standards so that they can periodically move forward for ballot.





**Any Questions?**

