Annex D Dry Type Transformers Subcommittee

Wednesday October 30, 2024

IEEE Transformer DTSC Fall 2024 St. Louis, Missouri

Chair: **Casey Ballard**

Vice-Chair: **David Walker**

Secretary: **Dave Stankes**

D.1 Introductions, Chairs Remarks

The Dry-type Transformers Subcommittee (DTSC) met in the Grand Ballroom AB room at the Hyatt Regency St. Louis Missouri on October 30, 2024 at 1:30 PM (CST).

The Chair notified the attendees that the meeting would be recorded for the purpose of accurately documenting the minutes, and that recording would be erased once minutes were completed.

Request TF and WG chairs to provide David Walker short, concise summary of what was accomplished this week to be shared at Closing Session on 10/31. Meeting minutes requested to be forwarded to Dave Stankes asap as DTSC Meeting minutes are due by December 5th.

QR code system may be rolled out to at next meeting for the recording of attendance.

Chair offered congratulations to David Walker who will be taking over as Chair of the Dry-type Transformer after the conclusion of the Fall 2024 meeting.

D.2 Attendance and Quorum

The chair presented a slide with the names of all current members. There were 48 attendees. 17 of the 31 members of the DTSC were present, so a quorum was reached.

A roster was circulated, and the Chair requested any member who did not receive an e-mail invitation to this meeting to include it as they sign the roster as the e-mail the DTSC has on file is not accurate.

D.3 Approval of Agenda and Minutes

The chair entertained a motion to approve the planned agenda that was displayed at the meeting.

Motion to Approve – Mike Iman
Seconded – Ken Klein
Agenda was approved unanimously.

The chair entertained a motion to approve the Spring 2024 DTS meeting minutes that were posted on the Transformer Committee website.

Motion to Approve – Colby Lovins
Seconded – Kerwin Stretch
Spring 2024 DTS meeting minutes approved unanimously.

D.4 Working Group/Task Force Reports

Presentation of the reports of the various working groups and task forces. See the following sections for the individual reports:

D.4.1 C57.12.58 Transient Voltage Ken Klein

The Working Group met and the meeting was called to order at 11:00 AM by Chair Ken Klein.

Meeting Minutes by Chris Powell as Tim-Felix Mai was absent.

Spring 2024 Minutes and agenda approved

Bob Fryer First and Joe Tedesco second,
Motion was approved unanimously.

Patents claim was made

Copyright policy was made

Question was posed to what should be updated on C57.12.58 document

C57.12.98 is open and coincides with C57.12.58

Casey Ballard stated past revision resolved all comments and no further work could be done from last time

C57.12.98 PAR expires in December, and this is a good time to see if anything from that could be used

Chair should get the current draft of C57.12.98 from that working group

Suggested to remove anything that is in C57.12.58 and also in C57.12.98 so items only need to be updated in one document and the other can reference it

Suggested to join C57.12.98 ballot to view their comments

Will get copies of the C57.12.98 and C57.12.58 documents to push them out to the members

Meeting adjourned at 11:43 A.M.

As this was a first WG meeting, a quorum was present.

WG Meeting Agenda

1. Welcome & chair's remarks
2. Introduction of attendees, Creation of WG?/attendance
3. Approval of agenda & Spring study group minutes
4. Call for essential Patents & IEEE SA Copyright Policy review
5. Approved PAR Title and Scope
6. Path forward
7. Meeting Adjournment

WG Attendance:

- 37 total participants

WG plans to meet during the spring 2025 Transformer Committee meeting in Denver.

Chair: Ken Klein
Vice Chair/Acting Secretary: Chris Powell

Participation list:

Last Name	First Name	Company
Fu	Renjie	Ermco/VDF
Walker	David	MGM transformer
deOliveira	Luit	Hitachi Energy
Tedesco	Joe	Hitachi Energy
Nunez	Jesus	MGM transformer

Shimpi	Leena	MGM transformer
Fryer	Bob	Dupont
O'keefe	William Sean	Dupont
Nguyen	Namtran	TT Electronics
Iman	Mohammad	MGM transformer
Washburn	Alan	Burns Mcdonald
Watson	Joshua	NPPD
Lachman	Mark	Doble
Yu	Zhenquan	Sieyuan Toshiba
Huang	Zinan	Sieyuan Toshiba
Lambert	Jason	Jst Power Equiptment
Hoffman	Gary	Advanced Power Tech
Mccullaugh	Lynn	Essex Bromwell
Bennett	Mark	Essex Bromwell
lee	Moonhee	Hammond Power Solutions
Ballard	Cassie	Dupont
Lovins	Colby	Federal Pacific
Tatu	Yaz	Powersmiths
Stretch	Kerwin	siemens energy
Gutierez	Jolani	Jst Power Equiptment
Menddez	Luis Felipe	Jst Power Equiptment
Mosquera	Emerson	Jst Power Equiptment
Grajeda	Rafaed	Eaton
Sandaval	Alberto	Eaton
Moeelohande	Shivkumar	siemens energy
Izquidero	Jose	siemens energy
Kupp	Alvin	HVTC Inc.
Mennonna	Robert	Maddox Industrial
Cordova	David	Maddox Industrial
Oitega	Anidondo	siemens energy
Naderian	Ali	siemens energy
Heracidez	Cuno Sergio	Enerpars

D.4.2 Revision for IEEE Revision of C57.12.01 Chair Casey Ballard

The WG met on Monday, October 28, 2024; 1:45 PM – 3:00 PM

- The meeting was called to order at 1:45 pm by Chair Casey Ballard.
- The chair made opening comments, and the Working Group leaders (Chair, Vice Chair and Secretary) introduced themselves.

The attendance roster was circulated with instructions to indicate if the attendees would like to become a member of the Working Group.

After circulation, there were 58 participants, 23 Members, 35 guests, and 11 individuals requested membership.

The Chair displayed the current Working group members list. At present, there are 36 Working Group members. 23 were present so the meeting quorum was established. Please see the list of attendees at the end of the report.

The Chair reviewed the agenda for the meeting.
Motion by John John to approve the Agenda.

- Motion seconded by Ryan Hogg
- No discussion
- Chair asked if there was any objection to unanimous approval of the agenda. None of the present members objected so the motion passed unanimously.

The Chair reviewed the previous meeting minutes from the spring 2024 meeting in Vancouver.
Motion by Kerwin Stretch to approve the Spring 24 Meeting Minutes.

- Motion seconded by David Walker
- No discussion
- Chair asked if there was any objection to unanimous approval of the agenda. None of the present members objected so the motion passed unanimously.

The Chair discussed the PAR expiration date of December 2026 and stated the Spring 2025 meeting would be the last meeting to incorporate changes to the document. The desire is to maintain the same timeline as C57.12.91.

The Chair reviewed the copyright and patent slides. No patent claims were stated.

Old Business:

Power Factor Testing Pass/Fail Criteria – Report by Mr. Locarno

- The topic was postponed to later in the meeting in case the individual was delayed. By meetings end, Mr. Locarno was unable to attend so the topic was not discussed.

TF Annex Proposal on Fire Performance – Tim-Felix Mai

- No Task Force updates/reports from the previous two Working Group Meetings. The Chair decided to close the Task Force.

TF Environmental Conditions– Tim-Felix Mai

- No Task Force updates/report from the previous two Working Group Meetings. The Chair decided to close the Task Force.

New Business:

Short Circuit Temperature Calculation – Vijay Tendulkar

- Vijay was unable to attend the meeting so there was nothing to report. There was a group discussion around the IEC and IEEE formulas. Primarily the IEC was preferred but the IEEE was allowed. The Chair asked the group for additional information that may be discussed in the next meeting.

Dry-Type Pole Mounted – Tim-Felix Mai

- Tim-Felix was unable to attend the meeting so there was nothing to report. The Chair asked the group for thoughts / comments. No comments were shared.

BIL of Dry-Type versus Liquid – Phil Hopkinson

- Phil discussed the history of Dry-Type and Liquid-Filled in relation to BIL / Impulse testing levels and why they were different. Also discussed were switching transients and how Vacuum Breaker technology has contributed to a increase in these levels. Much

discussion on whether to align the BIL levels of Dry-Type Transformers with the BIL levels of Liquid-Filled Transformers. Discussion also included the differences between negative and positive polarity in regards to Impulse testing.

- **Motion by Mahajan Kushai:** Change the Dry-Type BIL listed in table 3 to match the distribution section of table 3 of C57.12.00 and maintain the positive polarity**.**
    - Motion seconded by Joe Tedesco
    - Discussion: Much discussion on having a table to vote on opposed to voting on text and that the proposal was a big change and could significantly affect end users. Also, discussion centering around Vacuum Circuit Breaker interactions / restrikes, shielded windings and Snubbers. Discussion progressed toward the topic of tabling the motion until the next meeting. There was a consensus within the group to table the motion.
        - **Motion by David Walker:** Table the motion until we have a BIL table to review.
        - Motion seconded by Ryan Hogg
        - No additional discussion
        - 19 Approved, 0 Disapproved, 4 Abstained.
    - Chair asked for a Task Force volunteers to report at the Spring meeting. However, if the Task Force fails to present a proposal at the Spring meeting, the tabled motion would die. There were two Task Force volunteers, Phil Hopkinson as Chair and Joe Tedesco as a member.

Class I Transformers / Table 13 – Ryan Hogg

- Ryan gave a presentation centered around Table 13. See below.

241027 C57.12.01
500 kVA History (1).pp

- Ryan discussed possible ways forward.
    1. Keep the existing table
    2. Update the table: 1Ph and 3Ph values use a 3X relationship
    3. Create a Task Force to investigate further.
- Ryan will also present to the C57.12.00 WG and report back any findings / comments.
- Additional discussions on keeping the existing table (option 1) but writing a clarification note regarding 500KVA. Ryan agreed to draft an explanatory note and present it to the Working Group during the Spring 2025 meeting.

With no further business, the meeting was adjourned.

Chair: Casey Ballard
Vice Chair: Joe Tedesco
Secretary: Colby Lovins

Working Group for C57.12.01 Meeting Attendees – Fall 2024

Robert	Ballard	DuPont	Chair
Mark	Bennett	Essex Brownell	Guest
Megan	Bereswill	JST Power Equipment	Guest
Solomon	Chiang	The Gund Company	M
David	Cordova	Maddox Industrial Transformer	Guest
Renjie	Fu	ERMCO/VF Transformer	M

Bob	Fyrer	DuPont	M
Miguel	Garcia	Hitachi Energy	Guest
Rafael	Grajeda	EATON Corporation	Guest
Detlev	Gross	Power Diagnostix Consult	Guest
Jovani	Gutierrez	JST Power Equipment	Guest
Giovanni	Hernandez	Virginia Transformers Corporation	M
Sergio	Hernandez Cano	Hammond Power Solutions	M
Ryan	Hogg	Bureau of Reclamation	M
Philip	Hopkinson	HVOLT Inc.	Guest
Saif	Hossain	Trench Ltd.	Guest
Mohammad	Iman	MGM Transformer Company	M
Jose	Izquierdo	Siemens Energy	Guest
John	John	Virginia Transformer Corp.	M
Rebecca	Kim	Cheryong Electric	Guest
Ken	Klein	Johnson	M
Mahajan	Kushal	Sungrow	M
Jason	Lambert	JST Power Equipment	Guest
Moonhee	Lee	Hammond Power Solutions	M
Weijun	Li	Braintree Electric Light Dept.	M
Colby	Lovins	Federal Pacific Transformer	Secretary
Alejandro	Macias	Centerpoint Energy	Guest
Lynn	McCullough	Essex Brownell	Guest
Luis Filipe	Mendez	JST Power Equipment	Guest
Robert	Mennonna	Maddox Industrial Transformer	Guest
Humberto	Moreno	Siemens Energy	Guest
Emerson	Mosquera	JST Power Equipment	Guest
Shivkumas	Mozkhande	Siemens Energy	Guest
Namtran	Nguyen	TT Electronics	Guest
Mike	Nolte	Kiewit	Guest
William Sean	O'Keefe	DuPont	Guest
Agustin	Ortega	Siemens Energy	Guest
Harry	Pepe	Phenix Technology, Doble	Guest
Chris	Powell	Intermountain Electronics	M
Ashley	Reagan	Eltek Labs	Guest
Alberto	Sandoval	EATON Corporation	M
Cody	Schott	The HJ Family of Companies	Guest
Mike	Shannon	REA Magnet Wire	Guest
Masoud	Sharifi	Siemens Gamesa	Guest
Hemchandra	Shertukde	UHART	Guest
Muhammad Abdullah	Sohail	Trench Limited	M
Brian	Sonnenberg	Instrument Transformers, LLC	M
David	Stankes	3M	M
Kerwin	Stretch	Siemens Energy	M
Chris	Talbert	JST Power Equipment	Guest
Valeriu	Tatu	Powersmith	M
Joseph	Tedesco	Hitachi Energy	Vice Chair
David	Walker	MGM Transformer Company	M

Evanne	Wang	DuPont	Guest
Paul	Weyandt	Schneider Electric	Guest
Terry	Wong	Trench Ltd	Guest
Guang	Yuan	Hitachi Energy	Guest
Malia	Zaman	IEEE SA	Guest

D.4.3 Revision for IEEE 259 Chair Dave Stankes

The WG met at 3:15 PM CST, Monday, October 28, 2024

Chair: David Stankes
Vice-Chair/Secretary: Joseph Tedesco

This was the fourteenth meeting of the IEEE 259 Working Group. The meeting was held in the Grand Ballroom C meeting room, and Dave Stankes called the meeting to order at 3:15 PM.

Introductions were made.

There were 40 people present in the meeting, with 10 members and 30 guests. The Working Group had 20 members; therefore, a quorum was reached, and business could proceed. 3 guests requested membership.

Dave S. asked for a motion to approve the agenda. Casey Ballard moved to accept the agenda, with Bob Fryer seconding the motion. There was no discussion, and approval of the agenda was unanimous.

Dave S. had distributed the minutes of the last two meetings, which were held virtually in June and September. He asked for a motion to approve both sets of minutes. Colby Lovins moved to accept the minutes, and Solomon Chiang seconded the motion. There was no discussion, and approval of both sets of minutes was unanimous.

Dave S. showed the patent and copyright slides. He asked if there were any patent or copyright concerns from those in attendance; no one had any concerns or noted any patent/copyright issues.

Old Business:

- Dave S. showed and discussed the flow chart that had been developed for the revised standard, and he discussed the overall approach that has been used in the revision, namely breaking the work up into multiple smaller groups/task forces.
- Dave S. discussed changes that were proposed to the Clause 6 (Test Methods), and Joe Tedesco added details about the rationale behind the proposals.
    - Proposal 1: Reduce the targeted number of cycles for failure from “6 to 10” to “5 to 10.”
        - Casey B. made a motion to accept this change. Solomon C. seconded the motion. There was no discussion, and the approval of the motion was unanimous.

- Proposal 2: Change the separation of aging temperatures from "15 to 35°C" to a minimum of 10°C" and mandate that the range from lowest to highest aging temperature shall be at least 30°C. There was some discussion regarding the proposed wording, with changes being made to the proposed wording.
    - A motion was made by Casey B. to accept those changes, with Solomon Chiang seconding the motion. There was no further discussion, and the approval of the changes was unanimous.
    - Another motion was made by Casey B. to add the proposal to the draft. Solomon C. seconded the motion. There was no discussion, and the motion was unanimously approved.
- Proposal 3: Change when the cycle time may be changed depending on when failures occur. There was a lot of discussion about whether mandating when times be altered is the best policy and whether it would actually lead to faster failures. It was pointed out that if the screening tests were being used to determine more accurate thermal and dielectric limits of the test coils, then the likelihood of test coils lasting for many, many cycles was reduced.
    - Ultimately, the proposal was sent back to the task force for further consideration.
- Proposal 4: Change the description of oven tolerances to vary depending on the temperature range of the oven. There were some minor changes to the wording, but the general consensus was that the tolerances were consistent with other standards and not problematic.
    - A motion was made by Joe Tedesco to add the over temperature tolerance wording, and it was seconded by Evanne Wang. There was no discussion, and the motion was unanimously approved.
- Proposal 5: Change the minimum suggested number of test coils from 10 to 6. There was a discussion about whether, for statistical significance, it would be better to have more test coils. Points were made that a poorly manufactured test coil could have outsized effects if the number of test coils were smaller, and this could end up being more costly in the long run. It was also pointed out that there are a number of standards and test reports that identify the minimum number of samples necessary for statistical significance, and that 6 was in that range. It was also noted that the numbers were merely suggestions for minimum numbers of test coils, and it was questioned whether there should be a requirement.
    - Ultimately, the proposal was sent back to the task force for further consideration.
- Proposal 6: Change the minimum temperature for the cold shock to -30°C. It was asked where this number came from, and it was pointed out that it matched the minimum cold storage temperature in C57.12.01. It was also similar to cold exposure language in C57.12.60. There was a lot of discussion about the purpose of the cold exposure, whether it was designed to hasten mechanical failures, or if it was just to facilitate condensation during subsequent humidification testing. The question was asked why wouldn't the focus be to achieve a stable temperature, like

the current wording in C57.12.60, instead of just specifying a time to hold the test coils at -30°C?

- Ultimately, the proposal was sent back to the task force for further consideration.

- Proposal 7: Change the description of moisture exposure to be similar to C57.12.60 and add wording about accommodating other tests. There was some discussion about the wording, which was changed to the satisfaction of all in attendance.
  - Joe T. made a motion to add the wording, and it was seconded by Bob Fryer. There was a short discussion, and a vote was taken, with 9 for, 1 against, and 0 abstentions. The motion carried.

- Dave S. began discussing Clause 8.4, which called for allowing a company to modify an insulation system by adding a secondary insulation that had the same chemical fingerprint as a material already in the system. Solomon C. explained that this was to streamline the process and would apply to materials that would otherwise undergo chemical compatibility testing, which is why it was unnecessary to have similar mechanical properties. Casey B. pointed out that if this were to be allowed, it should be mandated that only a manufacturer of two chemically identical products could make such a substitution (as opposed to an end user, supplier, etc.). He further pointed out that chemical fingerprinting of materials was well-known to be fraught with potential problems.
  - There was no decision, and the matter would be discussed in further detail at the next meeting.

New Business:

- Dave S. discussed the upcoming revised draft. New text that was added and accepted would be highlighted a different color than text that had been added but not yet accepted. Text that was deleted and text that was moved would also be identified.

There will be two interim meetings before the Spring 2025 meeting. The dates of those meetings have not been set yet. The working group would also meet on March 24, 2025 or March 25, 2025 in Denver, CO.

The meeting was adjourned at 4:27 PM.

Role	First Name	Last Name	Affiliation
Guest	Gavin	Alexander	Coil Innovation
Member	Robert Casey	Ballard	DuPont
Guest	Naveen	Bhardwaj	Trench Group
Guest	Camilo	Casallas	Trench Limited
Member	Solomon	Chiang	The Gund Company
Guest	Luiz	de Oliveira	Hitachi Energy
Guest	Peter	Doppihain	Trench Group
Guest	Marco	Espindola	Hitachi Energy
Guest	Renjie	Fu	ERMCO/V&F Transformer
Member	Bob	Fryer	DuPont
Guest	Rafael	Grajeda	Eaton
Guest	Jovani	Gutierrez	JST Power Equipment
Guest	Gary	Hoffman	Advanced Power Technologies
Guest	Saif	Hossain	Trench Limited
Guest	Ken	Klein	Johnson Electric
Member	Moonhee	Lee	Hammond Power Solutions
Member	Colby	Lovins	Federal Pacific
Member	Kushal	Mahajan	Eaton
Guest	Swapnil	Marathe	Megger
Guest	Emerson	Mosquera	JST Power Equipment
Guest	Nam	Nguyen	TT Electronics
Guest	Jesus	Nunez	MGM Transformer
Guest	William Sean	O'Keefe	Dupont
Guest	Agustin	Ortega	Siemens Energy
Guest	Klaus	Pointer	Trench Austria
Member	Chris	Powell	Intermountain Electronics
Guest	Ashley	Reagan	ELTEK Labs
Guest	Alberto	Sandoval	Eaton
Guest	Michael	Sharp	Trench Limited
Guest	Leena	Shimpi	MGM Transformer
Guest	Brian	Sonnenberg	ITI
Chair	David	Stankes	3M
Guest	Val	Tatu	Powersmiths
Vice Chair	Joseph	Tedesco	Hitachi Energy
Member	Evanne	Wang	DuPont
Guest	Leon	White	Hedrich
Guest	Stefan	Wirth	Coil Innovation
Guest	Terry	Wong	Trench Ltd.
Guest	Guang "Grace"	Yuan	Hitachi Energy
Guest	Malia	Zaman	IEEE SA

VIRTUAL Meeting – WG met 3:00 PM EST, Thursday, September 12, 2024

Chair: David Stankes
Vice-Chair/Secretary: Joseph Tedesco

This was the thirteenth meeting of the IEEE 259 Working Group. The meeting was held virtually, and Dave Stankes called the meeting to order at 3:00 PM.

To save time, quick introductions were skipped.

There were 26 people present in the meeting, with 10 members and 16 guests. No one requested membership. The Working Group had 19 members; therefore, a quorum was reached, and business could proceed.

Dave S. asked for a motion to approve the agenda. Chuck Johnson moved to accept the agenda, with Solomon Chiang seconding the motion. There was no discussion, and approval of the agenda was unanimous.

Dave S. had not distributed the minutes of the last meeting, which was held virtually in June, and planned to distribute those minutes with the minutes of this meeting prior to the Fall Meeting, planning to seek approval for both sets of minutes at that meeting.

Dave S. showed the patent and copyright slides. He asked if there were any patent or copyright concerns from those in attendance; no one had any concerns or noted any patent/copyright issues.

Old Business:

- Solomon C. reviewed the proposal for Clause 7, which would deal with how to modify an insulation system
    - There were extensive discussions about types of primary/major insulations, how they were used in transformers, and what types should be described in this standard.
    - There were extensive discussions about how to add/change primary/major insulations.
        - Three-point vs. single-point thermal aging were presented as options, and Dave S. asked why anyone would perform a three-point thermal aging to simply modify an insulation system.
        - Chemical interchangeability of materials was discussed, and there was a discussion about how to describe different methods for identifying chemical composition of materials for this purpose.
        - The description of single-point thermal aging would come directly from C57.12.60-2020 Clause 8.2, and there was a discussion as to whether that standard should just be referenced or whether the process should appear as text.
            - Joe Tedesco pointed out that some users of this standard would be LV manufacturers who would have no use for C57.12.60.
            - Solomon C. pointed out that the text in C57.12.60 contained a typo, which could be corrected when copied to IEEE 259.
            - It was decided to add the text in full instead of just referencing C57.12.60-2020.
        - The ways to add varnishes and resins was discussed.

- There was a discussion about the definitions of varnishes and resins, and whether to use the definitions in IEEE C57.12.80 or other, more technical descriptions of varnishes and resins.
    - The definitions from C57.12.80 would be used.
- Solomon C. mentioned the use of chemical compatibility testing (AKA sealed tube testing) for adding varnishes for open wound transformers, coatings on wires, etc. and single-point thermal aging for resins used for solid-cast transformers.
    - Joe T. pointed out that the C57.12.60 working group had identified that varnishes for open wound transformers occupied a special place and were handled using the enhanced sealed tube test.
- There was extensive discussion about using chemical similarity between two materials to determine whether testing was necessary.
    - Bob Fyrer pointed out that you could have two materials that were chemically identical but could have very different properties depending on how they were structured.
    - Dave S. decided to table the discussion.

- Joe T. reviewed the changes made to Clause 6 involving testing.
    - Most of the changes were minor, with only a few technical changes, and there was little discussion.
    - The range between aging temperatures, how to adjust aging periods depending on sample failure, and oven temperature uniformity, were all clarified.
    - The table of suggested aging temperatures and cycle lengths from C57.12.60 was added.
    - Mechanical stress, thermal exposure shock, and moisture exposure testing on samples was simplified, removing differences depending on expected usage of the transformers (indoor vs. outdoor).

New Business:

- Dave S. provided an update the PAR extension.
    - It is on the agenda for the September 25 NesCom meeting.
- Dave S. showed the new scope and purpose.
    - They will be added to PAR revision, which will be upcoming.

Role	First Name	Last Name	Affiliation
Member	Piotr	Blaszczyk	Specialty Transformer
Guest	Camilo	Casallas	Trench Limited
Member	Solomon	Chiang	The Gund Company
Guest	Renjie	Fu	ERMCO/V&F Transformer
Member	Bob	Fyrer	DuPont
Guest	Rafael	Grajeda	EATON Corporation
Guest	Saif	Hossain	Trench Limited
Member	Charles	Johnson	Hitachi Energy
Member	Moonhee	Lee	Hammond Power Solutions
Member	Aleksandr	Levin	Weidmann Electrical Technology
Guest	Tiffany	Lucas	Prolec GE
Guest	Kenneth	McKinney	UL LLC/UL Solutions
Guest	Christian	Orlando	IEEE SA
Guest	Vinay	Patel	Con Edison
Guest	Caroline	Petersen	Xcel Energy
Guest	Chris	Powell	Intermountain Electronics
Guest	Zoltan	Roman	GE
Guest	Alberto	Sandoval	EATON Corporation
Guest	Sam	Sharpless	Rimkus
Chair	David	Stankes	3M
Guest	Val	Tatu	Powersmiths
Vice Chair	Joseph	Tedesco	Hitachi Energy
Member	Vijay	Tendulkar	EATON Corporation
Member	Evanne	Wang	DuPont
Guest	Terry	Wong	Trench Limited
Guest	Guang "Grace"	Yuan	Hitachi Energy

VIRTUAL METING – WG Met 9:30 AM – 10:30 AM CET, Wednesday, June 12, 2024

The meeting was held virtually over Microsoft Teams and Dave Stankes called the meeting to order at 9:32 AM Chair made opening comments.

In the interest of time, introductions were foregone, and Dave asked that all attendees record their affiliations in the Chat section of Microsoft Teams.

Attendance:
- 25 total participants
- 10 Members
- 15 guests

There were 10 out of 18 members present. A quorum was present.

WG Meeting Agenda
1. Introductions / Attendance/Determine Quorum (10minutes)
2. Review action items from Vancouver Spring meeting including:

Clause 7. Modifications to an existing system (Evanne Wang, Solomon Chiang)
Review proposals for method to add minor insulations and/or

Clause 6: Test procedures
Review of Mechanical stress, thermal exposure, and moisture (Tim-Felix Mai, Joe Tedesco)
3. PAR Extension Update
4. Meeting Adjournment

The chair showed the Participant behavior in IEEE-SA activities, patent, and copyright slides. He asked if there were any patent or copyright concerns from those in attendance; no one had any concerns or noted any patent/copyright issues.
The agenda was approved unanimously without discussion.
Motion: Colby, Second: Rob

The WG Meeting minutes of the Spring 2024 in Vancouver were approved unanimously without discussion.
Motion: Rob, Second: Vijay

Old Business:

Clause 7. Modifications to an existing system
A proposal from Solomon to include UL1446 CCT to include a path for adding minor insulation. This requires on seal tube per varnish type. Mark commented on that proposal and the group discussed if generic material substation should not be allowed or not.

As UL 1446 has good definitions for modifications to an existing system Evanne proposed to use wording from this standard.
Clause 7 should reference UL1446's supplements SA – Substitution or Modifications to an EIS on modifications to an existing system.
Clause 7 should include example ways to modify an existing system and which test to use.

Evanne has sent in a full proposal for cluse 7 which was shown by the chair.

Motion: To incorporate information to change an existing system by using UL1446 as a reference By Evanne, Second: Joe
The motion was approved unanimously without discussion.

Clause 6: Test procedures
The ask for volunteers to review the section and help Joe and Tim-Felix. Nancy volunteered and Mark will help to review the proposals.

PAR Extension Update
This revision to the PAR will be submitted at a later date as it may change as we continue to work on the document. 2 year extension will be requested. No change to Title, Scope, or Purpose at this time.

New Business:

None

The meeting was adjourned at 10:30 AM.

	Last Name	First Name	Company	
1	Stankes	David	3M	Chai
2	Tedesco	Joseph	Hitachi Energy	Vice Chair
3	Mai	Tim-Felix	Siemens Energy	Secretary
4	Lee	Moonhee	Hammond Power Solution	Member
5	Levin	Alexander	Weidmann	Member
6	Lovins	Colby	Federal Pacific	Member
7	Tendulkar	Vijay	Eaton	Member
8	Wang	Evanne	DuPont	Member
9	Patel	Vinay	Con edision	Guest
10	Yuan	Guang	Hitachi Energy	Guest
11	Jarosz	Patrycja	IEEE SA	Guest
12	Peterson	Caroline	Xcel Energy	Guest
13	Shahsiah	Ahmad	Exponent, Inc.	Guest
14	Caverly	David	Trench Limited	Guest
15	Johnson	Charles	Hitachi Energy	Member
16	Powell	Chris	Intermountain Electronics	Guest
17	Izquierdo	Jose	Siemens Energy	Guest
18	McKinney	Kenneth	UL Solutions	Guest
19	Morales	Elena	Siemens Energy	Guest
20	Forst	Nancy	Frosty's Zap Lab, LLC	Guest
21	Raymond	Mark	UL Solutions	Guest
22	Fu	Renjie	VF Transformer	Guest
23	Ghosh	Rob	GE	Member
24	Lucas	Tiffany	Prolec GE Waukesha	Guest
25	Vrabie	Ivan	UL Solutions	Guest

D.4.4 PAR for ANSI C57.12.55 Enclosures — Colby Lovins

The WG met at 4:45 PM CST, Monday, October 28, 2024.

Secretary (Acting Chair): Colby Lovins
Acting Secretary: Joseph Tedesco

This was the second meeting of the IEEE C57.12.55 Task Force. The meeting was held in the Grand Ballroom C meeting room, and Colby Lovins called the meeting to order at 4:45 PM.

To save time, introductions were skipped.

There were 19 people present in the meeting, with 5 members and 14 guests. 5 guests requested membership. The Task Force had 8 members; therefore, a quorum was reached, and business could proceed.

Colby L. explained that the task force had completed its assigned work of developing the PAR in the last meeting, but the PAR had not been approved yet, so we were unable to do any actual work. For this meeting, we would discuss the direction we wanted to proceed.

Colby L. asked for a motion to approve the agenda. Bob Fryer moved to accept the agenda, with Ken Klein seconding the motion. There was no discussion, and approval of the agenda was unanimous.

Colby L. asked for a motion to approve the minutes. Ken K. moved to accept the minutes, and Bob F. seconded the motion. There was no discussion, and approval of both sets of minutes was unanimous.

Colby L. showed the patent and copyright slides. He asked if there were any patent or copyright concerns from those in attendance; no one had any concerns or noted any patent/copyright issues.

Old Business:

- Colby L. discussed the plan.
    - The PAR will be submitted by the end of the year, so we should be a working group by the Spring 2025 meeting.
    - We would consider removing Annex A, Annex B, clearance tables, and the table of conformance testing.
        - This material has been moved to or included in other standards.
    - We would investigate agreement with other enclosure standards, enclosure categories, and adopting enclosure types from NEMA and UL.
    - We would review the diagrams, drawings, and tooling to match those listed in IEEE C57.12.28.

New Business:

- There was no new business.

There was a question raised regarding if the WG gained approval from the DTSC for submitting a PAR. (Yes, it did.) A question regarding the ANSI designation on the document was raised. This document will not have ANSI designation once it is released.

The working group should meet on March 24, 2025 or March 25, 2025 in Denver, CO.

The meeting was adjourned at 5:06 PM.

ATTENDANCE

Role	First Name	Last Name	Affiliation
Guest	Kayland	Adams	Prolec GE Waukesha
Member	Robert Casey	Ballard	DuPont
Member	Bob	Fryer	DuPont
Guest	Hector	Garza	Orto de Mexico
Member	Ken	Klein	Johnson Electric
Secretary	Colby	Lovins	Federal Pacific
Guest	Shiv	Makhande	Siemens Energy
Guest	Humberto	Moreno	Siemens Energy
Guest	Ali	Naderian	Enerpars
Guest	Jesus	Nunez	MGM Transformer
Guest	William Sean	O'Keefe	Dupont
Guest	Agustin	Ortega	Siemens Energy
Guest	Leena	Shimpi	MGM Transformer
Guest	David	Stankes	3M
Guest	Kerwin	Stretch	Siemens Energy
Guest	Val	Tatu	Powersmiths
Member	Joseph	Tedesco	Hitachi Energy
Guest	Evanne	Wang	DuPont
Guest	Bruce	Webb	KUB

D.4.5 Revision of IEEE C57.94 Chair Ken Klein

- The Working Group met in Grand Ballroom F room. The meeting was called to order at 8:00 AM by Chair Ken Klein.
- Chair made opening comments.
- Introductions were made by all participants. WG Roster has been distributed and signed.

Attendance:
- 34 total participants
- 9 Members
- 25 guests

There were 9 out of 17 members present. A quorum was present.

WG Meeting Agenda
1. Welcome & chair's remarks
2. Introduction of attendees, attendance & determination of quorum
3. Approval of agenda and Spring minutes
4. Call for essential Patents & IEEE SA Copyright Policy review
5. Review of TF sections
    - Normative references: Ken & Roger
    - Definitions: Tim-Felix (Complete)
    - Application: Colby & Chris (Complete Fall 2022)
    - Installation: Dave (Complete Fall 2022)
    - Testing: Kerwin & Joe (Complete Spring 2023)
    - Operation: Casey (Complete Fall 2023)
    - Maintenance: Ken Klein & Kerwin (New Figure #1 & Comments from Ryan Hogg)
6. Go to ballot? If yes, create resolution group and empower it to resolve comments without the need to come back to the WG
7. Meeting Adjournment

Reviewed agenda. The agenda was approved unanimously without discussion.
Motion: Joe Tedesco, Second: Colby Lovins

The WG Meeting minutes of the Spring 2024 Meeting were approved unanimously without discussion.
Motion: Colby Lovins, Second: Joe Tedesco

The chair presented the information on Code of Conduct, Patent Disclosures, and IEEE SA Copyright Policy. He asked the group to report any relevant patent issues – None were communicated.
Old Business:
Review of TF sections:

Maintenance Clause - New Figure #1 & Comments from Ryan Hogg

Ryan described the addition of new Clause 8.1.4 that described other potential maintenance items that may be considered. A new Maintenance Checklist was also created and added as content in the (Informative) Annex. Ryan stated no new requirements were included in this checklist.

Ken reviewed updated New Figure #1.

A **motion** to add the new Clause 8.1.4 (potential maintenance items), Maintenance Checklist (into Annex), and new Figure #1 was made by Ryan Hogg and seconded by Kerwin Stretch.

Discussion on whether font on figures would need to be fixed before submitting (Colby believes it needs to be fixed). A question regarding whether more information / text was needed explaining the shape of the curve in New Figure #1. It was decided that sufficient text was already present in Clause 3.3.5.2.

Motion was approved unanimously.

Discussion regarding what is the responsibility of the WG to make sure bibliography title and number are correct before submitting for vote. Patrycja J. from IEEE confirmed this information should be correct before submitting.

Patrycja J. reminded the WG that formed Comment Resolution Groups are able to address editorial comments. The CRG's are encouraged to notify the WG on any resolution or recommendations for technical comments although this is under the discretion of the SC.

The WG addressed several needed fixes including:

- correcting names of references and locating these references in correct place in the document (Normative Annex vs. Bibliography).
- Removal of duplicate references.
- Making sure Scope and Purpose in Draft match what is on PAR.

A **motion** was made by Joe Tedesco and seconded by Chris Powell to send the current draft, pending chair to make any other needed editorial corrections to the document, to the SC for a vote to go to ballot. Request formation of a Comment Resolution Group with authority to address editorial and technical comments without having to go back to the WG.

Motion was approved.
Approve: 9
Reject: 0
Abstain: 0

Volunteers for CRG included:
Ryan Hogg
Joe Tedesco
Kerwin Stretch
Colby Lovins
Ken Klein

At the conclusion of the review of the C57.94 meeting highlights
Ken Klein made a motion to the DTSC to take C57.94 to ballot. The motion was seconded by Joe Tedesco. The motion was unanimously approved.

Chair: Ken Klein

Vice-Chair: David Stankes (submitted meeting minutes)

Secretary: Tim-Felix Mai

	First Name	Last Name	Company	
1	David	Stankes	3M	Vice Chair
2	Robert	Ballard	DuPont	Member
4	Ken	Klein	Johnson	Chair
5	Joseph	Tedesco	Hitachi Energy	Member
6	Colby	Lovins	Federal Pacific	Member
7	Solomon	Chiang	TGC	Member
8	Kerwin	Stretch	Siemens Energy	Member
9	Val	Tatu	Powersmiths	Guest
10	Bob	Fyrer	DuPont	Guest
11	Ryan	Hogg	Bureau of Reclamation	Guest
12	Alberto	Sandoval	Eaton	Guest
13	Brian	Sonnenberg	ITI	Guest
14	Yuan	Guang	Hitachi Energy	Guest
15	Evanne	Wang	DuPont	Guest
16	Stefon	Wirth	Coil Innovation	Guest
17	William Sean	O'Keefe	DuPont	Guest
18	Mark	Bennet	Essex Brownell	Guest
19	Humberto	Moreno	Siemens Energy Inc.	Guest
20	Luis Felipe	Mendez	JST Power	Guest
21	Emerson	Mosquera	JST Power	Guest
22	Leena	Shimpi	MGM Transformer	Guest
23	Jesus	Nunez	MGM Transformer	Guest
24	Mihai	Huzemezam	Meggor	Guest
25	Jesse	Theberge	Tempel	Guest
26	Eric	Hatton	Tempel	Guest
27	Hem	Shertuse	UHART/DDI	Guest
28	Verena	Pellon	FPL	Guest
29	Patrycja	Jarosz	IEEE SA	Guest
30	Kushal	Mahajan	Sunlrow	Guest
31	Chris	Powell	Intermountain Electronics	Member
32	Jose	Izquierdo	Siemens Energy	Guest
33	Agustin	Ortega	Siemens Energy	Guest
34	Renjie	Fu	Ermco / V&F Transformer	Guest

D.4.6 Revision of C57.12.59 Through Fault Current — Paul Weyandt

- Chair called meeting to order at 11 am CDT.
- Restart after change of Chair from Derek Foster to Paul Weyandt
- Colby Lovins moved to approve agenda, Ken Kline seconded. Motion passed unanimously
- Chair presented call for patents. No claims presented.
- Chair presented Copyright and behavior policies.
- Chair presented options for proceeding: do nothing, minor changes, revise everything.

- Casey Ballard pointed out that C57.12.01 removed the 25X short circuit current limit. Discussion about options revolved about how the existing curves were generated- where is the data, analysis, etc.. It was suggested that members of the previous working group might have data. Should review liquid guide to see if background information is available.

- Chair proposed interim virtual meetings to address some of these issues before Spring 25 meeting.

- Colby Lovins to proceed on proceeding on path 2. Joe Tedesco seconded. Motion passed unanimously.

- Action Items:
- David Walker to compare Dry and Liquid (C57.109) guides to look for background information.

- Look at extending graphs to lower and higher impedance. Leena Shimpi volunteered.

- Meeting adjourned at 12:15 pm CDT. A virtual working group meeting will be announced when scheduled. Next in-person meeting will take place at the Transformers Committee Spring 2025 Meeting in Denver, CO. March 23-27, 2025.

- Meeting Attendees:

Name	Affiliation	Participation
Ballard, Casey	DuPont	Member
Bereswill, Megan	JST Power	Member
Chiang, Solomon	The Gund Company	Guest
Colby, Caleb	Schneider Electric	Member
Coughlan, Will	MetGlas	Guest
Fu, Peng	Chint Electric	Guest
Fu, Renjie	VF Transformer	Member
Fyrer, Bob	Dupont	Member
Garza, Hector	Orto	Guest
Grajeda, Rafael	Eaton	Member
Gutierrez, Jovani	JST Power	Guest
Izquierdo, Jose	Siemens Energy	Member

Klein, Ken	Johnson Coil	Member
Lambert, Jason	JST Power	Member
Lovins, Colby	Federal Pacific	Member
Mai, Tim-Felix	Siemens Energy	Secretary
Mahajan, Kushal	Sungrow	Member
Makhande, Shiv	Siemens Energy	Member
Mendez, Luis Filipe	JST Power	Guest
Moreno, Humberto	Siemens Energy	Member
Mosquera, Emerson	JST Power	Guest
Munoz, Martin	Orto	Guest
Naderian, Ali		Guest
Nguyen, Nam	TT Electronics	Member
Nunez, Jesus	MGM Transformers	Member
Okeefe, Sean	DuPont	Member
Ortega, Augustin	Siemens Energy	Member
Powell, Chris	Intermountain Electronics	Member
Sandoval, Alberto	Eaton	Member
Shimpi, Leena	MGM Transformers	Member
Stankes, Dave	3M	Guest
Stretch, Kerwin	Siemens Energy	Member
Talbert, Chris	JST Power	Guest
Tatu, Val	Powersmiths	Member
Tedesco, Joe	Hitachi Energy	Member
Walker, David	MGM Transformers	Vice-Chair
Wang, Evanne	DuPont	Member
Wassall, Holly	JST Power	Member
Weyandt, Paul	Schneider Electric	Chair

D.4.7 Revision of IEEE C57.12.91 Test Code David Walker

Chair: David Walker
Acting Secretary: Joseph Tedesco

This was the second meeting of the IEEE C57.12.91 Working Group. The meeting was held in the Grand Ballroom GH meeting room, and David Walker called the meeting to order at 4:45 PM.

To save time, introductions were skipped.

There were 38 people present in the meeting, with 16 members and 22 guests. 0 guests requested membership. The Task Force had 30 members; therefore, a quorum was reached, and business could proceed.

David W. showed the patent, behavior, and copyright slides. He asked if there were any patent concerns from those in attendance; no one had any concerns or noted any issues.

David W. asked for a motion to approve the agenda. Kerwin Stretch moved to accept the agenda, with Dave Stankes seconding the motion. There was no discussion, and approval of the agenda was unanimous.

Old Business:

- David W. reviewed the PAR timeline.
    - The PAR expires on December 31, 2026. To have all work done and the new version published by then, the last meeting where new work will take place is the Spring 2025 meeting.
    - This will also keep the timeline in sync with C57.12.01.
- We reviewed updating the exponents for temperature rise correction factors.
    - This has been tabled several times due to lack of data from multiple manufacturers.
        - There was no new data, so this matter was tabled again and will not be discussed further until new data is received.
- We reviewed whether to keep fans on or turn them off during AF temperature testing.
    - This has been tabled several times due to lack of data from multiple manufacturers.
        - There was no new data, so this matter was tabled again and will not be discussed further until new data is received.
- We reviewed how to add a correction factor for the voltage during the no load loss test.
    - This matter was tabled due to a lack of data. There was also no proposal made for how to handle it because the person who was going to make the proposal was not present.
- We reviewed the tolerance for current during the load loss measurement, and how to handle the situation when test equipment is unable to reach the rated current?
    - Colby Lovins proposed tabling this due to a lack of time to investigate suitable solutions before the working group finishes and goes to ballot.
    - It was brought up that IEC may address this problem, and we should look at what they say about this. Kerwin Stretch found a statement in IEC 60076-1 pertaining to the current tolerance.
    - Casey Ballard pointed out that IEC 60076-1 is currently in revision and many changes are being made, but he was able to find a copy of the current draft under review and reported that it did include a tolerance and a correction method for the current.
    - Kerwin S. volunteered himself and Tim-Felix Mai to summarize the relevant portions of the latest draft of IEC 60076-1 and report the summary with a proposal in the Spring 2025 meeting.

New Business:

- Val Tatu made a proposal for a method that could be used to correct currents when there is an imbalance in the currents measured in each phase of a three-phase transformer.
    - The method of interest, but it was decided to not include it at this time.

The next working group will be on March 25, 2025 in Denver, CO.

The meeting was adjourned at 5:32 PM.

The meeting attendees were:

Ballard, Robert	Klein, Ken	Nunez, Jesus	Stankes, David
de Olivera, Luiz	Lee, Moonhee	O'keefe, Sean	Stretch, Kerwin
Fu, Renjie	Lowther, mark	Ortega, Agustin	Tatu, Valeriu
Fyrer, Robert	Lovins, Colby	Pepe, Harry	Tedesco, Joseph
Gorzin, Alireza	Mahajan, Kushal	Powell, Chris	Walker, David
Grajeda, Rafael	Mendez, Luis	Sandoval, Alberto	Wang, Evanne
Hernandez, Giovanni	Moreno, Humberto	Sharifi, Masoud	Weyandt, Paul
Hernandez-Cano, Sergio	Mosquera, Emerson	Shimpi, Leena	Yuan, Guang
Iman, Mohammad	Naderian, Ali	Shull, Stephen	
Isquierdo, Jose	Nguyen, Nam Tran	Sohail, Muhammad	

D.5 REPORTS FROM WG's THAT DID NOT MEET AT FALL 2024 MEETING

D.5.1 Revision of C57.96 Loading Guide — Mike Iman

Final document has been reviewed and approved

D.5.2 Revision of C57.16 Air Core Reactors — Arturo Del Rio

Draft 7 was balloted and received a 77%response. 73 comments were received and are being resolved. Will submit for recirculation ballot once comments are addressed. PAR expires at the end of 2024 and a PAR extension is being considered now.

D.5.3 Revision of C57.12.52 Sealed Dry-Type — Joe Tedesco

Document is published.

D.5.4 Revision of C57.134 Hottest Spot — Colby Lovins

Document is in the hand of the IEEE editors and waiting for the document to be published.

D.5.4 Revision of C57.124 Partial Discharge — Thomas Prevost

It was planned to send the document for ballot but a delay in response to questions raised during MEC review has delayed balloting. A new Ballot group will need to be formed.
Tom Prevost made a motion to form a ballot group for C57.124
Seconded by Klaus Pointner.
The motion was approved unanimously by the subcommittee.

D.6 Old Business

D.6.1 Status of Dry-Type Transformer Documents

The chair presented slides showing DTSC standards activity and status that are part of the Standards Report found on the Transformer Committee website.

Commented that most of our documents and timing for completing needed revisions are on schedule. Exception is C57.124 but a plan is now in place for having this document completed.

D.7 New Business

D.7.1 Alicia Farag Chair presented information regarding formation of a new WG for development of IEEE P3476. It is referred to as "SCATE" (Supply Chain and Active Traceability for Energy) by the WG. Alicia is the Chair of this WG.

Goal of creating industry standard unique ID's and smart tags like QR codes for all electric grid equipment. The manufacturers will create this unique ID based on the standard, apply the QR code to their products. Utilities will be able to scan the ID and get all of the attribute data associated with the product in a standardized digital format. All the data that is typically on a nameplate will be in this digital format.

Similar in concept to current C57.1235 (barcode) but will be applicable to all asset types beyond just transformer.

Introduces the concept of industry standard catalog ID with defined a attributes associated with it.

Most of the work for this project will be to define what attributes are required for each asset type. Alicia presented examples of this for liquid filled transformer. Will need to list specific domain values. Things that are not easily identified with a specific domain (like special requirements specified by a customer) will be captured with a separate attachment.

Categories for the Energy Transformation Group include transformer asset types:

- Liquid filled
- Dry-Type
- Instrument
- Voltage regulators / network protectors

The above four have been prioritized and are requesting participation by the appropriate Transformer subcommittee.

Jerry Murphy pointed out that this work is being sponsored by the T&D, not the Transformer Committee. Al Trout has already performed a lot of work on this in support of liquid filled transformer and may be able to answer any questions the DTSC may have.

The P3476 is hoping to have all of the attributes defined by the end of March 2024.

This program is designed for newly manufactured assets. There may be a way to address items in stock or newly deployed assets.

Slides shared at this meeting describing the P3476 work will be posted to the IEEE Transformer website.

D.7.2 Review of Dry-type Transformer Terminology

Chair presented information given to him by Dan Mulkey that provided information related to terminology used to describe dry-type transformers.

Information supplied by Dan and presented by the Chair included the Title, Scope, and Purpose of C57.12.52.
Dan suggested the wording used to describe the scope in the PAR would not apply to any transformer.
Proposed new definitions that could be used included:

- Cast coil dry type transformer
- Sealed air filled dry type transformer

- Sealed gas filled dry type transformer
- Dry type transformer with ventilated cabinet
- dry type transformer with non-ventilated cabinet

Chair asked the subcommittee members if there was interest in forming a TF to investigate the definitions of dry-type transformers all within the subcommittee scope and review this with what is currently in C57.12.80.

Joe Tedesco made a motion to form a Task Force to explore the concept of dry-type transformer definitions.
No second was made.
As a result, a Task Force will not be formed.

D.7.3 Mistake found in C57.12.60

Solomon Chiang identified a mistake he had found when reviewing the data analysis clause 8.2 in C57.12.60. The mistake included incorrect identification of equation 3.

Solomon Chiang made a motion to initiate a Corrigendum for C57.12.60 in order to fix information in Clause 8.2 Single Point Thermal Aging, one paragraph referring to Equation 3 should be changed to Equation 4.
Joe Tedesco seconded the motion.
Motion was approved unanimously.

Chair will reach out to previous Chair of the revision of C57.12.60 to see if he would like to initiate the project. If not this may be a good opportunity for a new volunteer to become active in the SC.

With no further business, the meeting was adjourned at 2:25 PM.

Chairman: Casey Ballard

Vice Chairman: David Walker

Secretary: David Stankes (prepared meeting minutes)

D.7.4 Changing of the guard

Casey offered his farewell to the SC as his official duty as DTSC Chair was now ended (after 8 years of actively conducting duties as Chair)

Attendees

Role	**First Name**	**Last Name**	**Company**
Vice Chair	David	Walker	MGM Transformer Company
Secretary	David	Stankes	3M
Member	Solomon	Chiang	The Gund Company
Member	J. Arturo	Del Rio	Siemens Energy
Member	Sergio	Hernandez Cano	Hammond Power Solutions
Member	Mohammad	Iman	MGM Transformer Company
Member	John	John	Virginia Transformer Corp.
Member	Ken	Klein	Johnson Coil

Member	Moonhee	Lee	Hammond Power Solutions
Member	Colby	Lovins	Federal Pacific Transformer
Member	Klaus	Pointner	Trench Austria GmbH
Member	Chris	Powell	Intermountain Electronics
Member	Thomas	Prevost	Weidmann Electrical Technology
Member	Brian	Sonnenberg	Instrument Transformers, LLC
Member	Kerwin	Stretch	Siemens Energy
Member	Joseph	Tedesco	Hitachi ABB Power Grids
Guest	Renjie	Fu	ERMCO
Guest	Bob	Fyrer	DuPont
Guest	Miguel	Garcia	Hitachi Energy
Guest	Saif	Hossain	Trench Limited
Guest	Patrycja	Jarosz	IEEE
Guest	Alejandro	Macias	CenterPoint Energy
Guest	Jerry	Murphy	Reedy Creek Energy Services
Guest	Nam Tran	Nguyen	TT Electronics
Guest	Thomas	Prevost	Weidmann Electrical Technology
Guest	Ulf	Radbrandt	Hitachi ABB Power Grids
Guest	Valeriu	Tatu	Powersmiths International
Guest	Michael	Thibault	Pacific Gas & Electric
Guest	Evanne	Wang	Dupont
Guest	Terry	Wong	Trench LTD
Guest	Guang	Yuan	Hitachi Energy
Chair	Robert	Ballard	DuPont
Guest	Mark	Bennett	ESSEX Brownell
Guest	Jovani	Civtieriez	JST Power Equipment
Guest	Fenando	Duarte	EPRI
Guest	Alicia	Farag	Locusview
Guest	Brad	Grieves	Weidmann
Guest	Jim	McBride	JMX High Voltage
Guest	Luis Felipe	Mendez	JST Power Equipment

Guest	Robert	Mennonna	Maddox Industrial Transformer
Guest	Shiv	Mozkhande	Siemens Energy
Guest	Humberto	Moreno	Siemens Energy
Guest	Emerson	Mosqueta	JST Power
Guest	William Sean	O'Keefe	DuPont
Guest	Ashley	Reagan	ELTEK Labs
Guest	Joseph	Schumock	American
Guest	Leena	Shimpi	MGM Transformer Company
Guest	Paul	Weyandt	Schneider Electric