

# IEEE TC Working Group PC57.91 Loading Guide Meeting Minutes

October 20, 2020

3:45 PM – 5:00 PM (CDT) (Session 5)

## Virtual Meeting

1. The Chair made the opening remarks and proposed a meeting agenda.
2. Establishment of quorum- Number of Current Members = 43; Number of Members Present in Meeting= 26; Quorum Present = 60% and with a total number of 97 attendees (see attached list) at the meeting.
3. **Previous Meeting Minutes Approval**
  - a. Pittsburgh, 2018 Spring – Approved unanimously.
  - b. Jacksonville, 2018 Fall (with corrected reference to Clause B.1.1)– Approved unanimously.
  - c. Anaheim, 2019 Spring- Approved unanimously.
  - d. Columbus 2019 Fall- Approved unanimously.
4. The meeting agenda was approved unopposed.
5. **Call for Patents:** A call for patents was made and there were none claimed.
6. **Copyright Policy:** The IEEE copyright policy was read out.
7. **Discussions on Draft Document D3 (circulated before the meeting)**
  - A. The Chair indicated that the current PAR for this standard expires on Dec 31, 2021.
  - B. Distribution Transformer Loading Guide: The Chair mentioned that he attended the TF Transformer Efficiency & Loss Evaluation (DOE Activity) meeting chaired by Phil Hopkinson Oct 19, 2020 and there has been no input identified for this guide.
  - C. Tim Raymond made a presentation on Clause 9.2.1 and Table 8-9 (2008 Version):
    - Tim presented a revised verbiage for Clause 9.2.1 and a combined Table 8 (old 8 and 9 were combined) with maximum loading limited to 150%.
    - Jeff Wright commented that we should not include the maximum loading line item in the revised table.
    - Daniel Blaydon insisted that the 200% maximum loading number has been firmly established in many end-user documents and therefore it should not be removed from the current guide.
    - There was a lot of other discussions on this topic with good comments from Javier Arteaga, Jeffrey Wright, Daniel Blaydon, Igor K, Anthony Franchitti, Mickel Saad, Juan Castellanos, Peter Zhao, David Wallach, Wallace Binder, Craig Colopy, Bruce Forsyth and Tim Raymond.
    - Tim R reminded the attendees that these overload limits apply to in-service transformers and overloading limits are specified in the ordering

specification for new transformers. He added that there will be loss of life during overloading situations.

- Peter Zhao who was part of the original WG for this guide mentioned that the overload rating was related to time duration and that individual rating of each component can be detrimental to the overload rating.
- Mickel Saad proposed a motion to approve the revisions made by Tim R without the maximum loading line in Table 8. This was seconded by Jeff Wright. The motion did not pass with For-13, Against- 11 and Abstain- 7 votes. The Chair remarked that there was no agreement to lower the maximum loading limit of 200%.

8. Oleg Roizman made a presentation on Annex G and Clause 7 suggesting a new differential equation and some edits to Clause 7 and Annex G. He noted that the fiber optic sensor-based data provided by Brad Staley could not be used. He also suggested we combine Clause 7 and Annex G. Tim Raymond volunteered to help Oleg with these revisions. Oleg further noted that the steady state model in Annex A should be replaced by a transient one.

The Chair opined whether we should continue with simpler revisions, update Annex A to meet the PAR completion date (the current standard will expire in Dec 2021). Oleg R suggested we should extend the PAR and complete the revisions in two years.

9. **New Business:** Oleg pointed out that Clause 5 and Annex I needs to be revised based upon the outcomes of EPRI and other research that now suggests that moisture and oxygen has a big impact on insulation life, He mentioned that the IEC overloading guide was also revised in 2018 using the new insulation life equations. He added that the term acceleration factor term should be replaced by relative rate of aging.

David W commented that we probably need to coordinate with the Moisture WG to look at which C57 guide / standard the bubble equation should reside in. He added that we may need to take the WG suggestions to the Insulation Life SC for guidance.

Sheldon K suggested that the guide could still be effective if we could get it into the balloting stage by Dec 2021.

10. The next meeting is planned to be held at Toronto, Canada in April 2021.
11. The following nine attendees have been granted membership; Roger Hayes, Timothy Raymond, Peter Zhao, George Frimpong, Brad Staley, Saramma Hoffman, Eric Doak, Ali Naderian and Daniel Blaydon. The following members have been granted Provisional Membership (Membership will be confirmed after they attend two meetings): Mario Locarno, Luiz Cheim, Juan Acosta, Kurt Kaineder and Anthony Franchitti.

## 12. Adjournment

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**Chair:** David Wallach

**Vice-Chair:** Javier Arteaga

**Secretary:** Kumar Mani

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## PC57.97 Working Group Fall 2020 Virtual Meeting Attendance Roster

First Name	Last Name	Company	WG Role	10/20/2020 Attendance
Juan	Acosta	Ergon, Inc.	Guest	X
Kayland	Adams	SPX Transformer Solutions, Inc.	Guest	X
Angela	Amador	EATON Corporation	Guest	X
Juan Pablo	Andrade Medina	Olsun Electrics Corporation	Guest	X
Edmundo	Arevalo	Bonneville Power Administration	Guest	X
Javier	Arteaga	ABB Enterprise Software Inc	Vice-Chair	X
Gilles	Bargone	FISO Technologies Inc.	Member	X
Olle	Benzler	Megger	Guest	X
Jean-Noel	Berube	Rugged Monitoring Inc.	Guest	X
Wallace	Binder	WBBinder Consultant	Member	X
Thomas	Blackburn	Gene Blackburn Engineering	Guest	X
Daniel	Blaydon	Baltimore Gas & Electric	Member	X
Susan	Bonfiglio		Guest	X
Eric	Bradford	General Electric	Guest	X
John	Brett	Delta-X Research Inc.	Guest	X
David	Calitz	Siemens Energy	Member	X
Jorge	Cantu de Leon	SPX Transformer Solutions, Inc.	Guest	X
Edward	Casserly	Ergon, Inc.	Guest	X
Juan	Castellanos	Prolec GE	Member	X
Luiz	Cheim	Hitachi ABB Power Grids	Guest	X
Craig	Colopy	EATON Corporation	Member	X
Eric	Davis	Burns & McDonnell	Guest	X
Valery	Davydov	Mr. Valery Davydov	Guest	X
J. Arturo	Del Rio	Siemens Energy	Guest	X
Nikolaus	Dillon	Dominion Energy	Guest	X
Eric	Doak	D4EnergySolutions LLC	Member	X
Zachary	Draper	Delta-X Research Inc.	Guest	X
James	Dukarm	Delta-X Research Inc.	Guest	X
William	Elliott	General Electric	Guest	X
Florin	Faur		Guest	X
Bruce	Forsyth	Bruce Forsyth and Associates LLC	Member	X
Anthony	Franchitti	PECO Energy Company	Guest	X
George	Frimpong	Hitachi ABB Power Grids	Member	X
James	Graham	Weidmann Electrical Technology	Guest	X
Roger	Hayes	General Electric	Member	X
Saramma	Hoffman	PPL Electric Utilities	Member	X
John	John	Virginia Transformer Corp.	Member	X
Kurt	Kaineder	Siemens Energy	Guest	X
Gael	Kennedy	GR Kennedy & Associates LLC	Guest	X
Sheldon	Kennedy	Niagara Transformer	Member	X
Stacey	Kessler	Basin Electric Power Cooperative	Member	X
Egon	Kirchenmayer	Siemens Energy	Member	X
Dmitriy	Klempner	Southern California Edison	Guest	X
John	Lackey	PowerNex Associates Inc.	Guest	X
Donald	Lamontagne	Arizona Public Service Co.	Guest	X

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Aleksandr	Levin	Weidmann Electrical Technology	Member	X
Weijun	Li	Braintree Electric Light Dept.	Member	X
Yaquan (Bill)	Li	BC Hydro	Guest	X
Mario	Locarno	Doble Engineering Co.	Guest	X
Darrell	Mangubat	Siemens Power Operations Inc.	Member	X
Kumar	Mani	Duke Energy	Secretary	X
Richard	Marek	Retired	Guest	X
Lee	Matthews	Howard Industries	Member	X
Susan	McNelly	Xcel Energy	Guest	X
Emilio	Morales-Cruz	Qualitrol Company LLC	Member	X
Anatoliy	Mudryk	Camlin Power	Guest	X
Ali	Naderian	Metsco	Member	X
Anthony	Natale	HICO America	Guest	X
Anastasia	O'Malley	Consolidated Edison Co. of NY	Guest	X
Samuel	Oriti	Retired	Guest	X
Brian	Penny	American Transmission Co.	Guest	X
Patrick	Picher	Hydro-Quebec IREQ	Guest	X
Bertrand	Poulin	Hitachi ABB Power Grids	Guest	X
Thomas	Prevost	Weidmann Electrical Technology	Guest	X
Jeffrey	Ray	JLR Consulting, Inc.	Guest	X
Timothy	Raymond	Electric Power Research Institute (EPRI)	Member	X
Jonathan	Reimer	FortisBC	Guest	X
Afshin	Rezaei-Zare	York University	Guest	X
Sebastien	Riopel	Electro Composites ULC	Guest	X
Oleg	Roizman	IntellPower Pty Ltd	Member	X
Mickel	Saad	Hitachi ABB Power Grids	Member	X
Dinesh	Sankarakurup	Duke Energy	Guest	X
Roderick	Sauls	Southern Company Services	Guest	X
Anil	Sawant	Virginia Transformer Corp.	Guest	X
Steven	Schappell	SPX Transformer Solutions, Inc.	Member	X
Devki	Sharma	Entergy	Guest	X
Samuel	Sharpless	Rimkus Consulting Group	Guest	X
Richard	Simonelli	SPX Transformer Solutions, Inc.	Guest	X
Adam	Smith	Commonwealth Associates, Inc.	Guest	X
Brad	Staley	Salt River Project	Member	X
Kyle	Stechschulte	American Electric Power	Guest	X
Kevin	Sullivan	Duke Energy	Guest	X
Radoslaw	Szewczyk	Specialty Products Poland Sp. z o.o.	Guest	X
Troy	Tanaka	Burns & McDonnell	Guest	X
Ryan	Thompson	Burns & McDonnell	Guest	X
Richard	vonGemmingen	Dominion Energy	Member	X
Sukhdev	Walia	New Energy Power Co.	Member	X
David	Wallach	Duke Energy	Chair	X
Shelby	Walters	Howard Industries	Guest	X
Bruce	Webb	Knoxville Utilities Board	Member	X
Zachery	Weiss	WEG Transformers USA Inc.	Guest	X
Roger	Wicks	DuPont	Member	X

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Jeffrey	Wright	Duquesne Light Co.	Member	X
Peter	Zhao	Hydro One	Member	X