

**Working Group on Semiconductor Power Transformers – C57.18.10**

**Unapproved Meeting Minutes**

**Hyatt Regency Columbus, Columbus, OH  
Union CDE Room  
11:00 am, October 29,2019**

The Working Group met in the Union CDE meeting room

Sheldon Kennedy called the meeting to order at 11:07 am and the group did introductions.

A patent call was given. No patent issue were reported by attendees. The new copyright policy was presented.

There were 16 members and 18 guests/other present. A quorum was present (16 of 30 members).

P. Hopkinson moved for approval of the agenda. D. Patel seconded. Agenda approved.

Sheldon asked for motion to approve Anaheim minutes. V. Tendulkar so moved. S. Som seconded. Minutes approved with one abstention.

**Discussion of Draft 6 Revisions-Draft 6 which had a 53% (16 votes) response rate on an email vote. There were no disapproval responses but some comments were returned.**

Comment1: For multiple, axially stacked, secondary windings the temperature test winding rise should be the average of the winding rises of the stacked windings. Respondent indicated that this is the procedure in IEC standards. Sheldon presented a letter from Ugo Piovan who was convenor of IEC 61378-1 who disagreed with the commenter. The IEC standard requires reporting the temperatures of all windings. Discussion in the room also disagreed with the commenter. C. Johnson moved to reject the comment. S. Som seconded. 12 in favor, 4 abstain. Comment rejected.

Comment 2: Consider DC current in the design when the winding carries DC current. Commenter claimed that the DC fluxes cancelled in the coils and was not a problem when the currents are balanced but could be a problem when currents are not balanced. C. Johnson pointed out that in reality DC currents won't really cancel due to differences between coils. D. Ayers pointed out that the manufacturer doesn't control the load. Manish Saraf (Dhira Patel) recommended that there should be a note in the Standard that the customer needs to tell manufacturer about any unbalanced DC loads. D. Corsi moved and Shankar Subramany seconded a suggestion that the note should say that the "design should address any DC current imbalance in the transformer" 11 votes in favor, 5 abstentions. Comment retained.

Comment 3: Clause 8.6.2 I and J: Manish Saraf- delete the units "pu" from the equations as it is unnecessary since the equations will produce the same results regardless of whether pu or absolute currents are used. C. Johnson pointed out that the harmonic current as currently defined doesn't require pu. S. Som moved and C. Johnson seconded a motion to remove the "pu from the equations. 16 votes approve and 2 abstentions. Comment retained.

Comment4: P. Hopkinson noted that winding common mode voltages are not discussed in the standard. And can cause failures. No motion to include in the draft. Comment tabled.

## IEEE/PES TRANSFORMERS COMMITTEE

Comment 5: C. Johnson pointed out that there are Eddy currents due to radial and axial magnetic fields. Suggested adding in a future revision. No action taken.

Editorial Comments: No need to vote on them. Will address in the editorial process.  
Copyrighted information from IEEE Standard 1653.2- was incorporated in the past. According to M. Zaman use of material from other IEEE Standards prior to the new copyright requirements may be used without additional paperwork.

Sheldon proposed moving Draft 6 on to SA ballot- S. Som moved, and P. Hopkinson seconded, a motion to move Draft 6 to ballot. 16 approved, 0 disapprove, 0 abstain.

C. Ballard moved that we form a CRG and authorize the CRG to complete the SA ballot process without further Working Group approval. P. Hopkinson seconded. 15 approved, 1 disapproved.

CRG Volunteers- D. Walker, J. John, S. Kennedy.

### **New Business:**

- P. Hopkinson suggested that there is not a test for differential voltages between bifilar windings. Chair commented that the test does exist. P. Hopkinson withdrew comment.

With no further business, the meeting was adjourned at 12:05am.

The Working Group will meet again at the Spring 2020 meeting in Charlotte, NC

Chairman: Sheldon Kennedy

Vice Chairman: Bill Whitehead

Secretary: David Walker