

PCS Task Force C57.12.90, Spring 2021 Unapproved meeting minutes, Revision 1.0

Meeting was held on Tuesday April 27, 2021; 8:00 am to 9:15 am US Central Time as online virtual meeting. Notes were taken by the Secretary and updated by the Chair

Chair: Hakan Sahin

Secretary: Pugazhenti Selvaraj

Minutes:

1. The meeting started on time at 8:00 am central US time, over virtual meeting platform
2. Chair discussed the agenda, provided details of patent policy, copy right policy and membership criteria
3. Chair updated the group about the membership changes. Total number of members in the TF was 70 at the time of the meeting.
4. First poll conducted had 33 members. Agenda and previous meeting's unapproved minutes could not be approved. Quorum requirement is 35. Chair suggested to have another poll later. Later poll conducted had 36 members. Quorum was met but forgot to come back to approve the previous meeting's minutes. Hence, in addition to the Spring 2021 unapproved meeting minutes, Fall-2020 unapproved meeting minutes will be voted for approval upon quorum achievement during the Fall 2021 meeting
5. Chair discussed on the old business related to Ratio tests voltage and frequency updated section and the survey results, which was related to the updating the frequency range during ratio test. He presented the survey results and reported that 31 approved, 7 disapproved, no abstain. During floor discussion David Walker from MGM remarked that the test shall be conducted at rate V/F or less and his comment back to the survey to be considered. Chair commented on looking into this.
6. Next topic discussed was the old business of OLTC Voltage and current tests. Chair provided background on the OLTC test and presented the proposal on the OLTC tap changer test. He opened the floor for discussion on the OLTC test and acceptance criteria comments. Amit Sarkar suggested to provide defined Sound levels instead of general abnormal noise. Joseph Foldi commented to reword the OLTC operation at normal sound level instead of stating abnormal noise.
Javier Arteaga, Rainer Frischer had comments regarding DGA criteria. Per chair's request, Rainer spoke for 5 minutes giving background on the original DGA study on this topic and different OLTC types. After many discussions, Chair proposed to send the OLTC Test proposal to the TF members for their voting and comments
7. Next topic was on the Ratio test methods section 7.3 to be revised (modernized). Chair presented his new section proposal and reviewed with the group. Tauhid Ansari initiated motion to accept section 7.3 approved as Written, which was seconded by Pugal. Since we had the quorum, chair asked the meeting host to post a poll to approve the section as written, which was motioned by Tauhid. The poll was to approve or disapprove the section 7.3 Ratio Tests Method to be changed as proposed by the Chair during the meeting, which is as follows:

Revision-1 history: 1-) Update meeting information 2-) Updated itme-4 as when the quorum was achieved during the 2nd poll, previous meeting meetings were not re-visited and officially approved. 3-) Added clarification to item-7. 4-) Identified what the typo was about

7.3 Ratio test method

7.3.1 Electronic ratio and phase measurement meters

An electronic meter that determines the transformer turns ratio, polarity and phase angle may be used for the measurement of these parameters

7.3.2 Voltmeter method

(Clause number changes and descriptions stays the same)

7.3.3 Comparison method

(Clause number changes and descriptions stay the same)

Current 7.3.3 Ratio meter clause (R/R1) to be removed

40 members approved the poll. Since the members at the beginning of the meeting was only 36, chair assured to verify the poll result for accuracy. Once the member vote count on this motion is confirmed by the chair, this section will be handed over to PCS. After the meeting, Chair confirmed the members who voted for this proposal's approval

8. Next topic discussed was the old business of the number of short circuit tests under section 12.3.4. Chair showed the background and the new number of tests proposal to the group. Javier Arteaga had good comments, which Chair agreed to. Chair proposed to send the short circuit test proposal to the members for survey and comments
9. Chair discussed on the typo error in cl 8.3 in 2015 revision, noted by Waldsmer Z.

Revision 2015

$$P_c(T_m) = \frac{P_m}{P_1 + kP_2}$$

where

- T_m is the average liquid temperature at the time of test (°C)
- $P_c(T_m)$ is the no-load losses, corrected for waveform, at temperature
- P_m is measured no-load losses at temperature T_m
- P_1 is per-unit hysteresis loss
- P_2 is per-unit eddy-current loss
- k is $\left(\frac{E_r}{E_a}\right)$
- E_r is the test voltage measured by rms voltmeter
- E_a is the test voltage measured by average-voltage voltmeter

Revision 2010

$$P_c(T_m) = \frac{P_m}{P_1 + kP_2}$$

where

- T_m is the average oil temperature at the time of test (°C)
- $P_c(T_m)$ is the no-load losses, corrected for waveform, at temperature T_m
- P_m is measured no-load losses at temperature T_m
- P_1 is per-unit hysteresis loss
- P_2 is per-unit eddy-current loss
- k is $\left(\frac{E_r}{E_a}\right)$
- E_r is the test voltage measured by rms voltmeter
- E_a is the test voltage measured by average-voltage voltmeter

1999 and 2006 revisions also had the $(E_r/E_a)^2$

Proposal is to fix the typo in the new C57.12.90

This was shared during the meeting for information purposes.

10. Chair presented the new business of request to section 9.3a and 9.3 for better clarity. Chair shared Jason Vernell's comments on why these sections may need to be revised for better Revision-1 history: 1-) Update meeting information 2-) Updated itme-4 as when the quorum was achieved during the 2nd poll, previous meeting meetings were not re-visited and officially approved. 3-) Added clarification to item-7. 4-) Identified what the typo was about

clarity. Javier Arteaga asked for chair to send the new proposal for survey before the next meeting, which Chair agreed.

11. Meeting adjourned on time at 9:15 am Central US time.

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