

## **Instrument Transformers Subcommittee**

### **Working Group for PLC capacitors and Coupling Capacitor Voltage Transformers**

Meeting Minutes

February 5, 2020

Virtual meeting

The meeting was held via Skype on 5 Feb 2020 and started at 09:00 EST US. The meeting invite had been sent to the 123Signup list on 21 Jan 2020.

The IEEE-SA Patent Policy notice was made and there were no patent awareness claims. Attendees were notified of copyright rules. There was not a quorum.

The 14 attendees were:

Binzhan Chen

Michael Craven (Secretary)

Ivan Konta

Aymen Lpizra

Slobodan Misur

Patrick Rock

Zoltan Roman (Chairman)

Andre Rottenbacher

Thomas Sizemore

Steven Snyder

Deniss Villagran

David Wallace

Barrett Wimberly

Mana Yazdani

Zoltan began with revising Draft 6 after Section 8.2.9. where we had left off at the October 2019 meeting in Columbus:

Section 8.2.10, Accuracy test, will be added by Zoltan to Draft 7. There are several sections yet to be drafted which have a similar note in purple text in D6.1.

Sec. 8.2.12.1, Drain coil will be check with the PSRC. There was a question whether the quality factor (reactance/resistance) needed to be defined.

Sec. 8.3.1 to .5, Type test requirements reference the like routine tests.

Sec. 8.3.6, Wet power freq. refers to 6.1.1 Table 5 which is still not finalized. It specifies power frequency test for less than or equal to 230 kV and switching impulse for greater than and equal to 345 kV. "Capacitor stack" was changed to "device under test."

Sec. 8.3.7, Lightning impulse test on the capacitor unit or stack, had several revisions: "device under test" was added, and measurement with a shunt-resistor added "other current measuring device." The test is successful has the additional "the wave shapes are compliant with the requirements of IEEE 4."

Sec. 8.3.9, Switching impulse test... There is an added "No deviation is detected..." requirement and a following Note both in green text.

8.3.10 RIV test, will be added to Draft 7.

8.3.11 Temperature rise test, after some discussion on what are alternatives and means of measurements it was left unchanged and open for future discussion. However, green text flags that the number of measurements and time requirements are to be checked for consistency with power transformer requirements.

8.3.13 Accuracy test, is another amongst several sections due for a Draft 7 addition.

8.3.14 Short-circuit withstand test, added "The equipment shall be fully assembled as in service" and revised the IEEE Std C57.13 citation to make it less likely to be misaligned with changes to the .13 standard.

8.3.16 Ferro-resonance test, added the "Both tests described below..." clarification, but it is still open to further discussion. In the first test, 16.1, added a clarification "After completion of these tests..." In 16.2 the burden allowed was changed to 1 VA considering modern test equipment. There was discussion as to whether both test should be required type tests if a potential ground switch was provided. Further comment by users and other manufacturers is desired. Added accuracy verification "...shall be compliant..." sentence.

8.3.17 Tightness test... added the 80 deg. C to the 8 hours requirement.

8.3.19 Carrier accessories tests, in section 19.2 green text is still up for discussion and review about device insulation level applying to gap only. Also, there is a conflict with section 6.9 which specifies 5 kV r.m.s. The comment was that line tuners had been 3 kV and are now 5 kV. Recording the gap is important for the routine tests.

8.4.2 Mechanical tests, reviewed Table 20, which may need 'xyz' dimension reference.

8.4.4 Determination of the temperature coefficient, 'K' is redundant and to be removed.

8.4.5 Revised heading to read: Verification of accuracy variation versus frequency.

There was some discussion about how extensive test reports can be with many test waveforms and whether customers would request or want them. This was deferred to be discussed further at Charlotte.

At this point it was decided about 80% of the document has been reviewed. Zoltan will add the Draft 7 sections for the next Skype meeting. The next e-meeting will be via Skype on 26 Feb 2020 and it was mentioned that working ahead will allow more time at the in-person meetings (next is Charlotte, Spring 2020) for discussion on some outstanding items. This meeting ended about 11:40 EST.

Submitted by,

Zoltan Roman, WG Chair

October 6, 2020