10.5 C57.13 Instrument Transformers – J. Smith

9 members and 9 guests attended

10.5.1 Chair's Remarks & Announcements:

The dates and locations for future meetings were announced.

The previous meeting minutes were approved as written

10.5.2 Old Business:

IEC 270-1981 (Partial Discharge Measurements) was reviewed. Pierre Riffon will compare the new version (600270) to the latest C57.13 document. Tony Jonatti questioned whether we should have a general PD standard or one specific to Instrument Transformers. Vladimir Khalin will send the IEC Common Clause std to members by Email.

10.5.3 New Business

Thermal Evaluation

The present Standard does not cover the effects of variations in ambient temperature on long-term performance. In particular, the insulating oil and gasket performance at low temperatures and accelerated aging at high temperatures are of concern. Jim Smith presented a document for discussion. Mechanical loading during thermal testing was included because of the effect on gaskets, etc. This may be feasible for Medium Voltage but members expressed concerns for EHV devices. Pierre Riffon suggested using the min-max service temperatures (incl. Trise) rather than the fixed values in the document. .He also said it would be difficult in some cases to maintain 15 deg C/hr and recommended 10 deg C/hr. Jim Smith said that the electrical performance should be verified at the temperature extremes, but that most environmental chambers do not have electrical test capabilities, particularly for the highest voltages. Tony Jonatti suggested a Thermal Shock test with PD measurement. The members were generally in agreement that thermal testing is desirable but have concerns about the practicality and cost. This issue will remain within the subcommittee for now, but may move to a TF or WG at a later date. Members were invited to send comments to Jim Smith before the next meeting.

Interpretation of C57.13

A request was received for an interpretation of C57.13 regarding Impulse testing of bushing CT's. Jim Smith will respond

10.5.4 Working Group Reports:

10.5.4.1 WG C57.13.5 - Working Group on Test Requirements for High Voltage Instrument Transformers 115 kV Nominal System Voltage and above

The WG met on March 18, 2003. Eight members and fifteen guests attended the meeting. Three guests requested membership. The meeting was co-chaired by Mr. P. Riffon and Mr. R. McTaggart. Mr. J. Ma was not able to attend the meeting.

Minutes of the Oklahoma City meeting were approved as written.

No negatives ballots were received on the re-circulation ballot on C57.13.5. RevCom will review the document on March 19, 2003. The document will probably be published during summer 2003.

A new normative Annex (Annex H) on unbalance current transformers for use as unbalance current protection of capacitor banks has been presented. This Annex is intended to be added to C57.13.5 when this Trial-Use standard will be due for revision as a full-use standard (in approximately one year from now).

The main topics discussed were:

- Description of the particular design aspects of unbalance current transformers;
- Description of the specific phenomenon involved in case of a capacitor bank fault;
- Mitigation measures to limit the overvoltage that can appear across the primary winding;
- Specific requirements including specific phase-to-ground rating as well as BIL rating across primary terminals;
- Specific routine tests including a lightning impulse tests across primary terminals;
- Specific type tests including a lightning impulse tests across primary terminals. Calculations can be provided for the verification of temperature rises in lieu of performing an heat run test;
- Specific tests on voltage limiting devices (ZnO arresters and spark gap).

Some editorial corrections and additional clarifications need to be implemented. In addition, the proposed energy level during impulse tests (25 kJ) will be reviewed during the upcoming meeting. Data from actual test results will be presented. The Annex will also be formatted according to the IEEE format. Members are requested to provide comments on this Annex for the upcoming meetings.

A PAR will be requested for modifications to IEEE 57.13.5 as soon as it will be issued in order to be ready in one year time from now.

10.5.4.2 WG C57.13.6 – Working Group on Instrument Transformers for use with Electronic Meters and Relays – Chris TenHaagen

Chair's remarks & Announcements:
The subcommittee met on March 22, in Raleigh, NC, with 6 members and 8 guests present.

Old business-

- It was suggested to require four test points for the 0.15 S accuracy class. Countering this is the argument some designs can be shown to inherently meet this standard using only two test points. Resolution pending.
- Action Items:
  - Need a Par for this draft.
  - The standard will be forwarded to the editorial staff.

New business-

- Par was granted on February 13, 2003, expiring December 31, 2007
- Draft reviewed by Editorial Staff
- It was resolved that paragraph 6.1.1 and 6.1.2 will be combined as follows:

6.1.1 0.15 and 0.15S Accuracy Class Current Transformers

A total of four test readings must be made. At 100% rated current, using burden E-0.04, and the maximum burden for which the transformer is rated to meet this accuracy class, the ratio and phase angle readings must meet transformer correction factor limits specified in table 1. At 5% rated current, using burden E-0.04, and the maximum burden for which the transformer is rated to meet this accuracy class, the ratio and phase angle readings must meet limits specified in table 1. A current transformer type can be certified to this standard when demonstrated to inherently meet the stated accuracy class using the following two test points: At 100% of rated current using burden E0.04, and at 5% of rated current using the maximum burden for which it is rated.

With final acceptance of the above paragraph, and some minor editorial improvements, a survey of the group indicated that there was unanimous agreement that the standard was ready for ballot. The Chair of this WG will accomplish this at the earliest possible date.

10.5.4.3 Working Group on C57.13 Revision – Tom Nelson

Meeting was held on March 18, with 18 members present.
The draft standard survey of the working group and the subcommittee is complete and the draft has been reviewed by IEEE editorial and their comments have been incorporated into the standard. The draft is ready for balloting by IEEE, except IEEE refused the PAR extension which would allow us to ballot the draft. The 1994 version will be reaffirmed by the subcommittee, and then a new PAR will be requested from IEEE, after which the draft standard will be submitted to IEEE for balloting. This will likely occur around the

time of the fall meeting. It was noted that some of the references will need the years changed as they have been revised since the list was put together.
Comments and suggestions for the next revision of the standard were started, with a paragraph needing to be written for resolving a failure of PD testing.
There were suggestions to fold in C57.13.5, and C57.13.6 into the next revision also.

10.5.4.4 Study Group IEEE Std C57.13.2 – Vladimir Khalin

The group met on Tuesday, March 18 at 3:15 PM with 12 members and guests present. After reviewing the results of a preliminary survey it was agreed to form a working group on the revision of the Standard. The group discussed a variety of issues including the voltage and current test levels.
The group suggested:
The PAR has to be developed and submitted to IEEE-SA
The Standard has to be sent to the editorial staff for pre-ballot review.