7.2 C57.13 Instrument Transformers – J. Smith – Unapproved Minutes

Chair's Remarks & Announcements

The Instrument Transformer Subcommittee met on Wed Mar 10 at 8:00 AM for a double session.
4 members and 21 guests attended. 6 of the guests requested membership.
The meeting was chaired by R. McTaggart

The previous meeting's minutes were approved as written and there were no Patent issues.

The next meeting is scheduled for Oct 24 – 29 in Toronto. The one after this will be Mar 10 – 14, 2011 in San Diego

7.2.1 Status of TF on mA Current Transformers – H. Alton & V. Nguyen

Eleven guests attended. Six of the guests who attended committed to joining a working a working group on a "Standard for Current Transformers with mA range secondary current"
Following introductions, the agenda was presented and accepted. The agenda was as follows;

1. *Introduction*
2. *PAR Preparation*. (*Henry Alton of Triacta Power Technologies Inc.)*
    a. Proposed Title, Purpose and Scope of the project;
    b. Discussion;
    c. Submission PAR to Chair, IT Committee
3. *The project*.
    a. Membership
    b. Brief Review of Proposed Specifications;
    c. Discussion
4. *Next Steps*
    a. Review minutes with subcommittee and pursue the approval of this project

New Business
One of the co-chairs *(Henry Alton of Triacta Power Technologies Inc.)* gave an over view of the reasoning for having this working group in a presentation called "Why mA CTs" to provide understanding to the attendees on the need for a standard for mA CTs. This summarized the presentations and proposals given at the presentation in Lombard Illinois on Oct 28, 2009.

Six of the eleven attendees have stated their willingness to participate in this task force/working group and stated so in the attendance sheet handed out at the beginning of the meeting. These results have been recorded in a spreadsheet and is available as required.

A review of the draft PAR was also presented for review and discussion. The following changes were requested to made to the PAR more accurately address all of the applications that could be covered. The comments and changes were;

PAR Comments and Changes

Comments

- PAR 3.1 - A question was raised as to why the Working Group chosen was "Implementing to Limit Climate Change" which was responded to as "one way to limit climate change is to reduce the amount of energy we use and in this way reduce the risk of climate change". This should also be interpreted reducing the carbon footprint.
- The possibility exists that this could be done within the context of C57.13.6.
- PAR 3.2 - A question was raised as to why the Sponsoring Society and Committee IEEE Power & Energy Society/Energy Development & Power Generation (PE/ED&PG) was chosen.

Changes

- PAR 5.2 – The IEEE standard was incorrectly referenced to 1993 and was modified to be 2008.
- PAR 5.5 – Wording changed to add specification as an integral part and remove the term "Stand Alone" as all other CTs are assumed to be viewed as complete components.
- PAR 5.6 – Added "Other interested parties" to the list of Stakeholders
- Global – The reference to Hydro measurement was replaced with metering device.

Draft Specification

Comments

- A question was raised to the values of burdens were arrived at and explained as being a function of manufacturers meeting together and arriving at these values.
- A question was raised about how many CT vendors existed to broaden the participation and ensure the specifications' outcome would consider a wide range of applications and not unfairly disadvantage them.
- A question was raised as to how the measurements would be made to ensure "the unbroken chain of accuracy".
- There is a need to understand the sensitivity of the component i.e. will electromagnetic fields interfere with the ability to sustain accurate measurement.
- Bx.xx burden categories should reflect impedance

Actions from this meeting

- Provide minutes of this meeting. Henry Alton to provide.
    - Status/Date: March 10, 2010
- Henry Alton to update the PAR in accordance with the recommendations made during the meeting.
    - Status/Date: March 10, 2010
- Henry Alton to correlate the lowest current known based on applications he used against ASNI C12.20 limits to provide a perspective on the lowest current needed to be measured and output.

    - Status/Date: March 31/2010
- Review the details of the recommendation to have a separate standard for mA CTs.
    - Status/Date: TBD
- Review PAR sections 3.1 and 3.2 and change if necessary.
- Share the draft specification with the attendees of this meeting
    - Status/Date: Wednesday March 10, 2010
- Submit the PAR to the IEEE Instrument Transformer Subcommittee for acceptance
    - Status/Date: Wednesday March 10, 2010
- Nick Powers of ABB volunteered to look into the effects of EMC on this type of CT as this is a low current output.
    - Status/Date: TBD
        - Present Standards awareness
            - Australia NMI M 6
            - IEC 61000-4-3 (2002)
- Search down any other standards that may be relevant to this task force project.
    - Status/Date: TBD
        - Present standards awareness
            - IEEE C37.92 2-2005 - Overview
            - Australian Standard - NMI M 6
            - IEEE C57.13.6
            - IEC 61000-4-3 (2002)
            - ANSI C12.20 (meter device accuracy)
            - Measurement Canada - LMB-EG-07
            - Canada Safety CSA-C22.2 No. 61010-1-04

7.2.2 Presentation on "BCT Appendix A" - Randy Mullikin

This presentation included a proposed annex to be included in the next revision of C57.13. It was well received but some suggested that it should be a stand-alone standard. Since it would be used by Bushing & Switchgear people, it was agreed that R. Mullikin would consult the appropriate SC's.

7.2.3 Presentation on Accuracy Calculation for CT for C57.13 – V. Khalin

This presentation included an improved section on CT accuracy calculation. There were no objections so this should be incorporated into the next revision.

7.2.4 Motion to create a WG for revision of C57.13 – V. Khalin

Mr Khalin pointed out that there is obsolete information in this standard and that it needs to be reviewed completely and systematically. He also expressed concern that the draft presented to the SC for comments was not the work of a WG. He made a motion to create a WG for the revision, which was accepted unanimously by the SC members present and by a large majority of the guests. A chairperson must be appointed by the SC Chair and it was agreed that if possible a chairperson should be appointed before the next meeting. By

that time a PAR should be approved and a time slot for the WG arranged. It was also agreed that the PAR would be sent to all attendees prior to the next meeting.

7.2.5 Presentation on Routine Impulse Testing - V. Khalin

This presentation made an argument against routine impulse testing for Medium Voltage Instrument Transformers. The main points were:

1) The impulse test results in a pass or a failure but does not tell anything about the margin. Alternatively, a design test of a number of units to failure establishes a margin and confirms "process capability"
2) Impulse testing damages insulation
3) Partial Discharge testing is more searching and appropriate

Comments from the attendees were generally affirmative

7.2.6 Review of Draft 01 and Key Issues

There was much discussion about the way the draft and survey were handled. It was suggested that this draft was put together by the SC chair based on a compilation of prior comments. This met with many strong objections from people who did not recognize the content and believed that a draft should be a result of discussion in a WG. There was also confusion about the roles of SC & WG, membership requirements & voting privileges, PAR's, etc. R. McTaggart offered to provide clarification on this.

The group did not discuss all of the comments, but two key issues were discussed. The first was the inclusion of references to C57.13.5, which effectively make it mandatory whenever C57.13 is specified. A vote was taken and all members (and all but 1 of the guests) wanted it to be a separate standard, to be used only when specified. The other issue was the inclusion of the section on Thermal Evaluation. R McTaggart summarized the comments and gave a rough outline of an alternative approach where tests would be designed to target known potential problem areas. Comments were made that PD measurement at low temperature is not possible or practical in many cases. This subject needs to be discussed in detail in the WG.

7.2.7 Working Group Reports

7.2.7.1 TF on Bushing and Instrument Transformer Partial Discharge

The task force on Partial Discharge in Bushings and PTs/CTs met on Monday March 8th, 2010, at 3:15pm with 40 attendees. Of those, 7 members and 33 guests with 7 requesting membership.

- The meeting was opened with patent disclosures and introductions.
- The minutes for the Fall 2009 Lombard meeting were presented and approved.
- The agenda for the meeting included:

1. An overview of the guide.

2. Discussion on one section of draft: 4 possible configurations and test set-ups for the balanced method on Bushings.

3. Presentation on Annex A: the balanced method for low pC measurements

4. Preview on Annex B. The balanced method for low pC measurements.

- During the meeting, issues regarding the digitization of signals and the use of numeric filters were discussed as well as the appropriate sample rates to capture rise times. A point was made regarding the changes in instrumentation technology during the past few years.
- For the test set ups, information regarding the size of corona shields according to voltage class would be useful in the guide and a survey will be done to collect and compile this information.
- For the PTs/CTs test configurations, Vladimir Khalin offered to prepare a draft and a presentation for the next meeting. His presentation will cover the single ended method.

7.2.3 Old Business

7.2.3.1 C57.13.2 & C57.13.6

These 2 standards are now out to ballot for reaffirmation

7.2.4 New Business

None

7.2.5 Adjournment