

MEETING NOTES FOR WORKING GROUP D3 (IEEE STD 605) IN NASHVILLE, OCTOBER 8, 2012

Chair: Hanna Abdallah

Vice-Chair: Jean-Bernard Dastous

Secretary: Chuck Haahr

1. Introduction of guest and members

There were 11 members and 2 guests present - see attendance list at the end.

2. IEEE Patent Slides

The slides were shown and reviewed. No conflict of interest was brought up.

3. Review of minutes from last meeting in Raleigh

No corrections were added.

4. Review and update meeting agenda

The agenda is accepted as such.

5. Possible presentations in the future :

Hanna suggested presentations on unusual bus design or particular configurations. No one came forward.

6. Presentation on Structural Design by Tom Amundsen :

Tom presented the main areas of work targeted by the structural task force; see attached presentation. The points addressed by Tom are discussed in the point 7. d) under.

7. Review of assignments :

a) Clarify fault current; provide a guideline of what value to use for the X/R rating :

- nothing was done
- David Stamm is added to the team members

b) Annex C - Ampacity calculations :

- David Stamm is added to the team members
- Jean-Bernard Dastous presented the review of errors in Annex C : a few errors were identified as presented at the end of this document. The calculations in annex C reviewed by thermal specialist in Hydro-Quebec.

c) Update ampacity tables using the updated equations

- Tables in annex B were not matching up with hand calculations. Spreadsheet were done by Chuck Haahr and David Stamm, but since they had inadvertently switch the resistivities of copper and aluminum, the results of their investigation were not correct. Side by side calculations will be presented at next meeting to check if tables in annex C do match the calculations.

d) Review of mechanical load calculation process

- Tom Amundsen presents his slides for the structural team; there was agreement about his proposed work. Work should continue therefore as planned.
- The planned work targets chapters 10-11-12 of the guide.
- Tom explained the LRFD methodology. Need to explain it in the standard. Need to at least make a reference to ASCE 113 that includes load combinations. Load combinations need to be included in the guide.
- Insulators factors : Tom discussed the factors in the industry that show large variations (2.5, 1, etc) according to type of loads and failure modes. Kamran Khan in 693 is working on some factors – maybe we should get together with him to discuss something.
- Polymer insulators : need to get at this but later. They have been used for 69 kV for many years but no known experience for higher voltage. There is a need to bring this up. They have been used for 161 kV in Memphis for about 10 years : not aware of any problems so far – they have been used extensively – used for seismic and short-circuit loads. (61 ½ inches high).
- We discuss that bus support conditions are rarely pinned or fixed and that care should be used using the equation in the guide. SEFCOR has come up with a support hardware that does not transmit moments – Hanna interested in seeing this.
- There is a need to now look at what will be covered for the next revision – Tom and Jean-Bernard will be in touch to see what will be done.

e) Fault current selection :

- Hanna started to work on this and Steven Brown will be reviewing it and he will see what could be included to improve it.

f) Tutorial :

- Jean-Bernard's proposal is discussed; see attached document.
- Tom Amundsen could help on bus design.
- David Stamm will do section 5 : Bus ampacity calculations.
- Tom will work with Jean-Bernard on point 7.
- Maybe Tom and David could help on sections 8 and 9.
- The plan is to do it at the next meeting in May.
- Maybe Boris Svatszberg could work on an example – Sashi Patel will check with him.
- David Stamm will help with the rigid bus design.
- Hanna will do the strain bus design.

8) Errors :

Chuck Haahr should compile the errors in a separate document.

Some errors have been identified in the past such as the ones at the end of this document but there is a need for a common document.

9) Possible upgrade to the guide :

Adding thermal curves for thermal rating of conductors : we don't know if the conductor will support thermal loads – no guidances as such in the guide. William A. Munn could help on this. No data on the conductor itself in the guide (ref : IEEE 80). There is a need to either to include a

section or a reference for conductor rating. Could expand on section 8.2.2. William will be the team leader and Sakis will help. William will give an update at the next next meeting.

10) New PAR :

Hanna will work on getting a new PAR

11) Future meeting :

Pittsburg April 2013.

ATTENDANCE

Name	Company	Status
Abdallah, Hanna	Power Engineers	Chair
Amundsen, Thomas	Sargent & Lundy, LLC	Member
Barnes, Thomas	Consultant	Member
Beane, Gary	TRC Engineering	Guest
Brown, Steven	Allen & Hoshall, Inc.	Member
Dastous, Jean-Bernard	Hydro-Québec	Vice-Chair
Maniego, Reginaldo	Progress Energy	Member
Munn, William	Southern Company Services Transmission	Member
Patel, Shashikant	NEETRAC/GA Tech	Member
Patel, Shashikant	Public Service Electric and Gas company	Member
Sharifnia, Hamid	Pacificorp	Member
Smith, Doug	SEFCOR, inc.	Guest
Stamm, David	High Energy, Inc.	Member

LIST OF KNOWN ERRORS

LAST UPDATED: SEPTEMBER 27, 2012

The following table list the known errors in IEEE-605-2008.

Section	Page (s)	Location and actual content needing correction	Required correction (change in highlighted bold)
C.3.2.2 - Table C.1	121	Column 2, line 2: μ_a	$\mu_a \times 10^6$
C.3.2.7 - Table C.5	128	Column 4, line 8 (double angles): $6.1 \Delta T (I^{1/2} + w^{1/2}) +$ $2.415 \Delta T^{1.25} (I^{0.75} + w^{0.25})$	$6.1 \Delta T (I^{1/2} + w^{1/2}) +$ $2.415 \Delta T^{1.25} (I^{0.75} + w^{0.75})$
C.3.2.7 - Table C.5	128	Column 4, line 11 (integral web): $6.1 \Delta T (I^{1/2} + 2w^{1/2}) +$ $1.38 T^{1.25} (a^{0.75} + 2b^{0.75} + 2c^{0.25})$	$6.1 \Delta T (I^{1/2} + 2w^{1/2}) +$ $1.38 \Delta T^{1.25} (a^{0.75} + 2b^{0.75} + 2c^{0.75})$