Working Group on Monitoring Electric Power Quality
IEEE Std. 1159-1995 (R2001)

Meeting Minutes

IEEE Power Engineering Society, Winter Meeting
Monday, January 28, 2002, 1:00 – 5:00 PM

The meeting was called to order by Randy Collins, Chairman.

Attendees were asked to introduce themselves and sign the attendance list indicating their status as member or guest. One list was circulated for Members, and a separate list for Interested Parties. Participants were reminded that all correspondence is via email, so it is important that the lists reflect an up to date email address.

The minutes of the Summer 2001 meeting were approved as posted.

Status report from Task Forces

- 1159.1 – Alex McEachern was unable to attend this meeting due to health concerns. No progress has been made with the .1 draft since the summer meeting. Via a phone conversation, Alex indicated that a draft will be available prior to the summer meeting for review.
- 1159.3 - Scott reported that 1159.3 draft has been sent to IEEE Standards for balloting in July, November, December with a follow up in January. To date there has been no action by IEEE. Will continue to follow up.

Old Business:

a. Randy gave a brief overview of the proposed format for the revised Std. 1159. At the summer 2001 meeting there was a proposal to have a new chapter on "applications" or "case-studies." The group decided that these type of application examples would be better placed in Chapter 8 and the new chapter was eliminated. Volunteers for Chapter chairs were selected. The attendees were asked to divide into groups to discuss needed changes to each chapter. After the breakout session, each group reported on their recommendations. Following are the reports form each chapter group.

1) **Overview** – Randy Collins

2) **References** – Randy Collins

3) **Definitions** – Scott Peele

a. Review existing definitions for any updates with IEEE new definitions including most recent revision of IEEE Std 1100 and other related power quality standards.

b. Coordinate with chapter chairs for new definitions to be included

c. Review work done in P1433 for any possible needed definitions and application in 1159 chapters.

d. Review and update any Avoided Terms.

e. *Review and update the endless abbreviation and acronyms. Try to Limit.*

4) Phenomena – Erich Gunther

a. Purpose: Provide list and practial examples and discussion of discrete PQ phenomena

b. *Original document attempted to harmonize as much as possible with IEC 61000-x series. New document to do the same. Update list of phenomena if needed. Harmonize with 61000-4-30 also other IEC standards popping up with definitions or summary of other docs (e.g., 61800-3).*

5) **Monitoring Objectives** – Chris Melhorn

a. *Review other Standards*

b. *Coordinate with Chapter 7 on monitoring*

c. *Expand 5.3 and 5.4*

d. *Locate examples for Chapter 9*

e. *Add sections on:*

i. *How to determine if you need a monitor*

ii. *A business case for performance monitoring*

iii. *Discuss requirements for bandwidth – 6*

iv. *Where to monitor for various types of PQ phenomena*

v. *Monitoring as a political issue (under review)*

vi. *Performance based monitoring*

6) **Measurement Instruments** – Rich Bingham, Harold Kirkman, Jerry Fitzpatrick

a. *History – Four Generations*

b. *Reason to use – Type of monitor*

i. *Troubleshoot w/handheld, portable*

ii. *Permanent PQ*

iii. *Revenue with PQ*

iv. *Statistical survey/compliance*

c. *Archetecture*

i. *Transducer – HV, MV, POU*

ii. *Data Acquisition*

iii. *Calculations*

iv. *Data base*

v. *Visualization*

vi. *Communication*

vii. *Interpreting specs*

viii. *World Peace*

d. *PC Software*

e. *Pitfalls/cautions*

f. *Safety*

7) **Application Techniques** – Tim Unruh

a. *Map of PQ Standards – Maybe in Chapter 5*

b. *Safety*

i. *OSHA reference*

ii. *Safety Equipment*

iii. *Pictures of leads (connectors)*

iv. *Update connection techniques*

v. *Better references for ground loops*

vi. *Tighten connections*

vii. *Fault duty rating of monitoring device*

c. *Monitoring Location*

i. *Step by Step – if someone is referencing Chapters 5 and 6, they are probably a novice*

ii. *Include more description of typical found situations*

iii. *Clarify wye and delta configurations*

iv. *Mention 2 watt meter approach*

v. *Std 1459*

d. *Monitoring Connection*

i. *Issue with CT's secondary 3ϕ vs 1ϕ*

ii. *Typical found situations*

iii. *Dealing with multiple current conductors*

e. *Monitoring Thresholds*

i. *Reference better susceptibility information - 1346*

ii. *Circuit tracing*

f. *Monitoring Period*

g. *Examples*

8) **Interpreting Monitoring Results –** Randy Collins, Math Bollen, Dan Sabin

a. *Pattern Recognition – look at Time of Day, Frequency of Occurance, Duration*

i. *Expert Systems – Rule based*

ii. *Wavelets*

iii. *Almost random mixture of waveforms- Problem/Cause table*

iv. *Analysis Tips*

b. *Situations*

i. *One location – where?*

ii. *System wide study – multiple meters*

1. *1ϕ, 2ϕ, 3ϕ*

2. *Where occurred*

3. *Categorize by event*

iii. *Statistical Methods*

iv. *Graphical Description*

1. *Waveshape*

2. *ITIC*

3. *SEMI*

4. *Transient data examples from Larry Morgan*

v. *Examples throughout (sort of like case studies, but more application oriented)*

Annex A. *Calibtation and Testing*

Annex B *Summary of 1159.1 and 1159.3*

Annex C *Bibliography*

New Business:

It was suggested that a tutorial on the revisions to 1159 would be in order. Randy Collins will check on the lead time and procedure to schedule such a tutorial.

There being no further business, the meeting was adjourned.

David B. Vannoy, Secretary