

PC37.118.1

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Type of Project: Modify Existing Approved PAR

PAR Request Date: 15-Apr-2010

PAR Approval Date: 17-Jun-2010

PAR Expiration Date: 31-Dec-2012

Status: Modification to a Previously Approved PAR for the Revision of a Standard

Root PAR: PC37.118 **Approved on:** 27-Mar-2008

Project Record: No Project Record

Root Project: C37.118-2005 Edit Root Project Record

1.1 Project Number: PC37.118.1

1.2 Type of Document: Standard

1.3 Life Cycle: Full Use

2.1 Title: Standard for Synchrophasor Measurements for Power Systems

Old Title: Standard for Synchrophasors for Power Systems

3.1 Working Group: Synchrophasor Standard Working Group (PE/PSR/H11_WG)

Contact Information for Working Group Chair

Name: Kenneth Martin

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Contact Information for Working Group Vice-Chair

None

3.2 Sponsoring Society and Committee: IEEE Power & Energy Society/Power System Relaying (PE/PSR)

Contact Information for Sponsor Chair

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4.1 Type of Ballot: Individual

4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 03/2011

4.3 Projected Completion Date for Submittal to RevCom: 07/2011

5.1 Approximate number of people expected to be actively involved in the development of this project: 25

5.2 Scope: This standard is for synchronized phasor measurement systems in power systems. It defines a synchronized phasor (synchrophasor), frequency and rate of change of frequency measurements. It describes timetag and synchronization requirements for measurement of all three of these quantities. It specifies methods for evaluating these measurements, and requirements for compliance with the standard under both static and dynamic conditions. It defines a Phasor Measurement Unit (PMU) which can be a stand-alone physical unit or a functional unit within another physical unit. This standard does not specify hardware, software or a method for computing phasors, frequency, or rate of change of frequency.

Old Scope: This is a standard for synchronized phasor measurement systems in power systems. It defines a synchronized phasor (synchrophasor), frequency, and rate of change of frequency, and describes timetag and synchronization requirements for their measurement. It specifies a method for evaluating these measurements, and requirements for compliance with the standard under both static and dynamic conditions. The standard specifies a communication protocol, including message description and formats, for real-time communication with a Phasor Measurement Unit (PMU). In this context a PMU can be a stand alone physical unit or a functional unit within another physical unit. This standard does not specify hardware, software, or a method for computing phasors.

5.3 Is the completion of this standard dependent upon the completion of another standard: No

5.4 Purpose: This standard defines synchronized phasor and frequency measurements in substations along with methods and requirements for measurement verification. Measurements compliant with the standard and taken at various locations in the power system can be readily and accurately combined for power system analysis and operations. Timetag and other essential associations are also described to facilitate communication and reliable data application. Communication and recording of phasor measurements are covered in other standards, such as the companion standard IEEE C37.118.2 (Standard for Synchrophasor Data Transfer for Power Systems).

Old Purpose: This standard defines synchronized phasor and frequency measurements in substations along with methods and requirements for measurement verification to facilitate use of the data. Measurements compliant with the standard and taken at various locations in the power system can be readily and accurately combined for power system analysis and operations. The prescribed communication protocol provides a simple and direct method of data transmission and accretion within a phasor measurement system; it also provides a common format for data translation into other systems and protocols.

5.5 Need for the Project: The 2005 version of the standard, commonly followed by equipment manufacturers and system integrators, specifies the performance of phasor measurements only under steady state conditions. Synchrophasor applications, particularly during severe system disturbances, will utilize dynamic synchronized measurements. This revision of the standard extends the synchrophasor definition and specifies measurement requirements and test conditions to include practical dynamic power system conditions. The original synchrophasor standard, IEEE Std 1344-1995 (IEEE Standard for Synchrophasors for Power Systems) and its successor, IEEE Std C37.118-2005 (IEEE Standard for Synchrophasors for Power Systems) provide for reporting of system frequency and rate of change of system frequency. These quantities are not defined, however, and no measurement requirements are mandated. This revision provides definition and measurement requirements for power system frequency and rate of change of frequency under practical power system conditions. A number of issues in the standard have been identified that require clarification or modification. This revision addresses issues that have been reported, such as out of band frequencies. This revision also separates the measurement and communication sections of C37.118 into individual standards. This simplifies widespread adoption, and aids deployment by allowing freer use of other standards for synchrophasor communication.

5.6 Stakeholders for the Standard: Stakeholders include vendors of power system equipment and software for display, control, and analysis as well as power system operators, regulators, and generators.

Intellectual Property

6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?: No

6.1.b. Is the Sponsor aware of possible registration activity related to this project?: No

7.1 Are there other standards or projects with a similar scope?: Yes

If Yes please explain:

and answer the following

Sponsor Organization: PE/PSR

Project/Standard Number: PC37.118.2

Project/Standard Date: 15-Apr-2010

Project/Standard Title: Standard for Synchrophasor Data Transfer for Power Systems

7.2 International Activities

a. Adoption

Is there potential for this standard (in part or in whole) to be adopted by another national, regional or international organization?: Yes

Organization: IEC

Technical Committee Name: Measuring Relays and Technical Equipment

Technical Committee Number: TC95

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b. Joint Development

Is it the intent to develop this document jointly with another organization?: No

c. Harmonization

Are you aware of another organization that may be interested in portions of this document in their standardization development efforts?: No

8.1 Additional Explanatory Notes (Item Number and Explanation): Item 7.1 Explanation - This is a split of the former standard, C37.118-2005. This part covers just the synchrophasor measurement aspects of the former standard. The other part, PC37.118.2, carries the data communication aspects. PC37.118.1 and PC37.118.2 are being developed independently of each other and one does

not need to complete prior to the other.

Overall comment:

This standard is expected to take the place of the former standard, C37.118-2005, along with a companion standard. The standard contains and expands the measurement aspects of C37.118 and should be numbered C37.118.1. The companion standard will have the communication aspects from C37.118 and should be numbered C37.118.2