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G3 New Work Item Proposal

March 2007

PROPOSAL FOR A NEW WORK ITEM

Date of presentation of proposal: 2009-09-02	Proposer: NB of US
Secretariat: National Body	ISO/IEC JTC 1 N9921 ISO/IEC JTC 1/SC XX N XXX

A proposal for a new work item shall be submitted to the secretariat of the ISO/IEC joint technical committee concerned with a copy to the ISO Central Secretariat.

Presentation of the proposal - to be completed by the proposer.

Title (subject to be covered and type of standard, e.g. terminology, method of test, performance requirements, etc.) Specification of Data Value Domain

Sensor Network and its Interface for Smart Grid Systems

Scope (and field of application)

This standard is to specify smart grid sensor network (SGSN) and its interfaces for use by local power grid (PG) sectors and also by nationwide PG system. Especially, this standard focuses on the SN interfaces to the PG and its subsystems (e.g., sensors, actuators, controllers, remote terminals, intelligent devices, etc.) to provide intelligence through the SN capability of synchronization, monitoring and responding, command and control, data/information processing, SN security, information routing, and human-grid display/graphical interface. Such intelligence achieved by SN and Information Technology (IT) backbone results in Smart Grid (SG). This standard accounts for gradual transition nature of the legacy PG equipment and systems to the SG over time by specifying compatibility and coexistence requirements of the legacy and new technology. Therefore, this standard enables the avoidance of unnecessary and unwarranted risks in reliability, safety, and integrity to the PG major stakeholders' market segments: Service Provider, Operation, Distribution, Market, and Customer.

This International Standard (IS) specifies directly or via reference the:

- centralized and distributed SN architecture that harmonizes and integrates the PG major stakeholders' market segments – both the legacy and new technology;
- interfaces (1) between SN and IT backbone and (2) between SN and the SG subsystems (sensors, actuators, controllers, smart devices, etc.) moving toward plug & play capability (e.g., interoperability);
- services that are provided by SN for Smart Grid

- d. visualization of sensors/devices status and data/information flow in geospatial information display grid;

This standard will take into account other relevant standards and requirements specified in numerous existing standards involving power grid related international / regional standards for Operations, Markets, Service Provider, Bulk Generation, Distribution, Transmission, and Consumer.

In addition, this project will establish liaison relationships with other Smart Grid international and regional standards developing organizations including, but not limited to, ISO, IEC SG 3, IEEE (1451, 1547, 1588, P2030).

Purpose and justification - attach a separate page as annex, if necessary

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To transition the existing Power Grid to a Smart Grid is a challenging task over a lengthy period, and all need must be maintained during the period the transition takes place. This transition is likely affect broad set of stakeholders, e.g., individuals and business, and they should be properly informed of the changes taking place and to come. As the Smart Grid is large, complex system which operates at various operation modes ranging from fully automated to handle time critical and instantaneous responses (sensing and actuation) to human-in-the-loop for response and interaction (command and control). The transition to the Smart Grid will be a gradual migration and coexistence of diverse technologies including legacy systems and equipment of the past and today and of the future. This migration and coexistence of the systems requires effective standards to bring interoperability without compromising the performance (e.g., reliability, safety, cyber security, etc.) of the grid. The standards should also evolve over the transitional time period and maintain its integrity to support all technologies and systems involved during the transition. For this reason, the Smart Grid standards need to be developed in an open process bringing consensus of all stakeholders involved. The key areas of SG are (1) smart equipment, (2) communication systems, (3) data management, (4) cyber security, and (5) information and privacy protection.

The sensor network plays all of these key SG areas: (1) sensors are smart devices and equipment and sensor nodes include actuators, e.g., controllers, etc., (2) sensor data/information are transmitted via communication systems and wired/wireless data link or other media, and sensor nodes include communication devices that formulate protocols for the data/information stream, (3) sensor monitors and measures environment, collects data from the environment, analyzes the data if it has capability, formats the data, and stores them at its local memory; thus, within sensor network, some level of data management is necessary, (4) sensor network security will have to work with IT cyber security in order to access devices on the network, and (5) certain types of sensor data may be protected from the information security and privacy point of view, and sensor could have encryption built in.

Sensor Network (SN) can provide various applications and services during the transitional road to Smart Grid. SN is expected to become one of the essential and critical players, if not the most important player, to migrate the legacy PG to a Smart Grid (SG). This includes adding and integrating sensor- and network-related technologies with systems/devices from the past, today and future. From the SN point of view, the Information Technology (IT) network is considered as the information highway or IT backbone providing services for data and information pathway. Therefore, a study of existing standards to leverage them for the Smart Grid Sensor Network (SGSN) and development of new SGSN standards unique to the SG application are required to support the transitional period and the afterward.

Programme of work

If the proposed new work item is approved, which of the following document(s) is (are) expected to be developed?

- ☒ a single International Standard
☐ more than one International Standard (expected number:)
☐ a multi-part International Standard consisting of parts
☐ an amendment or amendments to the following International Standard(s)
☐ a technical report , type

And which standard development track is recommended for the approved new work item?

- ☒ a. Default Timeframe
☐ b. Accelerated Timeframe
☐ c. Extended Timeframe

Relevant documents to be considered

Co-operation and liaison

Preparatory work offered with target date(s)

Signature:

Will the service of a maintenance agency or registration authority be required? ..NO.....

- If yes, have you identified a potential candidate?
- If yes, indicate name

Are there any known requirements for coding?NO.....

-If yes, please specify on a separate page

Does the proposed standard concern known patented items?NO.....

- If yes, please provide full information in an annex

Are there any known accessibility requirements and/or dependencies (see:

<http://www.jtc1access.org/>?.....NO.....

-If yes, please specify on a separate page

Are there any known requirements for cultural and linguistic adaptability?.....NO.....

-If yes, please specify on a separate page

Comments and recommendations of the JTC 1 or SC XX Secretariat - attach a separate page as an annex, if necessary

Comments with respect to the proposal in general, and recommendations thereon:

It is proposed to assign this new item to JTC 1/WG 7

Voting on the proposal - Each P-member of the ISO/IEC joint technical committee has an obligation to vote within the time limits laid down (normally three months after the date of circulation).

Closing date for voting:

Signature of Secretary:

Date of circulation: 2009-11-20	2010-02-20	
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NEW WORK ITEM PROPOSAL -

PROJECT ACCEPTANCE CRITERIA

Criterion	Validity	Explanation
A. Business Requirement		
A.1 Market Requirement	Essential <u>X</u>	
	Desirable ____	
	Supportive ____	
B. Related Work		
B.1 Completion/Maintenance of current standards	Yes ____	
	No <u>X</u>	
B.2 Commitment to other organisation	Yes ____	
	No <u>X</u>	
B.3 Other Source of standards	Yes ____	
	No <u>X</u>	
C. Technical Status		
C.1 Mature Technology	Yes <u>X</u>	
	No ____	
C.2 Prospective Technology	Yes ____	
	No <u>X</u>	
C.3 Models/Tools	Yes ____	
	No <u>X</u>	

D. Conformity Assessment and Interoperability		
D.1 Conformity Assessment	Yes ____ No_X_	
D.2 Interoperability	Yes ____ No_X_	
E. Adaptability to Culture, Language, Human Functioning and Context of Use		
E.1 Cultural and Linguistic Adaptability	Yes ____ No_X_	
E.2 Adaptability to Human Functioning and Context of Use	Yes ____ No_X_	
F. Other Justification		

Notes to Proforma

A. Business Relevance. That which identifies market place relevance in terms of what problem is being solved and or need being addressed.

A.1 Market Requirement. When submitting a NP, the proposer shall identify the nature of the Market Requirement, assessing the extent to which it is essential, desirable or merely supportive of some other project.

A.2 Technical Regulation. If a Regulatory requirement is deemed to exist - e.g. for an area of public concern e.g. Information Security, Data protection, potentially leading to regulatory/public interest action based on the use of this voluntary international standard - the proposer shall identify this here.

B. Related Work. Aspects of the relationship of this NP to other areas of standardisation work shall be identified in this section.

B.1 Competition/Maintenance. If this NP is concerned with completing or maintaining existing standards, those concerned shall be identified here.

B.2 External Commitment. Groups, bodies, or for a external to JTC 1 to which a commitment has been made by JTC for Co-operation and or collaboration on this NP shall be identified here.

B.3 External Std/Specification. If other activities creating standards or specifications in this topic area are known to exist or be planned, and which might be available to JTC 1 as PAS, they shall be identified here.

C. Technical Status. The proposer shall indicate here an assessment of the extent to which the proposed standard is supported by current technology.

C.1 Mature Technology. Indicate here the extent to which the technology is reasonably stable and ripe for standardisation.

C.2 Prospective Technology. If the NP is anticipatory in nature based on expected or forecasted need, this shall be indicated here.

C.3 Models/Tools. If the NP relates to the creation of supportive reference models or tools, this shall be indicated here.

D. Conformity Assessment and Interoperability Any other aspects of background information justifying this NP shall be indicated here.

D.1 Indicate here if Conformity Assessment is relevant to your project. If so, indicate how it is addressed in your project plan.

D.2 Indicate here if Interoperability is relevant to your project. If so, indicate how it is addressed in your project plan

E. Adaptability to Culture, Language, Human Functioning and Context of Use

NOTE: The following criteria do not mandate any feature for adaptability to culture, language, human functioning or context of use. The following criteria require that if any features are provided for adapting to culture, language, human functioning or context of use by the new Work Item proposal, then the proposer is required to identify these features.

E.1 Cultural and Linguistic Adaptability. Indicate here if cultural and natural language adaptability is applicable to your project. If so, indicate how it is addressed in your project plan.

ISO/IEC TR 19764 (Guidelines, methodology, and reference criteria for cultural and linguistic adaptability in information technology products) now defines it in a simplified way:

- "ability for a product, while keeping its portability and interoperability properties, to:
- be internationalized, that is, be adapted to the special characteristics of natural languages and the commonly accepted rules for their use, or of cultures in a given geographical region;
- take into account the usual needs of any category of users, with the exception of specific needs related to physical constraints

Examples of characteristics of natural languages are: national characters and associated

elements (such as hyphens, dashes, and punctuation marks), writing systems, correct transformation of characters, dates and measures, sorting and searching rules, coding of national entities (such as country and currency codes), presentation of telephone numbers and keyboard layouts. Related terms are localization, jurisdiction and multilingualism.

E.2 Adaptability to Human Functioning and Context of Use. Indicate here whether the proposed standard takes into account diverse human functioning and diverse contexts of use. If so, indicate how it is addressed in your project plan.

NOTE:

1. Human functioning is defined by the World Health Organization at <http://www3.who.int/icf/beginners/bg.pdf> as: << In ICF (International Classification of Functioning, Disability and Health), the term functioning refers to all body functions, activities and participation. >>
2. Content of use is defined in ISO 9241-11:1998 (Ergonomic requirements for office work with visual display terminals (VDTs) Part 11: Guidance on usability) as: << Users, tasks, equipment (hardware, software and materials), and the physical and societal environments in which a product is used.>>
3. Guidance for Standard Developers to address the needs of older persons and persons with disabilities).

F. Other Justification Any other aspects of background information justifying this NP shall be indicated here.