

P1901.2a

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Type of Project: Modify Existing Approved PAR

PAR Request Date: 12-May-2015

PAR Approval Date: 03-Sep-2015

PAR Expiration Date: 31-Dec-2019

Status: Modification to a Previously Approved PAR for an Amendment

Root PAR: P1901.2a **Approved on:** 26-Mar-2015

Root Project: 1901.2-2013

1.1 Project Number: P1901.2a

1.2 Type of Document: Standard

1.3 Life Cycle: Full Use

2.1 Title: Standard for Low-Frequency (Less Than 500 kHz) Narrowband Power Line Communications for Smart Grid Applications Amendment to IEEE Standard 1901.2-2013 Standard for Low-Frequency (Less Than 500 kHz) Narrowband Power Line Communications for Smart Grid Applications

Changes in title: Standard for Low-Frequency (~~less~~Less thanThan 500 kHz) Narrowband Power Line Communications for Smart Grid Applications Amendment to IEEE Standard 1901.2-2013 Standard for Low-Frequency (~~less~~Less thanThan 500 kHz) Narrowband Power Line Communications for Smart Grid Applications

3.1 Working Group: COM/SC/LF NB PLC Working Group (COM/PLC/LF NB PLC WG)

Contact Information for Working Group Chair

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3.2 Sponsoring Society and Committee: IEEE Communications Society/Power Line Communications (COM/PLC)

Contact Information for Sponsor Chair

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None

4.1 Type of Ballot: Entity

4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 05/2015

4.3 Projected Completion Date for Submittal to RevCom: 08/2015

5.1 Approximate number of entities expected to be actively involved in the development of this project: 10

5.2.a. Scope of the complete standard: This standard specifies communications for low frequency (less than 500 kHz) narrowband power line devices via alternating current and direct current electric power lines. This standard supports indoor and outdoor communications over low voltage (less than 1000 V (LV) and medium-voltage (1000 V up to 72 kV) (MV) power lines and through associated transformer in both urban and in long-distance rural applications. The standard uses transmission frequencies less than 500 kHz. Data rates will be scalable to 500 kbps depending on the application requirements and network conditions. This standard addresses grid to utility meter, grid automation, electric vehicle to charging station, and within home area networking communications scenarios. Lighting and solar panel power line communications (PLC) are also potential uses of this communications standard. This standard

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focuses on the balanced and efficient use of the PLC channel by all classes of low-frequency narrow band devices, defining detailed mechanisms for coexistence between different low-frequency narrow band standards developing organizations (SDO) technologies, assuring that desired bandwidth may be delivered. This standard assures coexistence with broadband power line devices by minimizing out-of-band emissions in frequencies greater than 500 kHz. The standard addresses the necessary security requirements for communication privacy and allow use for security sensitive services. This standard defines the physical layer (PHY) and the medium access sub-layer (MAC) of the data link layer, as defined by the International Organization for Standardization (ISO) Open Systems Interconnection (OSI) Basic Reference Model.

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5.2.b. Scope of the project: The scope of this amendment is limited to the corrections and clarifications as specified in section 8.1.

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

5.4 Purpose: This standard amends IEEE Std 1901.2-2013 to incorporate corrections and clarifications

5.5 Need for the Project: There is a need to amend the standard to support its interoperability and performance objectives.

5.6 Stakeholders for the Standard: Automotive Pluggable Electric Vehicle (PEV), Plug-in Hybrid Electric Vehicle (PHEV) companies, metering companies, Electric Vehicle Service Equipment (EVSE) manufacturers, global utilities, consumers, appliance manufacturers, lighting companies, and other various domains.

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: ITU-T is looking into similar issues.

and answer the following

Sponsor Organization: ITU

Project/Standard Number: G.9903 and G.9903 Amd 1

Project/Standard Date: 01-May-2013

Project/Standard Title: SERIES G: TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS, Access networks - In premises networks, Narrowband orthogonal frequency division multiplexing power line communication transceivers for G3-PLC networks

7.2 Joint Development

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

8.1 Additional Explanatory Notes (Item Number and Explanation): The **amendment** to IEEE 1901.2-2013 shall be limited to the following topics approved by the Working Group: Changes to clarify how and when to encrypt header and payload information elements, changes to the interleaver design to eliminate some drawbacks in certain channels, insertion of an attribute into a PHY data primitive so subband SNR data can be obtained from the PHY, a change to the frame counter size for security text to make it is consistent with IEEE Std 802.15.4e(TM)-2012, insertion of a beacon attribute **and**, a change to the zero crossing **detector and payload size, and a reference to FCC Title 47 Part 15.**

Changes:

Section 5.2.a: The word "transformer" was re-inserted per the original PAR.

Section 8.1: The word "amemdment" was corrected to "amendment". Max payload size was adjusted to be consistent with 802.15.4 and reference to FCC Title 47 Part 15 was noted in the EMI table (added for clarity, although FCC Title 47 Part 15 is already normatively reference in existing standard).