

November 25, 2020

HD-PLC Alliance

Enhancing the HD-PLC™ Security Functions

- Start of work to create the IEEE P1901b standard for using HD-PLC™ in smart grids and factories -

HD-PLC Alliance^{*1} has started standardization work that will allow the use of enhanced network security functions, with the aim of using High-Definition Power Line Communication technology in the fields of smart grids and distributed power management.

HD-PLC™^{*2} (hereinafter referred to as HD-PLC) technology has already been standardized as IEEE 1901 (Broadband over Power Line Networks for MAC and PHY) by the IEEE Standards Association^{*3}. This technology is particularly attracting attention in Europe as a communication infrastructure that can be used for distributed power management of energy. Therefore, the current security functions will be enhanced and expanded, including making the technology compatible with strong authentication functions required for use in large-scale networks. Current HD-PLC technology offers extremely high security at the device level, including continuous encrypted communication and authentication between compatible devices. However, for PLC equipment to be used in large-scale systems, it must support various advanced security requirements required from the network operation side. The IEEE Standards Association established a new project called IEEE P1901b^{*4} in September this year to create specifications for this purpose, and held the first working group meeting this month. HD-PLC Alliance plays a central role in the development of these specifications in collaboration with member companies and system integrators.

Last year, HD-PLC Alliance led the development of the IEEE 1901a standard, a next-generation HD-PLC specification for the Internet of Things (IoT). This standard attracts attention because it defines a communication infrastructure technology for IoT services that are becoming more and more widespread. The security functions that will be enhanced as part of the IEEE P1901b project will greatly contribute to improve the safety not only of the aforementioned large-scale systems, but also of IoT networks that use IEEE 1901a in places such as offices, and factories.

In addition, by creating an international standard, it is expected that this communication technology will be used more and more not only on power lines, but also on all types of metallic wires and coaxial cables. Furthermore, it is hoped that the increased distance and speed of communication that will become possible through the use of this technology will accelerate the use of IoT communications. This includes building large-scale networks that cover not only living spaces but also social infrastructure such as office buildings and factories.

In addition to the communication compatibility certification services it currently implements for the third-generation of HD-PLC Complete specifications, for HD-PLC inside, and for the international standard ITU-T G.9905 on multi-hop functions, HD-PLC Alliance will continue to promote HD-PLC technology by creating new standards for next



generations and expanding test environments and certification logos to certify the interconnection of HD-PLC devices compliant with the IEEE 1901 standard.

- *1: HD-PLC Alliance: Established on September 25, 2007 with the aim of expanding the use of High-definition Power Line Communication (HD-PLC) and ensuring communication compatibility.
- *2: HD-PLC™: A registered trademark or trademark of Panasonic Corporation in Japan and other countries.
- *3: IEEE Standards Association: Standards association within the Institute of Electrical and Electronics Engineers (IEEE)
- *4: IEEE P1901b: IEEE Standard for Broadband over Power Line Networks: Medium Access Control and Physical Layer Specifications – Amendment: Enhancements for Authentication and Authorization