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To build a secure IoT communication infrastructure

## HD-PLC™\*1 Technology with Enhanced Authentication Adopted as IEEE 1901b Standard

**Osaka, Japan** - Panasonic Corporation announced that the HD-PLC technology with the IEEE 802.1X\*2 authentication function that it proposed to the IEEE Standards Association in November 2020 was approved as the IEEE 1901b standard by the Standards Board of the association on December 8, 2021. This standard meets the high-security requirements of large-scale IoT networks such as smart grids and smart cities.

IEEE 1901b provides strong network security by introducing in IEEE 1901-2020\*3 the function of IEEE 802.1X, which is one of the authentication standards adopted in wired LANs (Ethernet) and wireless LANs.

Panasonic's HD-PLC technology adopted as IEEE 1901 standard includes a multi-hop technology that relays data and includes a long-range transmission technology that concentrates signal energy in the frequency band where signals can easily pass. It is expected to be used in large-scale networks that build social infrastructure, such as AMI\*4 systems in power grids and distributed energy resource management in buildings and factories. HD-PLC technology already provides a high degree of security in communications between devices through functions such as AES\*5 data encryption, encryption key update, and channel estimation\*6. By introducing a network authentication function, Panasonic will strengthen countermeasures against various threats hidden in the network, such as eavesdropping and falsification of information assets caused by unauthorized intrusion of outsiders, and Panasonic will play the role of building a secure IoT communication platform.

Panasonic led the international standardization of the next-generation HD-PLC technology for IoT that was adopted as IEEE 1901a standard in March 2019, and Panasonic started licensing semiconductor IP cores compliant with IEEE 1901-2020 in March 2021. Panasonic will develop and license technologies compliant with this standard to further promote and expand the use of the HD-PLC technology. In addition, by utilizing HD-PLC on various metal wires such as coaxial lines and control lines, not limited to power lines, and building hybrid networks that combine HD-PLC and wireless or other wired technologies according to the installation environment, Panasonic will contribute to promoting IoT/DX/GX in a wide range of fields from living space to social infrastructure.

\*1: HD-PLC™ is the name of the high-speed power line communications system proposed by Panasonic Corporation, and is a trademark or registered trademark of Panasonic Corporation in Japan and other countries.

\*2: A standard published by the IEEE Standards Association that defines a method of user authentication in a network (LAN).

\*3: A revision of the first edition of IEEE 1901-2010, published by the IEEE Standardization Association in January 2021, that incorporated IEEE 1901a (\*).

IEEE 1901-2020 standard: <http://standards.ieee.org/standard/1901-2020.html>

\* A standard for next-generation PLC technology for IoT advocated by Panasonic. It features scalable communication with the function of switching between high-speed communication and long-range communication.

\*4: Abbreviation for Advanced Metering Infrastructure. An automatic meter reading system consisting of smart meters and data collection equipment.

\*5: Abbreviation for Advanced Encryption Standard. One of the common key cryptography adopted by the National Institute of Standards and Technology (NIST) as the US government standard cryptosystem.

\*6: The tone map (\*) created by channel estimation is shared between terminals, and the optimum modulation type is set for each OFDM subcarrier. Since the tone map is different for each transmission channel, it is difficult to eavesdrop in the network.

\* A map showing the modulation type of each subcarrier in the OFDM.

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## 【Related Information】

Panasonic's Next-generation HD-PLC, BPL Communication Technology Adopted as IEEE 1901a Standard

<https://news.panasonic.com/global/press/data/2019/03/en190325-4/en190325-4.html>

Licensing IP Core for Semiconductors Complying with the IEEE 1901-2020 International Standard

<https://news.panasonic.com/global/press/data/2021/03/en210316-2/en210316-2.html>

### About Panasonic

Panasonic Corporation is a global leader developing innovative technologies and solutions for wide-ranging applications in the consumer electronics, housing, automotive, and B2B sectors. The company, which celebrated its 100th anniversary in 2018, operates 522 subsidiaries and 69 associated companies worldwide and reported consolidated net sales of 6,698.8 billion yen for the year ended March 31, 2021. Committed to pursuing new value through collaborative innovation, the company uses its technologies to create a better life and a better world for customers. Learn more about Panasonic: <https://www.panasonic.com/global>.

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