

KT succeeds in sending 5G data with native quantum cryptographic technology

👤 Jung Jun-ho | 🕒 승인 2020.05.12 10:00



KT researchers are checking the 5G network with quantum cryptographic communication technology developed in Korea. (Courtesy of KT)

KT has made a field test success that encrypts and transmits 5G data with a quantum cryptographic communication technology developed in Korea. This test is the most basic step in launching a service with the quantum cryptographic communication technology, KT said on May 11.

Quantum cryptographic communication is a communication technology that uses light quantum particles called photons to deliver information. When this technology is applied to the network, communication data can only be viewed once.

If someone attempts to hack or wiretap a network with quantum cryptographic communication technology, he or she can obtain only the broken information.

KT has applied its own Quantum Key Distributor (QKD) system and Encryptor developed by small and medium-sized companies to 5G networks that are actually being used by customers in some parts of Gyeonggi Province according to the international standard of ITU-T Y. 3800.

Quantum key distribution system is a system that supplies a quantum "password key" to the network for data encryption. KT designed a quantum cryptographic communication network with a structure in which encryption equipment encrypts and transmits data using quantum keys supplied by the system.

KT achieved results in smooth and stable communication without slowing down or further delays when data was sent and received with quantum cryptographic communication technology. In general, additional work to enhance security in the network is likely to affect service quality.

KT explained that while the quantum cryptographic communication field is being developed and verified by foreign manufacturers, it is significant in that it has succeeded in verifying commercialization with standards made by Korea and technologies that follow them.

In addition to the demonstration of applying quantum cryptographic communication to 5G networks, KT also conducted a 'Quantum VPN' test that introduces 'Quantum random number generation function' to KT's corporate product 'One Box' to strengthen security of VPN service.

Equipment with quantum random number generation function creates random numbers that are impossible for pattern analysis itself.

KT said, "The success of the demonstration will enable us to provide a new level of security service to customers using KT networks."

"The KT quantum cryptography technology, which has been secured through the research, will become a next-generation security solution that is active in major areas of the country such as public, defense and finance," it added.

Seo Young-soo, executive director of KT Network Research and Technology, said, "We have gone through the process of verifying equipment exclusively for quantum cryptographic communication for a long time from 2019.

"As functions and performance have been confirmed based on KT's accumulated capabilities, we will provide the best service in the future by making every effort to establish and operate quantum cryptographic communication networks."

Meanwhile, Lee Jong-sik, executive director of KT's infrastructure research institute, said, "KT has been researching and developing various quantum cryptographic communication solutions in preparation for the actual threat of quantum computers over the past four years. We will continue our efforts to provide customers with next-generation quantum security solutions that make the most of KT's strengths."

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Jung Jun-ho