Press Release
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Nippon Telegraph and Telephone East corporation
Nippon Airport Radio services Co. Ltd.

Local 5G and TETRA interconnected at Narita International Airport --- Realized breakthrough integrated mission-critical communication environment in airport ---

Nippon Telegraph and Telephone East, NTT East corporation and Nippon Airport Radio Services Co., Ltd., NAR, have successfully interconnected Local 5G[1] build with NTT East's managed Local 5G service "Giga-Raku 5G", and TETRA, the airport's wireless communication infrastructure in service at Narita International Airport. As a result, it realized a breakthrough integrated voice communication environment in the airport ramp area between Local 5G enabled devices, equipped with Mission Critical Push to Talk, hereinafter called MCPTT, application, and TETRA devices. NTT East and NAR will continue to MCPTT and develop use cases by making concrete proposals for expanding the scope of Local 5G applications and upgrading the wireless communication environment for actual operations at airports, factories or warehouses, and other facilities with extensive areas.

1. Background

Last couple of years, Local 5G is being considered in a variety of industrial fields in Japan. At Narita International Airport, a consortium including NTT East and NAR are studying the use of Local 5G as a stable and secure wireless communication infrastructure for the realization of "Smart Airport" including the implementation of multiple autonomous driving bus [2] in the airport ramp area.

On the other hand, TETRA is used in more than 80 airports globally and is in service in 5 major airports including Narita International Airport in Japan as a ground-to-ground wireless communication infrastructure. It is used not only for daily operations such as ground handling and ramp control, etc. but also for mission critical communication in the case of emergency. In order to smoothly deploy the Local 5G in airports, it is essential to connect with airport radio systems which are widely used at airports and the realization of interoperability between the two systems must be an important step. In addition, while some airport workers have required to carry multiple communication devices in the past. The interconnection will make it possible to continue operations using only a smartphone in the Local 5G area, and in the future, it is expected to improve usability through multimedia communication by taking advantage of MCPTT applications.

[1] Local 5G refers to licensed 5G communication networks for buildings or premises, differing from nationwide networks operated by mobile phone service providers. Various local entities such as enterprises and governments can flexibly develop Local 5G networks within their respective compounds to meet local or industrial needs.
[2] The implementation had been held based on the bout of autonomous driving in the airport ramp area by MLIT. This implementation is also based on the bout of developing Local 5G by MIC.

2. System Overview

NAR operates TETRA and the MCPTT system “WAVE”, developed by Motorola Solutions. The WAVE has been integrated with TETRA and the interconnection between Local 5G and TETRA has been made using the WAVE. It enables voice calls and text messaging through WAVE applications installed on smartphones via cellular network and Local 5G. By using WAVE as a communication application on Local 5G environment, built with “Giga-Raku 5G” at Narita International Airport, voice calls can be made between Local 5G-enabled smartphones and TETRA terminals, as well as between such smartphones over a closed Local 5G network.

3. Future Prospects

The WAVE and TETRA have been used as a communication tool between experimental staff while demonstration of the multiple autonomous driving bus and they experienced high-quality and stable communication functionality. Both systems consist of dedicated radio waves and closed networks, and are not affected by failures or congestion of cellular networks, etc. Therefore, high availability can be expected in emergency situations such as disasters. NAR will continue to collaborate with NTT East to promote the introduction of Local 5G at airports, and propose the “digital transformation” of airport operations by taking advantage of WAVE's diverse functions and interconnection with TETRA. NTT East will also propose WAVE as a communication tool for "Giga-Raku 5G" to corporate factories and warehouses, etc.

4. FYI

NTT East is going to exhibit the details of experiment and the service of “Giga-Raku 5G” in “Wireless Japan 2023”, one of the largest wireless communication exhibitions held in Tokyo Big Sight from May 24 to 26. The exhibition booth will be located at west hall 3 & 4. Please feel free to visit and experience NTT East’s cutting edge wireless technologies and the solutions.