Nokia Solutions and Networks has successfuly demonstrated the world's first TDD-FDD carrier aggregation together with Korean operators, Korea Telecom (KT) and SK Telecom (SKT). The demonstration was carried out separately with the two operators, using NSN's Flexi Multiradio 10 Base Station. This breakthrough is a boon for operators and LTE mobile broadband subscribers as it will enable significantly improved network capacity, high-capacity coverage and speed.

"It gives us immense satisfaction to achieve the world's first TDD-FDD carrier aggregation, and we are actively pursuing the 3GPP standardization of the technology," said Qi Zhang, vice president of TD-LTE at NSN.

"Based on the success of this demonstration, KT will continue developing leading technologies for the global TDD market," said Seong-Mok Oh, senior executive vice president and head of Network Group at KT. "We are keen to continue our successful partnership and technical collaboration with NSN to apply TDD-FDD carrier aggregation technology to commercial networks. This will further advance the quality of our LTE network and help us stand out from the competition."

"The significance of TDD-FDD carrier aggregation is that it provides the technical basis for faster and more efficient data services, combining TD-LTE technology which is becoming more and more widely adopted with FDD-LTE used in most networks today," said Jin-hyo Park, senior vice president, head of network technology R&D center at SK Telecom.

Operators worldwide need to increase their network capacity to address the growing LTE subscriber base and demand for improved coverage and speed. And more importantly, they need to do so without investing in additional hardware. By aggregating spectrum resources on multiple frequency bands of TD-LTE and FDD LTE, NSN helps operators increase throughput by 50-100 per cent, depending on the level of availability of TDD or FDD spectrum.

With carrier aggregation, operators can, for example, combine their low-frequency FDD bands such as 850 MHz and 900 MHz with high-frequency TDD bands such as 2300 MHz and 2600 MHz in order to provide high-speed mobile broadband in large areas. High-frequency bands are

typically uplink limited and have less coverage. In the case of TDD-FDD carrier aggregation, however, operators can improve their high-frequency band TD-LTE coverage by 50-100 per cent using TDD for downlink only and using the lower-frequency FDD for uplink as well as downlink. This increase in TD-LTE coverage thus provides a larger "high- capacity LTE" coverage area.

In addition, TDD-FDD carrier aggregation allows load balancing between TD-LTE and FDD LTE networks. This ensures seamless mobile broadband coverage and optimal speed for all subscribers of TD-LTE and FDD LTE networks, and optimises the utilisation of both bands for a quick return on investment for operators.