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KDDI and Samsung Successfully Demonstrate 5G Handover Using 28GHz Spectrum on a City Highway in Tokyo

First 5G handover in Japan verifies 5G mobility service in dense urban environment

Tokyo, Japan – **February 22, 2017** – KDDI and Samsung Electronics today announced they have successfully completed a 5G handover trial. It is Japan's first ever 5G multi-cell handover test using the 28GHz spectrum to be conducted in a real outdoor environment, on Tokyo's metropolitan expressway amongst towering skyscrapers.

The 5G handover was successfully carried out in a test divided into two scenarios. First, a 5G device mounted on a vehicle that travelled at a speed limit of 60km/h drove between two 5G base stations on a metropolitan expressway.

The second scenario was designed to verify the characteristics and performance of the 28GHz spectrum in Line of Sight (LOS) and Non Line of Sight (NLOS) environments. At the LOS environment, the vehicle drove through the heart of the city and as a result, a maximum throughput of 3.7Gbps was achieved. This is especially the case with highly dense metropolitan areas such as Tokyo, packed with skyscrapers as well as a myriad of obstacles of various materials from glass and concrete to wood and metals.

"We are pleased to have proven the feasibility of 5G mobility service in Tokyo, one of the densest cities in the world," said WooJune Kim, Vice President and Head of Next Generation Strategy at Samsung Electronics. "Through today's demonstration, we have proven that challenges that are likely to occur at highly dense metropolitan areas can be successfully overcome when the right technologies are implemented. Together with KDDI, we look forward to taking steps toward the realization of 5G-driven services."

Handover between 5G base stations is a required element to maintain a seamless data connection during a user's movement between base station coverage, making it a critical enabler of 5G commercialization. As 5G communication technology utilizes beam forming technology that tightly focuses radio waves into narrow beams, both the device and base station need to rapidly search for the optimal beam combination, calculate the ideal radio signal, and seamlessly relay data traffic between base stations.

Ever since the deployment of KDDI's commercial CDMA network in 2002, Samsung has been closely cooperating with the operator through to the latest LTE-A technologies. The two companies have extended and strengthened their partnership in order to tackle the challenges and potentials of 5G, an area that Samsung has been focusing its research on since 2011.

About KDDI Corporation

KDDI, a comprehensive communications company offering fixed-line and mobile communications services, strives to be a leading company for changing times. For individual customers, KDDI offers its mobile communications (mobile phone) and fixed-line communications (broadband Internet/telephone) services under the brand name au, helping to realize Fixed Mobile and Broadcasting Convergence (FMBC). For business clients, KDDI provides comprehensive Information and Communications services, from Fixed Mobile Convergence (FMC) networks to data centers, applications, and security strategies, which help clients strengthen their businesses. For more information please visit http://www.kddi.com/english.

About Samsung Electronics Co., Ltd.

Samsung Electronics Co., Ltd. inspires the world and shapes the future with transformative ideas and technologies. The company is redefining the worlds of TVs, smartphones, wearable devices, tablets, cameras, digital appliances, medical equipment, network systems, and semiconductor and LED solutions. For the latest news, please visit Samsung Newsroom at http://news.samsung.com.

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