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China Unicom Beijing and Huawei Announce World's First Large-Scale Integrated 5G-Advanced Intelligent Network

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[Doha-Qatar, November 24, 2024] China Unicom Beijing and Huawei held an event, "5G Capital on the Way – Lighting Up Beijing with 5G-Advanced," to announce their deployment of the world's first large-scale integrated 5G-Advanced intelligent network. The network supports a world-leading 5G-Advanced smart commercial complex, with high- and low-band integrated

networking, at the Workers' Stadium. Furthermore, a benchmark was set for the industry's first large-scale 10-gigabit 5G-Advanced network featuring air-ground integrated communications at the Great Wall scenic area, establishing the low-altitude economy innovation base. These developments will bring a better user experience to users in Beijing.

The ultra-large-scale commercial 3CC network covers over 10 million people, lighting up Beijing with 5G-Advanced.

In pursuit of large-scale 5G-Advanced network benchmarks, China Unicom Beijing and Huawei have built an ultra-large-scale commercial 5G-Advanced three component carrier (3CC) network, covering stadiums, schools, scenic areas, metro stations, commercial areas, residential areas, and other types of facilities in Beijing. The network provides full 5G coverage and 85% 5G-Advanced coverage for the area within Beijing's 4th Ring Road and the Beijing Municipal Administrative Center, effectively supporting services like immersive videos, UHD live streaming, and cloud gaming. In addition, China Unicom Beijing has renovated old phone booths and connected them to the 5G-Advanced 3CC network, making it possible for passersby to enjoy navigation and ride-hailing services or call emergency services with just one click, benefiting countless people across the city.

The world-leading high- and low-band integrated 5G-Advanced network supports a commercial complex at the Workers' Stadium.

China Unicom Beijing, Sinobo, GTVerse, and Huawei have created a world-leading integrated 5G-Advanced network at the Workers' Stadium. A large number of 5G-Advanced 3CC sites have been deployed both inside and outside the stadium, enabling the 10-gigabit 5G-Advanced network to support the widest frequency range anywhere in the world. Field tests recorded a downlink peak rate of 11.2 Gbps, allowing a crowd of up to 68,000 people to simultaneously and smoothly watch 1080p videos. Meanwhile, the uplink peak rate reached 4 Gbps, sufficient to support services like UHD shallow compression. China Unicom Beijing has also developed innovative practices in terms of the Internet of Vehicles (IoV), Internet of Things (IoT), and extended reality (XR) split rendering, demonstrating 5G-Advanced's potential to empower all industries.

Capacity and rate comparison of 5G-Advanced (left) and 5G networks during a live match simulation at the Workers' Stadium

The 10-gigabit 5G-Advanced low-altitude economy innovation base drives low-altitude economic development in Yanqing

At the Great Wall scenic area, the Beijing Yanqing District Government and China Unicom Beijing have jointly deployed 10-gigabit 5G-Advanced base stations at scale. This offers uninterrupted network coverage both on the ground and in low-altitude (below 300 meters) airspace. High- and low-band integrated spectrum use enables the network to provide deterministic, highly-reliable, and high-quality services. It also supports efforts to explore low-altitude operational scenarios in tourism, logistics, emergency rescue, and scenic area protection, boosting safety and the development of the low-altitude economy.

Media visiting Yanqing's Great Wall low-altitude tourism showcase

End-to-end automation enables 5G-Advanced site provisioning within minutes and AI-driven intelligent optimization

Based on its 5G intelligent operations platform, China Unicom Beijing has established an end-to-end self-provisioning process for 5G-Advanced sites in lightweight scenarios, shortening provisioning times from days to minutes. The provisioning process requires no manual intervention, significantly reducing cyber security risks. Furthermore, the company has realized

end-to-end automatic optimization of 5G-Advanced base stations based on user service data, including AI-powered optimization of provisioning, services, iteration, and inspection. China Unicom Beijing is the world's first carrier to implement network self-provisioning and self-optimization in lightweight scenarios. It has also deployed computing power at base stations to realize distributed, AI-driven management, helping build a digital and intelligent ecosystem powered by cloud-edge collaboration.

Yang Lifan, Deputy General Manager of China Unicom Beijing, said: "Large bandwidth can quickly improve user experience. Only by providing 10-gigabit network capabilities can we guarantee a gigabit experience for all users. This time, we've built a large-scale integrated 5G-Advanced intelligent network to bring a better experience to all China Unicom users across Beijing. We are confident that, based on Huawei's advanced technologies and our smart operations capabilities, we will provide users in Beijing with an increasingly better network experience in the future."

Li Jie, President of Huawei's 5G&LTE TDD Domain, said: "As the 5G Capital project enters its fifth year, I am honored that Huawei's new 5G-A solutions have helped China Unicom Beijing maintain its global leadership in 5G-Advanced network construction, demonstrated by the large-scale 5G-Advanced network benchmark launched early this year, and today's launch of the world's first large-scale integrated 5G-Advanced intelligent network. Huawei will continue to innovate and support China Unicom Beijing in building inclusive and high-quality 5G-Advanced networks to seize more opportunities in the AI-powered mobile network era."