



3 Hong Kong completes successful 5G outdoor network trials in the 3.5GHz and 28GHz bands and is first to make a live outdoor broadcast via a 5G network in Hong Kong

Hong Kong, 28 November 2018 - 3 Hong Kong, the mobile arm of Hutchison Telecommunications Hong Kong Holdings Limited (HTHKH; stock code: 215), has completed successful outdoor 5G trials in both the 3.5 GHz and 28GHz spectrum bands.

This makes 3 Hong Kong one of the first mobile operators to run outdoor trials in two major 5G spectrum bands and enables a better understanding of their transmission characteristics, as well as other technological aspects.

3 Hong Kong is now one of the best-positioned operators to deploy a 5G network and provide Hong Kong with world-class service in a new era of mobility.

Hong Kong's first* live outdoor broadcast via a 5G network in the 3.5GHz band

3 Hong Kong today became the first* mobile operator to make a live outdoor broadcast via a 5G network in the 3.5GHz band in Hong Kong. The test was carried out at a trial cell site in Causeway Bay.

The company has been working tirelessly to develop 5G technology in order to launch smooth, high-speed and diverse 5G services, once technology standards are set and spectrum is released. Details:

- 3 Hong Kong received an indoor 5G test permit for the 3.5GHz band last August from the Communications Authority, and completed a number of trials by the end of 2017.
- A temporary permit was issued in May 2018 to conduct 5G network trials in the 26GHz and 28GHz bands. 3 Hong Kong conducted in-and-outdoor trials in the third quarter of 2018 involving new radio equipment in the 28GHz band (Millimetre Wave spectrum). Outdoor trials using 400MHz spectrum resources achieved a downlink speed peaking at 3.2Gbps, an early demonstration of the high speeds promised by 5G technology.
- Another temporary permit to carry out in-and-outdoor 5G network trials in the 3.5GHz band was granted in June this year. 3 Hong Kong established a trial cell site based on Massive MIMO technology in Causeway Bay in the second half of 2018 and ran speed and coverage trials involving advanced 5G network equipment with 100MHz spectrum resources in the 3.5GHz band. Network speed reached on that occasion was over 2Gbps.

3.5GHz band and 28GHz band (Millimeter Wave spectrum) complement each other

Test results demonstrated the mid-frequency 3.5GHz band's superiority of coverage over the 28GHz band (Millimetre Wave spectrum). In fact, 3.5GHz band coverage is comparable with the LTE 1800 band when used in conjunction with Massive MIMO technology.

Long-term development of 5G technology requires different spectrum bands to complement one another. For example, the 28GHz band delivers high-speed service but its high-frequency nature restricts coverage to a limited area. However, greater coverage is achievable when the 28GHz band is complemented by the 3.5GHz band. Such an arrangement enables operators to extend coverage and provide a seamless 5G experience. Harnessing the beneficial attributes of each spectrum band also assists operators to meet all the various demands on 5G applications.

The 3 Hong Kong network team has developed a thorough understanding of the 3.5GHz and 28GHz bands, thanks to the many onsite trials carried out. This aids deployment of 5G technology and infrastructure, while enabling 3 Hong Kong to share valuable findings with developers working on 5G applications.

HTHKH Executive Director and CEO Kenny Koo said: "3 Hong Kong took the initiative to carry out end-to-end trials in various 5G bands in preparation for a new era of mobile communications. We welcome the government's decision to allow various of its premises to accommodate 5G base stations, and we hope the application and approval processes can be simplified and accelerated to help Hong Kong's 5G development."

**Based on publicly-available information.*

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About 3 Hong Kong

3 Hong Kong is a leading mobile communications service provider and the only local operator to own blocks of spectrum across the 900MHz, 1800MHz, 2100MHz, 2300MHz and 2600MHz bands. 3 Hong Kong offers cutting-edge data, voice and roaming services under the "3" brand via far-reaching advanced 4G LTE, 3G and 2G networks. 3 Hong Kong also works with renowned partners to offer a wealth of innovative mobile devices and value-added services, while providing high-speed Wi-Fi at 3 Hong Kong's hotspots to serve Hong Kong's major areas. 3 Hong Kong is the mobile division of Hutchison Telecommunications Hong Kong Holdings Limited (stock code: 215), a group member of CK Hutchison Holdings (stock code: 1).

For more information on 3 Hong Kong, please visit www.three.com.hk.
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