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Panel on Information Technology and Broadcasting

Meeting on 9 November 2020

Background brief on the facilitative measures for telecommunications operators to establish base stations for the extension of mobile network coverage

Purpose

This paper provides background information on the facilitative measures for telecommunications operators to establish base stations for the extension of mobile network coverage. It also summarizes the views and concerns expressed by Members during the relevant discussions.

Background

2. The fifth generation ("5G") mobile services offer many technological and practical advantages over those based on the conventional fourth generation ("4G") telecommunications technology. 5G mobile services are more responsive, its technology enables faster data transmission and allows more devices to be connected to the network at the same time. However, high-speed 5G networks require more radio base stations ("RBSs") to be installed than their 4G counterparts to achieve the same radio coverage.

3. At present, RBSs are provided by mobile network operators ("MNOs"). Most of these RBSs are installed in buildings and on rooftops. MNOs have to negotiate with the site owners or their agents and have to satisfy the relevant authorities, including the Office of the Communications Authority ("OFCA"), the Lands Department and the Building Department, that the relevant technical and statutory requirements are met. As at end-May 2020, more than 3 800 applications for the use of 5G RBSs had been examined by OFCA. About 95% of these RBSs were located outside government premises.

Installation of base stations on government/public premises

4. To facilitate the rolling out of networks by MNOs in a timely manner, the Administration has adopted a "demand-led" model in opening up more suitable government venues and public facilities (e.g. public payphone kiosks and sheltered bus stops) for operators to apply for the installation of 5G RBSs, and adopted streamlined application processes to facilitate operators in establishing 5G networks.

5. The Administration launched the Pilot Scheme for Installation of RBSs at Selected Government Venues ("the Pilot Scheme") in March 2019. Under the Pilot Scheme, the Administration would open up 1 000 suitable government premises managed by the Food and Environmental Hygiene Department, the Leisure and Cultural Services Department and the Government Property Agency for the installation of RBSs. As at end-May 2020, a total of 110 applications have been received under the Pilot Scheme.

6. In addition to the Pilot Scheme, the Administration allows MNOs to install micro-cell base stations on highway facilities such as lampposts, footbridges and flyovers. A Pilot Multi-functional Smart Lampposts Scheme has also been announced where MNOs may install RBSs in smart lampposts as a means of complementing the digital infrastructure development for the 5G mobile communications services.

Restrictions on the installation of base stations

Restriction zones in Tai Po and Stanley

7. RBSs operating in the 3.5 GHz band may affect the normal functioning of the earth stations in Tai Po and Stanley which were set up for telemetry, tracking and control ("TT&C") of satellites in orbit. To resolve possible interference between the signals for the TT&C of satellites and the 5G services, the Administration has set up restriction zones in the two areas. All applications for the installation of 3.5 GHz RBSs (both indoors and outdoors) within the restriction zones have to demonstrate that no harmful interference will be caused to the existing satellite earth stations. While the long-term feasibility of relocating the satellite earth stations from Tai Po to Stanley is being explored, MNOs have been encouraged to make use of other 5G bands (e.g. the 3.3 GHz, 4.9 GHz and 26/28 GHz bands) or re-farm their own spectrum currently deployed for the second generation ("2G") to 4G mobile services to provide 5G services within the restriction zones before the relocation takes place.

Countryside and remote areas

8. In the countryside and remote areas outside the fibre-based backbone networks of fixed network operators, stable and high-speed broadband services are often unavailable. As a result, mobile base stations installed in these remote areas, if any, would experience limited backhaul connectivity and thus could only provide mobile services of suboptimal quality. In June 2019, the Administration has launched the Subsidy Scheme to Extend Fibre-based Networks to Villages in Remote Areas. By subsidizing the roll-out of fibre-based lead-in connections to remote villages and the construction of three submarine fibre-based cables connecting Lamma Island from Hong Kong Island, Cheung Chau from Lantau Island, and Peng Chau from Lantau Island respectively, the Subsidy Scheme is expected to provide the infrastructure required for the deployment of 5G mobile services and other telecommunications services in remote areas in Hong Kong.

Previous discussions

9. The Administration briefed the Panel on Information Technology and Broadcasting ("the Panel") on 10 May 2019 on the assignment of spectrum for 5G mobile services, and on 9 December 2019 on the installation of base stations at public telephone kiosks. The Subcommittee on Telecommunications (Method for Determining Spectrum Utilization Fee) (Spectrum for Auction) Regulation and Telecommunications (Designation of Frequency Bands subject to Payment of Spectrum Utilization Fee) (Amendment) Order 2019 ("the Subcommittee") also discussed related issues at its meeting on 11 June 2019.

Pilot Scheme for Installation of Radio Base Stations at Selected Government Venues

10. At the Panel meeting on 10 May 2019, Panel members asked about the details of the Pilot Scheme, including the level of fees charged for the use of government premises, the number of MNOs allowed to install RBSs at each government premises, and the sector's response to the Pilot Scheme.

11. The Administration said that a one-off administrative fee of \$71,900 for each approved application and a nominal rent of \$1 per year thereafter were chargeable for the use of government premises for installation of RBS. The number of operators who might be permitted to base at a government premises under the Pilot Scheme would vary according to the location and size of the premises under application.

12. At the Subcommittee meeting on 11 June 2019, some members commented that not all of the government premises identified and made available under the Pilot Scheme turned out to be feasible for installation of RBSs. They asked the Administration to review the suitability of the premises and ensure that they were feasible before offering them to MNOs. Members also suggested that, if there were concerns from the relevant department staff over possible radiation hazards arising from the installation of RBSs, the Administration should take appropriate steps to allay such fears.

13. The Administration responded that the 1 000 government premises made available under the Pilot Scheme were considered suitable for installation of RBSs in terms of the available floor space and electricity supply. The Administration would look into individual locations where MNOs claimed they had encountered problems, and would follow up with the relevant departments to resolve the difficulties, if any. As regards radiation safety of RBSs, the Administration advised that about 1 500 site inspections had been conducted over the past three years during which the radiation level of RBSs were measured. No adverse findings had been recorded. The measurement results were explained to members of the public. The Administration would continue to explore other suitable venues or street furniture, such as public telephone booths and sheltered bus stops, for installation of RBSs.

14. At the Panel meeting on 10 May 2019, Panel members had queried if the Administration planned to install small cell base stations in the retained public payphone kiosks to facilitate the implementation of the 5G mobile services. The Administration replied that it had been facilitating the process of installing small cell base stations in public payphone kiosks.

Installation of radio base stations along MTR lines and on private premises

15. In response to an enquiry from a Subcommittee member about the installation of RBSs for the provision of 5G mobile services along MTR lines, the Administration advised that engineering works to upgrade existing mobile services in MTR were underway. In case 3.5 GHz spectrum would not be available along MTR lines, MNOs could refarm existing spectrum to provide 5G mobile services for passengers.

16. Some Panel members commented that the Administration should revise the current legislation to provide for conditions under which property owners would be required to allow MNOs to set up facilities on the relevant premises to provide 5G mobile services. The Administration responded that, as in the case of fixed line networks, MNOs could apply to the Communications Authority for authorization to place and maintain telecommunications facilities on any premises if the applicants could prove that there were no alternative method to

lay the network otherwise. Some members commented that applying for authorization for each installation work was time-consuming and urged the Administration to review the relevant legislation and provide necessary support to the trade.

Questions raised at Council meetings

17. Members, including Hon Charles Peter MOK and Hon CHAN Hak-kan, have raised questions related to installation of base stations for the extension of mobile network coverage at Council meetings. Details of the questions and the Administration's replies are given in the hyperlinks in the **Appendix**.

Latest position

18. The Administration will brief the Panel on 9 November 2020 on the progress of the Pilot Scheme to open up suitable Government premises for telecommunications operators to install base stations, as well as other measures to facilitate the establishment of base stations.

Relevant papers

19. A list of the relevant papers is set out in **Appendix**.

Appendix

List of relevant papers

Issued by	Meeting date	Paper
Panel on Information Technology and Broadcasting	8 June 2020	<p>Administration's paper on the latest progress of the implementation of the Subsidy Scheme to Extend Fibre-based Networks to Villages in Remote Areas LC Paper No. CB(1)710/19-20(06)</p> <p>Administration's paper on update on smart city development LC Paper No. CB(1)710/19-20(02)</p> <p>Minutes of meeting LC Paper No. CB(1)919/19-20</p>
Subcommittee on Telecommunications (Method for Determining Spectrum Utilization Fee) (Spectrum for Auction) Regulation and Telecommunications (Designation of Frequency Bands subject to Payment of Spectrum Utilization Fee) (Amendment) Order 2019	11 June 2019	<p>Legislative Council Brief File Ref: CCIB/B 480-20-8-1-10(C)</p> <p>Minutes of meeting LC Paper No. CB(1)1285/18-19</p>
Panel on Information Technology and Broadcasting	10 May 2019	<p>Administration's paper on assignment of spectrum for fifth generation mobile services LC Paper No. CB(1)1020/18-19(05)</p> <p>Minutes of meeting LC Paper No. CB(1)1290/18-19</p>

Issued by	Meeting date	Paper
Council	10 June 2020	Question No. 14 raised by Hon Charles Peter MOK <u>Facilitating development of 5G mobile communications and technology</u>
	3 June 2020	Question No. 18 raised by Hon CHAN Hak-kan <u>5G mobile communications and technology</u>