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**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**

**Background brief**

**Purpose**

This paper provides background information on the Telecommunications (Method for Determining Spectrum Utilization Fees) (Spectrum for Auction) Regulation (L.N. 74 of 2019) and the Telecommunications (Designation of Frequency Bands Subject to Payment of Spectrum Utilization Fee) (Amendment) Order 2019 (L.N. 75 of 2019) made under the Telecommunications Ordinance (Cap. 106). It also summarizes the views and concerns expressed by Members during the relevant discussions.

**Background**

Spectrum management policy

2. Under the Telecommunications Ordinance (Cap. 106), the Communications Authority ("CA") has the statutory duty to promote the efficient allocation and use of the radio spectrum as a public resource, and the power to assign radio spectrum and to designate which of them shall be subject to the payment of spectrum utilization fee ("SUF") following consultation with the telecommunications industry and other affected parties. Cap. 106 also empowers the Secretary for Commerce and Economic Development ("SCED") to prescribe the method for determining SUF and to specify the minimum fee of SUF.

3. In accordance with the Radio Spectrum Policy Framework promulgated by the then Commerce, Industry and Technology Bureau in April 2007,<sup>1</sup> a market-based approach in spectrum management will be adopted wherever CA considers that there are likely to be competing demands from providers of non-Government services, unless there are overriding public policy reasons to do otherwise.

#### Spectrum allocation for fifth generation mobile services

4. Following public consultations, SCED and CA announced in December 2018 that a total of 4 100 MHz of spectrum in the 26/28 GHz bands would be made available for the development of fifth generation ("5G") mobile services in Hong Kong, by way of administrative assignment without SUF initially,<sup>2</sup> whilst another 380 MHz of spectrum in the 3.5 GHz, 3.3 GHz and 4.9 GHz bands would be assigned by auctions.

5. To effect such decision, L.N.s 74 and 75 of 2019 were gazetted on 17 May 2019 to designate 3.5 GHz, 3.3 GHz and 4.9 GHz bands as frequency bands which are subject to payment of SUF and to specify the method for determining the SUF of these bands by auctions. Subject to the enactment of these two pieces of subsidiary legislation, SCED and CA will, respectively, specify by notices published in the Gazette the minimum fees of the respective spectrum (i.e. the auction reserve prices), and the terms and conditions of the auctions, prior to the auctions scheduled in the second half of 2019.

#### **Previous discussions**

6. The Administration briefed the Panel on Information Technology and Broadcasting ("the Panel") on 10 May 2019 on assignment of spectrum for 5G mobile services.

#### Opening up of government premises for mobile network operators to install base stations

7. Compared to older technologies, the roll-out of 5G mobile services will involve installing a larger number of radio base stations ("RBSs"). Members noted that the Administration had launched the Pilot Scheme for Installation of Radio Base Stations at Selected Government Venues ("the Pilot Scheme") in

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<sup>1</sup> See the Radio Spectrum Policy Framework (<https://www.cedb.gov.hk/ccib/eng/legco/pdf/spectrum.pdf>).

<sup>2</sup> Secretary for Commerce and Economic Development proposed to charge SUF only if 75% or more of the spectrum within the 26/28 GHz bands is occupied.

March 2019 to help mobile network operators ("MNOs") cope with the challenge to put in place the infrastructure. Under the Pilot Scheme, the Administration would open up more than 1 000 suitable government premises for the installation of RBSs by MNOs through streamlined application processes. Members asked about the details of the Pilot Scheme, including the level of fees charged by the government premises, if any; the number of MNOs allowed to install RBSs at each government premises; and the sector's response to the Pilot Scheme.

8. The Administration said that a one-off application fee of \$70,000 and a monthly rental were chargeable for the use of a government premises for installation of a RBS. The monthly rental cost and 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. The Administration expected that the vetting of the first batch of applications would be completed in two to six months.

#### Restriction zones for the deployment of 3.5 GHz band

9. Panel members noted that the satellite earth stations in Tai Po and Stanley were currently using the 3.5 GHz band for the telemetry, tracking and control of satellites in orbit. To ensure that satellite services operated by these satellite earth stations could coexist with future 5G services, CA, based on technical considerations, had set up restriction zones in Tai Po and Stanley to constrain the deployment of mobile base stations operating in the 3.5 GHz band in the area. Members asked how the 5G mobile services would be affected in the restriction zones at Tai Po and Stanley; and whether the Administration would consider relocating the telemetry, tracking and control stations from the restriction zones.

10. The Administration advised that a working group had been formed to explore feasible technical arrangements for deployment of RBSs operating in the 3.5 GHz band within the restriction zones.<sup>3</sup> The working group had worked out a maximum permissible interference limit below which a RBS operating in the 3.5 GHz band would be allowed to be deployed within the restriction zones. On the other hand, MNOs might also offer 5G mobile services using other frequency bands, such as 4.9 GHz, 26 GHz or 28 GHz, or offer 2G, 3G, or 4G service to complement mobile services where 5G services could not be provided. The Administration also told Panel members that it would keep under review the suggestion to relocate the earth stations.

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<sup>3</sup> Office of the Communications Authority had set up a working group comprising representatives of mobile network operators, satellite operators, the Hong Kong Applied Science and Technology Research Institute and the Hong Kong Science Park.

### Supportive measures for the provision of fifth generation mobile service

11. Some Panel members commented that the telecommunication sector was concerned about the high infrastructure costs associated with the provision of 5G mobile services, which had been characterized by its heavy demand on spectrum width and the larger number of RBSs required. Members suggested that the Administration should lower the spectrum auction prices for the 3.5 GHz, 3.3 GHz and 4.9 GHz bands, and should introduce measures to facilitate MNOs in the installation of RBSs and provision of 5G services in MTR premises.

12. The Administration said that there were numerous spectrum bands that could be used for providing 5G services, including some 4 100 MHz of spectrum in the 26 GHz and 28 GHz bands which had been made available for assignment by administrative arrangements. As regards the spectrum in the 3.5 GHz, 3.3 GHz and 4.9 GHz bands, as there was competition for their use, the Administration would assign these bands using a market-based approach. The ultimate price of the spectrum would be determined by the market and was beyond the Administration's control. The Administration added that the Pilot Scheme had served to relieve the industry's cost of installing RBSs, because the relevant fees were set at a level to recover the administrative costs only.

### Access to premises for installation of radio base stations

13. 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 use the relevant premises to provide 5G service facilities. The Administration responded that, as in the case of fixed line networks, MNOs could apply to CA 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.

### Introduction of fifth generation mobile service into the consumer market

14. Members enquired about the expected time line, price and coverage of 5G mobile service in the consumer market at its launch. The Administration said that while 5G services would be available beginning from 2020, different places might have different pace in the development of the services. The Administration's role was to assign the requisite spectrum for MNOs as early as possible so that they could make preparation for the provision of 5G mobile

services. The Administration added that it was not aware of the pricing information, which was to be determined by individual companies and was outside the scope of its regulation framework. As regards the coverage of 5G mobile services, the Administration advised that MNOs might offer other telecommunication services in less densely-populated areas using existing 2G, 3G or 4G networks.

15. Members asked how the existing mobile services would be affected by the launch of 5G mobile services. The Administration said that while MNOs had the flexibility under their existing licences to refarm their spectrum, the launch of 5G mobile services would not preclude the continued use of other mobile services. The market seemed to have adopted a voluntary approach in attracting consumers to switch to newer technology. Given that there were still many users of the 2G mobile services, the Administration did not have any existing plan to administratively cease 2G service in Hong Kong.

### **Latest development**

16. At the House Committee meeting on 24 May 2019, Members agreed that a subcommittee should be formed to examine the 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.

### **Relevant papers**

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

## List of relevant papers

Issued by	Meeting date	Paper
Panel on Information Technology and Broadcasting	10 May 2019	Administration's paper on assignment of spectrum for 5G mobile services ( <a href="#">LC Paper No. CB(1)1020/18-19(05)</a> )  Paper on the spectrum assignment and the fifth generation mobile services prepared by the Legislative Council Secretariat (Background brief) ( <a href="#">LC Paper No. CB(1)1020/18-19(06)</a> )
Council Meeting	22 May 2019	Legislative Council Brief ( <a href="#">File Ref: CCIB/B 480-20-8-1-10(C)</a> )