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**Subcommittee on Subsidiary Legislation Relating to
Spectrum Utilization Fees**

Background brief

Purpose

This paper provides background information on the subsidiary legislation for assigning the frequency spectrum in the 900 MHz and 1800 MHz bands ("900 MHz and 1800 MHz Spectrum") upon expiry of the existing frequency assignments, to effect the spectrum utilization fees ("SUF") and summarizes the major views and concerns previously expressed by Members.

Background

2. At present, a total of 198.6 MHz of frequency spectrum, comprising 49.8 MHz in the 900 MHz band and another 148.8 MHz in the 1800 MHz band has been assigned to four mobile network operators¹ ("MNOs") for the provision of public mobile telecommunications services². These spectrum assignments are due to expire between 19 November 2020 and 29 September 2021. Together with the 0.2 MHz of spectrum in the 900 MHz band and 1.2 MHz of spectrum in the 1800 MHz band which are currently vacant, a total of 200 MHz of spectrum in the 900 MHz and 1800 MHz Spectrum will be available for re-assignment upon the expiry of the existing assignments ("re-assignment of the 900 MHz and 1800 MHz Spectrum").

¹ China Mobile Hong Kong Company Limited, Hong Kong Telecommunications (HKT) Limited, Hutchison Telephone Company Limited, and SmarTone Mobile Communications Limited.

² Including the provision of the second, third and fourth generation ("2G", "3G" and "4G") mobile services.

3. The Administration had conducted two rounds of public consultation in February 2016 and February 2017 to solicit views and comments of the telecommunications industry and other affected persons on the arrangements for the re-assignment of the 900 MHz and 1800 MHz Spectrum and the related SUF.

Reassignment of spectrum

4. On 19 December 2017, the Communications Authority ("CA") decided to adopt a hybrid administratively-assigned cum market-based approach ("hybrid approach") to re-assign the 200 MHz of spectrum in the 900 MHz and 1800 MHz Spectrum upon the expiry of their existing assignments, as follows:

- (a) Administratively-assigned approach: each of the four incumbent MNOs will be offered a right of first refusal to be re-assigned 20 MHz of spectrum ("RFR Spectrum") in the 1800 MHz band administratively under the hybrid approach; and
- (b) Market-based approach: the remaining 70 MHz of spectrum in the 1800 MHz band and the 50 MHz of spectrum in the 900 MHz band will be re-assigned by way of auction ("Auctioned Spectrum").

5. The new spectrum assignment period for all the spectrum in the 900 MHz band will commence on 12 January 2021 for a 15-year period until 11 January 2036. For the spectrum in the 1800 MHz band, the new spectrum assignment period will commence on 30 September 2021 for a 15-year period until 29 September 2036. For alignment purpose, it is necessary to align the different expiry dates of the existing assignments of spectrum in the 900 MHz band (which fall on dates between 19 November 2020 and 11 January 2021) by granting an administrative extension of the existing assignments so that the terms of assignment of spectrum in the 900 MHz band would expire on 11 January 2021 and to facilitate the new assignment term for 900 MHz band to commence on 12 January 2021.

Determination of the spectrum utilization fees

6. For the related SUF, the auction reserve price for the Auctioned Spectrum in both the 900 MHz and 1800 MHz bands will be set at \$38 million per MHz. As for the RFR Spectrum, which falls in the 1800 MHz band, the SUF per MHz will be set at the average SUF per MHz of the Auctioned Spectrum in the 1800 MHz band as determined by auction, subject to a minimum price of \$54 million and a cap at \$70 million.

Spectrum cap

7. Given the large amount of spectrum which would be made available for auction (at least 120 MHz), to avoid unduly high concentration of spectrum holding in the hands of any single assignee, a spectrum cap of 90 MHz will be imposed on the aggregate amount of spectrum in the 900 MHz and 1800 MHz bands, with a sub-cap of 20 MHz for spectrum in the 900 MHz band, which may be acquired by any successful bidder in the auction. The spectrum cap will apply to all bidders alike, and would cover both the RFR Spectrum and the Auctioned Spectrum.

Previous discussions

8. The Administration briefed the Panel on Information Technology and Broadcasting ("the Panel") on 13 March 2017 and 12 February 2018 on the arrangements for the 900 MHz and 1800 MHz Spectrum upon expiry for the existing assignments for public mobile telecommunications and SUF.

Continuation of Second Generation public mobile telecommunications services

9. Members noted that 2G services were supported solely by the 900 MHz and 1800 MHz Spectrum and there were around 1.47 million 2G service subscribers in Hong Kong; many of the Mainland visitors coming to Hong Kong were still using 2G services. The Administration informed the Panel that it was up to MNOs to decide whether and when to phase out 2G and other generations of mobile services based on their respective commercial circumstances. MNOs may apply to CA to terminate their 2G services if the number of subscribers decreases to a level that renders it no longer cost-effective to continue with the service, on condition that appropriate plans are in place for the remaining 2G service subscribers to migrate to higher generation services.

Provision of services in country parks and remote areas

10. Noting that MNOs operating their networks at the 900 MHz and 1800 MHz Spectrum were required to maintain a minimum of 90% coverage of the population, some Panel members enquired what measures the Administration would impose to ensure that the remaining 10% of the population had access to mobile services. They also queried whether MNOs should be required to ensure that services would be provided to people living in remote areas.

11. The Administration responded that MNOs would be encouraged to provide mobile services in remote areas, in which 2×4 MHz of spectrum in the 1800 MHz band had been assigned to three MNOs for the provision of mobile coverage in the country parks and remote areas without having to pay SUF. The Administration has also facilitated MNOs in installing base stations in country parks and remote areas, including allowing their use of government hilltop sites and buildings at nominal rental.

12. The Administration informed the Panel that, as announced in the 2017 Policy Address, the Administration would subsidize telecommunications companies to extend fibre-based network to remote villages. The capital expenditure is estimated to be about \$114.4 million and, depending on the progress of works and the views of the villagers, the subsidised lead-in connections are expected to be extended to the concerned villages in phases from 2021 onwards. The Panel supported the initiative at its meeting held on 14 May 2018. The Administration would thereafter submit the funding proposal to the Finance Committee for approval.

Auctions of spectrum

13. Some Panel members queried whether the auction of spectrum would be competitive as there were only a few MNOs in Hong Kong. The Administration explained that seven auctions had been held for assignment of spectrum for mobile services and the response had been positive, reflecting a competitive demand for spectrum as a scarce public resource.

14. The Panel Chairman had expressed concerns that if competition became intense in the next auction, the auction price might be pushed to a very high level. Some operators might be able to out-bid other operators and obtain a larger share of the Auctioned Spectrum. The Administration informed the Panel that, for the current spectrum re-assignment exercise, at least 120 MHz of spectrum would be made available for auction. The release of such a large quantity of spectrum at one time might have an impact on the auction price. To avoid unduly high concentration of spectrum holding in the hands of any single assignee, a spectrum cap of 90 MHz would be imposed on the aggregate amount of the 900 MHz and 1800 MHz Spectrum which might be acquired by any successful bidder in the auction, with a sub-cap of 20 MHz for spectrum in the 900 MHz band.

Spectrum utilization fee

15. Some Panel members queried whether any increase in SUF would be transferred to mobile service users, and would result in cost escalation in mobile service. The Administration responded that SUF only accounted for a small

portion of MNO's operating cost and it was unlikely that an increase in SUF would result in an escalation of service charges for consumers.

16. The Administration further pointed out to the Panel that, according to the operating accounts submitted by MNOs, SUF for all the 552 MHz of spectrum allocated for mobile services only accounted for about 3% to 4% of their operating costs. For SUF of the 900 MHz and 1800 MHz spectrum in particular, the share of the operating costs was less than 1%. Even if the levels of SUF increased after the auction, the impact on service fees would unlikely be significant. Mobile communications service market was very competitive, and the fluctuation in service fees reflected the market conditions more than the variation in SUF. In the previous auction of spectrum in the 1.9-2.2 GHz band for the provision of third generation mobile services did result in an increase in SUF. However, there was no corresponding escalation in mobile communications service charges in general. Rather, there was a spate of price cutting initiatives from MNOs in response to market forces.

17. The Panel Chairman noted that spectrum assignees would be given a choice to pay SUF either by lump sum payment upfront or by annual instalments. He asked whether the Administration had considered how different payment arrangements would affect the tax commitment of the assignees. The Administration advised that the spectrum re-assignment arrangements and SUF were part and parcel of telecommunications policy under the respective jurisdiction of CA and Secretary for Commerce and Economic Development ("SCED"). Tax obligation in connection with SUF fell outside the purview of telecommunications policy and did not feature in the decision making process of CA and SCED. Insofar as government taxation policy was concerned, SUF was considered a capital investment and hence not tax-deductible.

Quality and continuity of mobile network services in MTR stations

18. Some members expressed concerned about the impact of re-assignment of the 900 MHz and 1800 MHz Spectrum on the continuity of 4G services in MTR and commented that online service was slow in many areas along MTR lines. The Administration advised that 4G services delivered in MTR required the use of equipment operating in the 1800 MHz band and the delivery of mobile service in 43 of the MTR stations relied on legacy systems. More RFR spectrum in the 1800 MHz band would therefore be offered to the incumbent spectrum assignees to address the service continuity issue. For this reason, the Administration would offer to each of the incumbent spectrum assignees a right of first refusal to be assigned 2 x 10 MHz of spectrum in the 1800 MHz band to ensure continuity of 4G services in these MTRC stations.

Utilization of spectrum

19. Some Panel members commented that MNOs had allowed the spectrum to lay idle until towards the end of the period for network and service rollout and used that spectrum to provide other kinds of mobile data services. The Administration advised that the operator concerned had used the spectrum for provision of wireless fixed network service in accordance with its plan in bidding for the spectrum. The Administration would consider whether similar terms should be offered to successful bidders of 900 MHz and 1800 MHz Spectrum to afford them the same flexibility over the choice of using the spectrum for wireless fixed services, mobile services, or a combination of both. The Administration considered that the operator was still providing services to users having regard to the market situation even the spectrum was only used to provide wireless fixed services in a small area.

Installation of transmission facilities

20. The Panel noted that the turnaround time for an application to use government premises to install mobile base stations would take more than 400 days on the average. Some Panel members asked if the Administration could expedite the process so that the mobile services could be improved with the re-assignment of spectrum. The Administration advised that the 900 MHz and 1800 MHz Spectrum was currently in use to provide mobile services. Operators had already installed the necessary mobile base stations and most of them were located in private premises. In case where operators had to apply for the use of government premises or government land for providing services in certain remote areas, permission from more than one department might have to be sought. While the Office of the Communications Authority would play a coordinating role to speed up the process, it took time for operators to provide the necessary information and comply with the requirements set by the respective departments involved.

Relevant papers

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

List of relevant papers

Issued by	Meeting date/ Issue date	Paper
Panel on Information Technology and Broadcasting	13 March 2017	Administration's paper on arrangements for the frequency spectrum in the 900 MHz and 1800 MHz bands upon expiry of the existing assignments for public mobile telecommunications services and the spectrum utilization Fee (LC Paper No. CB(4)655/16-17(03))
Panel on Information Technology and Broadcasting	12 February 2018	<p>Administration's paper on the arrangements for the frequency spectrum in the 900 MHz and 1800 MHz bands upon expiry of the existing assignments for public mobile telecommunications services and the spectrum utilization fee (LC Paper No. CB(4)577/17-18(05))</p> <p>Updated background brief on arrangements for the frequency spectrum in the 900 MHz and 1800 MHz bands upon expiry of the existing frequency assignments (LC Paper No. CB(4)577/17-18(06))</p> <p>Minutes of meeting (LC Paper No. CB(4)832/17-18)</p>
House Committee	25 May 2018	Legal Service Division report on subsidiary legislation gazetted on 18 May 2018 and tabled in Council on 23 May 2018 (LC Paper No. LS61/17-18)