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Panel on Information Technology and Broadcasting

Meeting on 13 March 2017

**Updated background brief on arrangements for
the frequency spectrum in the 900 MHz and 1800 MHz bands
upon expiry of the existing frequency assignments**

Purpose

This paper provides background information on the Administration's arrangements for assigning the frequency spectrum in the 900 MHz and 1800 MHz bands upon expiry of the existing frequency assignments and summarizes the major views and concerns previously expressed by members of the Panel on Information Technology and Broadcasting ("the Panel").

Background

2. In the Spectrum Release Plan ("SRP") published in April 2007, the then Telecommunications Authority ("TA") indicated that the radio spectrum in the 885 MHz to 890 MHz paired with 930 MHz to 935 MHz band ("900 MHz Band") and 1780.1 MHz to 1785 MHz paired with 1875.1 MHz to 1880 MHz band ("1800 MHz Band") would be made available for the provision of public mobile telephony services.

3. The Office of the Telecommunications Authority ("OFTA")¹ consulted the industry and interested parties in January 2008 on the assignment of the available radio spectrum in the 900 MHz and 1800 MHz Bands. In the light of the general support from the sector and taking into consideration the technical constraints, the then TA decided that radio spectrum in the 1800 MHz band would be make available only to the incumbent Mobile Network Operators

¹ OFTA, Television and Entertainment Licensing Authority and Hong Kong Broadcasting Authority was merged to form Office of Communications Authority on 1 April 2012.

("MNOs") for public mobile telephony service. MNOs that were to be assigned the use of the spectrum would have to pay a Spectrum Utilization Fee ("SUF"), the level of which would be determined by auction. The corresponding auction was completed in June 2009.

4. As the railway communications system for the Guangzhou-Shenzhen-Hong Kong Express Rail Link ("XRL") would operate in the 900 MHz Band, TA decided to defer the decision on the release of the available spectrum in the 900 MHz Band pending the finalization of the railway design. TA later concluded that share use of the spectrum in the 900 MHz band among XRL, other cross-border railways running within underground tunnels and public mobile service was technically feasible. TA consulted the industry again in 2009 on the assignment of the available frequency spectrum in the 900 MHz band using a market-based approach and subject to payment of SUF. The level of SUF would also be determined by way of auction.

5. At present, a total of 198.6 MHz of spectrum, comprising 49.8 MHz in the 900 MHz band and another 148.8 MHz in the 1800 MHz band was assigned to MNOs. These spectrum assignments are due to expire between 19 November 2020 and 29 September 2021. In terms of spectrum deployment, the 900/1800 MHz spectrum was initially used for the provision of second generation ("2G") mobile services with voice-centric application. Communications Authority ("CA") notes that 2G services can only be provided using the 900/1800 MHz spectrum, and by 2020 – 2021, there may still be local mobile subscribers and visitors to Hong Kong who would prefer to access mobile voice services and inbound roaming services respectively with 2G handsets.

6. The Administration launched two rounds of public consultation on the re-assignment of the 900/1800 MHz Spectrum on 3 February 2016 and 14 February 2017 to solicit the views of the telecommunications industry and other affected persons before making their respective decisions on the arrangements for re-assignment of the concerned spectrum and the methods for setting the related SUF.

Previous discussions

7. The Administration briefed the Panel on 8 December 2008 on the assignment of the available radio spectrum in the 1800 MHz band for public mobile service to the incumbent MNOs to allow for service expansion. The Panel supported in principle the proposed auction arrangements and the related legislative amendments for the auction of the relevant radio spectrum.

8. The then OFTA briefed the Panel on 11 January 2010 concerning the assignment of the available frequency spectrum in the 900 MHz band, among others, for public mobile services. The Panel urged the Administration to come up with measures to provide sufficient incentives for operators to improve the coverage and quality of their mobile phone services, particularly in country parks, remote and border areas.

Mobile network services in country parks and remote areas

9. Some members enquired about the mobile phone coverage in country parks using the radio spectrum in the 1800 MHz Band. The Administration advised that, according to a Mobile Network Coverage Survey, about 96% of popular walks and hiking/country trails were covered. There were suggestions that the Administration should require MNOs to provide 100% mobile phone service coverage in country parks and remote areas.

10. The Administration advised that in view of the relatively large geographical area of the countryside, and the reception difficulties of certain remote areas, there would be practical difficulties in requiring every MNO to provide 100% coverage in all country parks and remote areas. However, irrespective of which mobile network was used, mobile phone users could call for help in emergencies by dialing "112". The Administration had implemented measures to facilitate MNOs in installing base stations in country parks and remote areas, including allowing the use of existing government hilltop sites and subletting Government land at nominal rental. The Administration had also waived SUF for the use of radio spectrum to serve solely country parks and prescribed remote areas.

11. The Panel was aware that signals of local mobile phone networks were weak at some locations near border areas such as Sha Tau Kok, and mobile phones at these locations were often connected to the networks on the Mainland. Some members enquired what measures the Administration had put in place to improve the quality of local networks and the reception of signals at remote locations.

12. The Administration responded that it was inevitable that the coverage of mobile networks of Hong Kong and the Mainland would overlap in certain locations, especially along the border. Regular tests and measurements of radio signals had been conducted jointly with the mainland authorities and the MNOs along the border and in remote areas in order to monitor the overspill signals. Users were also advised to select their Hong Kong network manually if their mobile phones indicated that they were connected to a mainland network near the border or in remote areas.

Coverage of mobile phone service

13. Regarding the validity period of the frequency assignment, the Administration informed the Panel that it would last for 15 years for the 900 MHz band with a roll-out obligation to provide a minimum coverage of 50% of the population within five years from the issue of the licence. Some members commented that MNOs should be required to reach 100% of the population within five years instead of 50%. They argued that this requirement was to prevent spectrum hoarding and ensure the timely provision of advanced telecommunications services for the benefit of the public. The Administration considered that it was more reasonable to require successful bidders for use of the frequency spectrum for mobile phone service to provide a minimum coverage of 50% of the population within five years from the issue of the licence. Such condition would better protect consumer interests without unduly affecting investment sentiments. The same requirement had been imposed for the 3G spectrum licensed in 2001 and the 2.5/2.6 GHz band licensed in 2009. The Administration indicated that in most cases, MNOs had been able to provide nearly universal coverage within five years.

Maximizing the utilization of frequency spectrum

14. On the measures in place to tackle anti-competitive conduct and abuse of market dominance, the Administration advised that assignment of frequency spectrum by auction was considered an appropriate market means to reflect the economic value of the frequency spectrum as well as a fair, transparent, objective and economically efficient means to determine to whom the spectrum should be assigned. Competition matters such as anti-competitive conduct, discriminative practices as well as abuse of a dominant market position were presently regulated under the Telecommunications Ordinance (Cap. 106). The Administration would take actions as appropriate to enforce the relevant competition provisions.

Latest position

15. The Administration will brief the Panel on 13 March 2017 on the public consultation on the proposed arrangements for the re-assignment of the frequency spectrum in the 900 MHz and 1800 MHz bands upon expiry of the existing assignments between November 2020 and September 2021 and the proposed methods for setting the related SUF.

Relevant papers

16. A list of the relevant papers with their hyperlinks is at:

<http://www.legco.gov.hk/yr08-09/english/panels/itb/papers/itb1208cb1-326-3-e.pdf>

<http://www.legco.gov.hk/yr08-09/english/panels/itb/minutes/itb20081208.pdf>

<http://www.legco.gov.hk/yr09-10/english/panels/itb/papers/itb0111cb1-821-3-e.pdf>

<http://www.legco.gov.hk/yr09-10/english/panels/itb/minutes/itb20100111.pdf>

<http://www.info.gov.hk/gia/general/201602/03/P201602030626.htm>

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