

**For discussion
on 9 January 2012**

**Legislative Council Panel on
Information Technology and Broadcasting**

**Public Consultation on the
Assignment of the Available Radio Spectrum
in the 2.5/2.6 GHz Band for Wireless Broadband Services**

Purpose

This paper briefs Members on the consultation exercise launched by the Office of the Telecommunications Authority (“OFTA”) on 29 December 2011 concerning the assignment of the available radio spectrum in the 2.5/2.6 GHz band. The consultation period will end in two months’ time, on 29 February 2012.

Background

2. With the increasing popularity of smart phones, notepads and other advanced communications devices, the mobile services in Hong Kong have continued to grow rapidly in recent years. In October 2011, Hong Kong’s mobile data usage reached a total of 3,568 terabytes, or an average of 463 megabytes per 2.5G/3G mobile user. This represents 1.2 times and 5.8 times the mobile data usage over the same month in 2010 and 2009 respectively. The adequate supply of radio spectrum to meet the incessant demand for additional network capacity is critical to the healthy development of the mobile industry.

3. On 19 December 2011, the Telecommunications Authority (“TA”) published the updated Spectrum Release Plan (“SRP”) to inform the industry of the potential supply of radio spectrum to the market within the 3-year period of 2012 – 2014¹. According to the SRP, a total of 50 MHz of radio spectrum in the 2515 – 2540 MHz band and 2635 – 2660 MHz band (the “2.5/2.6 GHz Band”) will be available for assignment.

¹ The SRP is available at <http://www.ofta.gov.hk/en/freq-spec/plan2012.pdf>.

4. Under sections 32G, 32H and 32I² of the Telecommunications Ordinance (Cap. 106) (the “Ordinance”), if the TA is to release radio spectrum for assignment subject to payment of spectrum utilization fee (“SUF”), he shall carry out consultation with the telecommunications industry and parties affected by the exercise. In this connection, OFTA issued a public consultation paper on 29 December 2011 to solicit views from the industry and interested parties about the arrangements of the radio spectrum assignment in the 2.5/2.6 GHz Band and related licensing matters.

Assignment of the Available Radio Spectrum

Method of Assignment

5. According to the Radio Spectrum Policy Framework³ (“RSPF”) promulgated by the Government in April 2007, a market-based approach for radio spectrum assignment is adopted wherever the TA considers that there is likely to be competing demand from providers of non-Government services, unless there are overriding public policy reasons to do otherwise.

6. The available radio spectrum in the 2.5/2.6 GHz Band is suitable for the provision of wireless broadband services. Taking into account the encouraging results of the TA’s recent auctions of radio spectrum suitable for the provision of wireless broadband services and the rapid growth of mobile data service, the TA believes that there will be competing demands for spectrum in the 2.5/2.6 GHz Band. In line with the RSPF, the TA proposes that a market-based approach for assignment of the concerned radio spectrum should be adopted. Assignment by auction is the most appropriate market means for the assignment as it provides a fair, transparent, objective and economically efficient means to determine to whom the spectrum should be assigned.

² The powers for the TA to manage the radio spectrum are provided under 32G (spectrum management), section 32H (power to allocate frequency), and section 32I (spectrum utilization fee) of the Ordinance.

³ The document can be found at http://www.cedb.gov.hk/ctb/eng/telecom/topical_b.htm.

Eligibility of Bidders and Qualification Requirements

7. A total of 50 MHz of spectrum is proposed to be released in this exercise. With this amount of spectrum, it is feasible for a new entrant to acquire enough spectrum for setting up an entirely new territory-wide public mobile network. Alternatively, existing mobile network operators (“MNOs”) may also acquire the radio spectrum to expand their network capacity and improve their service to meet the booming market demand. Following the time-proven pro-competition and pro-market policy, the TA proposes that the available radio spectrum in the 2.5/2.6 GHz Band should be open for bidding by all interested parties, including new entrants and existing MNOs.

8. Similar to the previous spectrum auctions, the TA considers that there should only be minimal qualification requirements for registering bidders’ interest and demonstrating their financial capability⁴.

Band Plan

9. The 50 MHz of spectrum in the 2.5/2.6 GHz Band are available in the form of paired frequency blocks of 25 MHz x 2. To cater for different amount of radio spectrum that may be required by new entrants and existing MNOs and having taken into account the potential technology that may be deployed, the TA proposes to divide the available spectrum into five paired frequency bands, each with a bandwidth of 5 MHz x 2, as shown in Figure 1 below -

Figure 1: Frequency bands and bandwidths

Frequency bands	Frequency range (in MHz)	Bandwidth
A1	2515 – 2520 paired with 2635 – 2640	10 MHz
A2	2520 – 2525 paired with 2640 – 2645	10 MHz
A3	2525 – 2530 paired with 2645 – 2650	10 MHz
A4	2530 – 2535 paired with 2650 – 2655	10 MHz
A5	2535 – 2540 paired with 2655 – 2660	10 MHz

⁴ The TA proposes to require bidders to (a) lodge with the Government a specified amount of deposit, which may be forfeited if the bidder violates the auction rules or fails to take up the licence after winning the auction, and (b) submit relevant supporting information deemed necessary by the TA.

Spectrum Cap

10. At present, about a total of 470 MHz of the radio spectrum has been assigned for the provision of mobile services by the five major MNOs, and over 95% of the radio spectrum is assigned on a technology and service neutral basis⁵. The total spectrum available for auction this time is 50 MHz and this represents only about 10% of the existing pool of assigned spectrum for mobile services. Given that the mobile market in Hong Kong is extremely competitive and there is no regulatory barrier for any of the incumbent 2G and 3G MNOs to upgrade their networks using the state-of-art technology for providing high capacity communications services, the TA is of the preliminary view that it is not necessary to impose any restriction on the amount of spectrum that a bidder can acquire in the proposed auction (i.e. a spectrum cap for each bidder). In case any potential anti-competitive issue may arise, it can be adequately dealt with by the existing competition provisions in the Ordinance.

Technology Neutrality

11. Consistent with the established technology neutral policy, the TA will not mandate any specific technology to be adopted for the provision of services using the radio spectrum in the 2.5/2.6 GHz Band. The only licensing requirement that the TA will impose is that the technology to be deployed should be a recognised open standard and it should not cause any harmful interference to legitimate services operating in the adjacent frequency bands.

Auction Format

12. The TA proposes that the frequency bands should be assigned by way of a single auction using the Simultaneous Multi-Round Ascending (“SMRA”) format. Under this format, all available frequency bands in this exercise will be auctioned simultaneously over multiple rounds with prices changing on each frequency band independently. The SMRA auction format is widely used in other advanced economies and has been adopted by the TA in a number of radio spectrum auctions in Hong Kong in recent years⁶. The arrangement is well-tested and the industry is familiar with it.

⁵ The exceptions are the 825-832.5 MHz paired with 870-877.5 MHz band assigned for CDMA2000 services in November 2008, and the 678-686 MHz band assigned for broadcast-type mobile TV services in August 2010.

⁶ The TA adopted SMRA format in the auction of radio spectrum in the 2.3 GHz and 2.5/2.6 GHz bands in January 2009, 1800 MHz band in June 2009, 850MHz, 900 MHz and 2 GHz bands in February/March 2011.

Licensing Arrangements

Licensing and Validity Periods

13. Following the implementation of a single, harmonized licensing regime for the provision of facility-based telecommunications services with effect from August 2008, the TA issues unified carrier licences (“UCL”) with a term of 15 years for the provision of fixed, mobile and/or converged services. For the proposed assignment, the successful bidders, be they incumbents or new entrants, will be issued each with a new UCL. The validity period of the radio spectrum assignment and the UCL will both last for 15 years.

Network and Service Rollout Obligation

14. In order to prevent spectrum hoarding⁷ and to ensure the timely provision of advanced telecommunications services for the benefit of the general public, network and service rollout obligation will be imposed on the successful bidders, requiring them to provide a minimum coverage of 50% of the population of their mobile services, or a minimum coverage of 200 commercial and/or residential buildings of their fixed services, within five years from the issue of the licence⁸. The successful bidders will be required to lodge a performance bond to ensure compliance with the rollout obligations.

SUF

15. Under the RSPF, SUF will in principle be applicable for all non-Government use of radio spectrum. The SUF of using the radio spectrum in the 2.5/2.6 GHz Band for commercial applications would be determined by the auction. For the purpose of the auction, each frequency band will be subject to a reserve price which will reflect the economic value of the radio spectrum as a scarce public resource. The Secretary for Commerce and Economic Development will specify the reserve price nearer the time of the auction.

⁷ Spectrum hoarding means acquiring some spectrum and not using it with the purpose of preventing new entry into the market or reducing competition.

⁸ The same requirement has been imposed for the 2.5/2.6 GHz bands spectrum licensed in March 2009.

16. Regarding the SUF payment method, a successful bidder is required to pay upfront the SUF in lump sum. This is simple and easy to administer and has been adopted in a number of previous radio spectrum auctions in Hong Kong⁹. The arrangement should be well accepted by and familiar to the industry.

Way Forward

17. The consultation will last for two months and the TA will carefully consider all submissions received before deciding on the way-forward. Should the TA decide to proceed with the auction of the available radio spectrum in the 2.5/2.6 GHz Band, we will initiate the necessary amendments to the relevant subsidiary legislation¹⁰ to enable the release of the spectrum by auction and the levy of SUF. The auction of the radio spectrum is tentatively planned to take place in the first quarter of 2013.

**Commerce and Economic Development Bureau
(Communications and Technology Branch)
Office of the Telecommunications Authority
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⁹ The TA adopted the upfront lump sum payment method in the CDMA 2000 auction in October 2007, the 2.3 GHz and 2.5/2.6 GHz bands auction in January 2009, the UHF band auction in June 2010, and the 850MHz, 900 MHz and 2 GHz bands auction in February/March 2011.

¹⁰ Subject to the outcome of the consultation, the TA will recommend to the Secretary for Commerce and Economic Development to make necessary amendments to the regulation under section 32I(2) of the Ordinance to determine the SUF of the frequency bands by auction. The TA will also make an order under section 32I(1) of the Ordinance designating the frequency bands to be subject to payment of the SUF.