

**For discussion
on 11 January 2010**

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

**Public Consultation on the
Assignment of the Available Frequency Spectrum
in the 850 MHz, 900 MHz and 2 GHz Bands
for Public Mobile Services**

Purpose

This paper briefs Members on the consultation exercise launched by the Office of the Telecommunications Authority (“OFTA”) on 20 November 2009 concerning the assignment of the available frequency spectrum in the 850 MHz band, 900 MHz band and 2 GHz band. The consultation period will end on 20 January 2010.

Background

2. Mobile telephony services in Hong Kong have continued to achieve significant growth in recent years, with a market penetration of mobile services reaching 170% as of August 2009. The supply of adequate radio spectrum to allow for the expansion of the relevant services is critical to the industry’s development.

3. On 27 April 2009, the Telecommunications Authority (“TA”) published the updated Spectrum Release Plan (“SRP”)¹ to inform the industry of the potential supply of frequency spectrum which might be made available to the market in 2009/10 – 2011/12. According to the SRP, frequency spectrum in the following bands is available for assignment:-

850 MHz Band

832.5 – 837.5 MHz paired with 877.5 – 882.5 MHz (“Block A”)

¹ The SRP is available at <http://www.ofta.gov.hk/en/freq-spec/plan2009.pdf>.

900 MHz Band

885 – 890 MHz paired with 930 – 935 MHz (“Block B”)

2 GHz Band

2010 – 2014.8 MHz unpaired (“Block C1”)

2014.8 – 2019.7 MHz unpaired (“Block C2”)

The SRP also indicated that public consultation would be required under sections 32G, 32H and 32I of the Telecommunications Ordinance (Cap. 106) to release the above frequency spectrum, and that this will take place in 2009/2010. The OFTA issued a public consultation paper on 20 November 2009 to seek comments from the industry and interested parties on the release of the above bands of radio spectrum.

The Available Frequency Spectrum

850 MHz Band

4. Block A consists of a total of 5 MHz x 2 of frequency spectrum. 1.25 MHz x 2 of the spectrum in Block A is currently temporarily assigned to one of the mobile network operators (“MNOs”) and it will be returned to OFTA by 19 November 2010. After that date, the whole of Block A can be made available for assignment for provision of public mobile services.

900 MHz Band

5. Block B consists of a total of 5 MHz x 2 of frequency spectrum. In December 2008, we briefed this Panel (vide Panel Paper LC Paper No. CB(1)326/08-09(03)) on the decision of the Administration in respect of assigning available frequency spectrum in the 900 MHz and 1800 MHz bands. We then decided to release the spectrum in 1800 MHz band only, the auction of which was completed in June 2009. We deferred the decision on the release of the available spectrum in the 900 MHz band pending the finalisation of the design of the Hong Kong section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link (“XRL”). We indicated at the time that we would further assess the technical feasibility of the shared use of the 900 MHz band for public mobile service and the new

railway, and would consult the industry again in due course on the assignment of the available frequency spectrum in the 900 MHz band.

6. The preliminary design of the XRL has been completed. It will run mainly within underground tunnels. The TA is of the view that it would be feasible for XRL, and other cross-border railways running within underground tunnels, to share the spectrum with the public mobile services. Block B is thus ready for assignment for public mobile service, but on a shared basis, as follows –

- (a) Deployment of the spectrum of 885 – 889 MHz paired with 930 – 934 MHz (4 MHz x 2) for the railway communications and control system of the cross border railways (including the XRL and possibly the Hong Kong-Shenzhen Western Express Line);
- (b) Provision of public mobile services in the country parks and remote areas; and
- (c) Provision of public mobile services elsewhere in the territory.

2 GHz Band

7. Block C1 and Block C2 consist of a total of 9.7 MHz of spectrum, and are readily available for assignment for public mobile services. Possible deployment in this band is mobile services based on Time Division Duplex (“TDD”) standards, such as the TDD standard developed by the 3rd Generation Partnership Project and the Time Division-Synchronous Code Division Multiple Access standard championed by the Mainland. In line with the existing frequency band plan, the TA will divide the available frequency spectrum in Block C into two blocks, with Block C1 having 4.8 MHz and Block C2 having 4.9 MHz.

Assignment of the Spectrum

Market-based Approach and Spectrum Utilisation Fees (“SUFs”)

8. According to the Radio Spectrum Policy Framework² promulgated

² The document can be found at: http://www.cedb.gov.hk/ctb/eng/telecom/topical_b.htm..

by the Government in 2007, a market-based approach for frequency 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. In line with the Radio Spectrum Policy Framework, other than the assignments mentioned in paragraphs 6(a) and (b), the TA proposes that a market-based approach for assignment of the frequencies should be adopted. Assignment by auction is regarded as the appropriate market means for spectrum resources as it provides a fair, transparent, objective and economically efficient means to determine to whom the spectrum should be assigned. The SUFs of using the spectrum would thus be determined by the auction. For the purpose of auction, each block of frequency spectrum will be subject to a reserve price which will reflect the economic value of the frequency spectrum as a scarce public resource. We will specify the reserve price nearer the time of the auction.

9. For the frequency assignment described in paragraph 6(a), the TA proposes to assign the spectrum on an administrative basis, taking into consideration that there is a need on public interest ground for the appropriate frequency spectrum for use by the railway communications and control system to ensure safe, seamless and reliable operations of the cross-border rail links. The TA also intends not to apply SUFs in this regard.

10. To encourage MNOs to improve coverage in the countryside, the Secretary of Commerce and Economic Development had decided to waive SUF for the use of radio spectrum to serve solely country parks and prescribed remote areas³. The Administration proposed and Members agreed in the Panel Paper LC Paper No. CB(1)326/08-09(03) that the use of radio spectrum in the 1800 MHz Band would not be subject to SUF if it was solely used for improving coverage in country parks and prescribed remote areas. To be consistent, the Administration proposes to maintain the same policy for the frequency assignment described in paragraph 6(b), i.e. the use of frequency spectrum in the 900 MHz band which is to be solely used for improving coverage in country parks and prescribed remote areas, should not be subject to SUF.

³ The country park and prescribed remote areas include those areas defined in the Country Parks Ordinance, Cap 208, plus three special locations in Sai Kung, Robin's Nest and the Lai Chi Wo Village in Sha Tau Kok respectively which do not fall within the country park areas.

Eligibility of Bidders and Spectrum Cap

11. A total of 29.7 MHz frequency spectrum is proposed to be released in this exercise. With this amount of spectrum, it is feasible for a new entrant to set up an entirely new territory-wide public mobile network. The TA therefore proposes that the four blocks of frequency spectrum should be open for bidding by any interested parties, including incumbent MNOs and new entrants, for the provision of public mobile services. Similar to the previous spectrum auctions, the TA considers that there should only be minimal qualification requirements for registering bidders' interest and for the demonstration of the financial capability of the bidders⁴.

12. At present, more than 430 MHz of the radio spectrum is assigned for mobile services. The total spectrum offered in this consultation exercise is 29.7 MHz and this represents a small fraction of the pool of existing assigned spectrum. 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 during the upcoming auction.

Technology Neutrality

13. In line with the established technology neutral policy, the TA will not mandate any specific technology to be adopted for provision of services with the use of this frequency spectrum. The only restriction is that the technology to be used should be a recognised open standard and it should not cause any harmful interference to services operating with frequencies in the adjacent frequency bands.

Auction Format

14. The TA proposes that these frequency bands should be assigned by way of a single auction using Simultaneous Multi-Round Ascending ("SMRA") format. Using this format, all available frequency bands will be auctioned simultaneously over multiple rounds with prices changing on each frequency band independently. The SMRA format is widely used in other

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.

advanced economies, such as the United States and the United Kingdom, and was also adopted by the Administration in the previous spectrum auctions, such as the auction of 3G radio spectrum in 2001, the radio spectrum in the 2.3 GHz and 2.5/2.6 GHz bands in January 2009, and 1800 MHz band in June 2009.

Licensing Arrangements

Licensing and Validity Period

15. Following the implementation of the unified carrier licensing regime 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. The successful bidders, be they incumbents or new entrants, will be issued with a new UCL. The validity period of the frequency assignment will last for 15 years and be coterminous with the term of the newly issued licence.

Network and Service Rollout Obligation

16. In order to prevent spectrum hoarding 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 of the frequency spectrum. The TA proposes to require the successful bidder to roll-out its network and service in order to provide a minimum coverage of 50% of the population⁵ within five years from the issue of the licence. The TA is also inclined to require successful bidders to lodge a performance bond to ensure compliance with the rollout obligations.

Open Network Access Requirement

17. At present, the 2G and 3G licensees are required under their licences to open up at least 30% of their network capacity for access by non-affiliated Mobile Virtual Network Operators or content providers. The terms and conditions for this requirement are referred to as Open Network Access (“ONA”). With a large number of wireless platforms and a high degree of

⁵ The same requirement has been imposed for the 3G spectrum licensed in October 2001 and spectrum in the 2.5/2.6 GHz band licensed in March 2009.

competition in the market nowadays, the TA considers that the market force should be able to address the need of the community and the industry more effectively and efficiently. Taking into consideration the current market situation, the TA does not intend to impose ONA requirement on the successful bidders of the spectrum bands in question.

18. In fact, the TA has not imposed any ONA requirement in the recent assignment of the CDMA2000 spectrum and spectrum in the 2.5/2.6 GHz band. The need or otherwise of the community for the ONA requirement has also been discussed extensively during the formulation of the licensing framework for these two frequency bands. The TA also noted that she has not received any request for regulatory intervention concerning the ONA requirement for 3G spectrum thus far. The TA has come to the view that the *ex-ante* ONA requirement appears to be unnecessary and out of line with the prevailing market situation. In view of the situation, the TA also proposes to lift the ONA requirement currently imposed on the 2G and 3G licensees in this consultation exercise.

Way Forward

19. To gauge the level of commercial interest in the four frequency blocks in question, the TA has invited separately expressions of interest from parties interested in the bidding for the relevant radio spectrum. Parties who are interested in operating public mobile services using the frequency spectrum concerned are invited to express their intention to OFTA on or before 20 January 2010. The TA will carefully consider all the submissions from respondents to the consultation paper and expressions of interest before making the decision. Should the TA decide to proceed with the auction of spectrum, we will initiate necessary amendments to the relevant subsidiary legislations to enable the release of the spectrum by auction and with payment of the SUF. The auction of the frequency spectrum is tentatively planned to take place in the last quarter of 2010.

**Commerce and Economic Development Bureau
Office of the Telecommunications Authority
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