

**Assignment of the Available Frequency Spectrum
in the 850 MHz, 900 MHz and 2 GHz Bands**

CONSULTATION PAPER

20 November 2009

INTRODUCTION

On 27 April 2009, the Telecommunications Authority (“TA”) published the updated Spectrum Release Plan (“SRP”)¹ to inform the industry 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

900 MHz Band

885 – 890 MHz paired with 930 – 935 MHz

2 GHz Band

2010 – 2019.7 MHz Unpaired

The SRP also indicated that the public consultation that would be required under sections 32G, 32H and 32I of the Telecommunications Ordinance (the “Ordinance”) (Cap. 106) to release the above frequency spectrum would be held in 2009/2010.

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

2. This consultation paper serves to solicit views from the industry and interested parties about their demands for the above mentioned available frequency spectrum, the arrangements of the frequency assignment and related licensing matters. For the avoidance of doubt, the views and the proposed approaches expressed in this paper in relation to various issues on the subject matter are for the sole purpose of consultation and do not represent the decision of the TA on the issues. These issues remain to be the subject of consideration by the TA. Nothing in this paper shall be construed as indicating that the TA has formed any final opinion or decision on these issues. To gauge the level of commercial interest about the bidding of the relevant spectrum, the TA will separately invite expression of interest from interested parties within the same time frame.

THE AVAILABLE FREQUENCY SPECTRUM

850 MHz Band

3. In October 2006, the TA consulted the public about making available the frequency band of 825 – 835 MHz paired with 870 – 880 MHz (10 MHz x 2) for the provision of CDMA2000 services through an open auction. Having considered the submissions received, the TA decided to release the frequency band of 825 – 832.5 MHz paired with 870 – 877.5 MHz (7.5 MHz x 2) for CDMA2000 services. The spectrum was subsequently assigned to PCCW-HKT Telephone Limited (“PCCW”) on 20 November 2008 for a period of 15 years. The CDMA2000 network as the fifth third generation (“3G”) mobile network in Hong Kong was launched in November 2008.

4. Taking into account the technical specification of certain legacy models of CDMA handsets, the TA acceded to the request of PCCW in assigning the

frequency spectrum of 832.865 – 834.115 MHz paired with 877.865 – 879.115 MHz (1.25 MHz x 2) to PCCW for a period of two years up to 19 November 2010. As a condition incidental to this temporary assignment², PCCW shall not use the radio spectrum of 829.995 – 831.245 MHz paired with 874.995 – 876.245 MHz (1.25 MHz x 2) during the period. Subject to the outcome of this consultation, the frequency band of 832.5 – 837.5 MHz paired with 877.5 – 882.5 MHz (5 MHz x 2) (denoted as “Block A” hereafter) in the 850 MHz band (see Figure 1) can be made available for assignment after 19 November 2010.

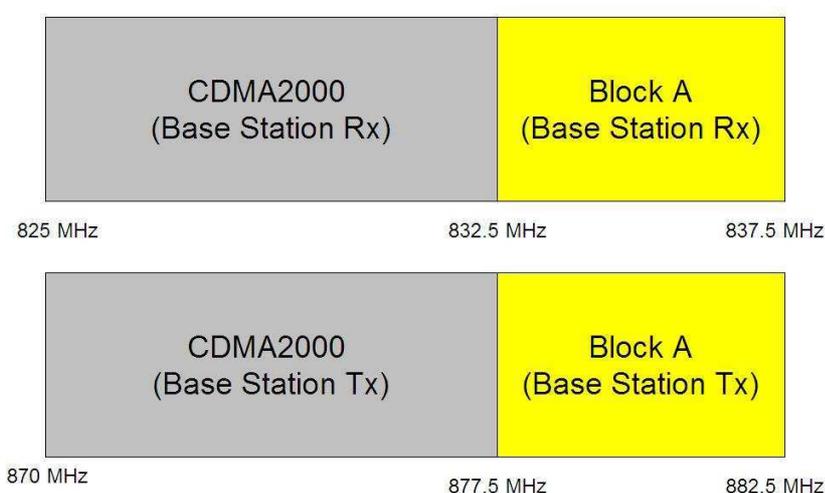


Figure 1 The available radio spectrum (Block A) in the 850 MHz band

900 MHz Band

5. On 4 July 2008, the TA issued a statement promulgating the TA’s decision on the assignment of 885 – 890 MHz paired with 930 – 935 MHz (denoted as “Block B” hereafter) in the 900 MHz band (see Figure 2) and 1780.1 – 1785 MHz paired with 1875.1 – 1880 MHz in the 1800 MHz band. The TA decided to release the 1780.1 – 1785 MHz paired with 1875.1 – 1880 MHz in the 1800 MHz band to the existing mobile network operators

² The TA Statement entitled “Frequency Assignment for Provision of CDMA2000 Service” issued on 20 November 2008 refers.

(“MNO”s) for expansion of their public mobile services. The spectrum was subsequently assigned via an open auction to three incumbent MNOs in June/July 2009 for a period of up to 29 September 2021. As for the frequency spectrum in Block B, because of the considerations detailed in the following paragraph, the TA decided to defer the decision pending the finalization of the design of the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link.

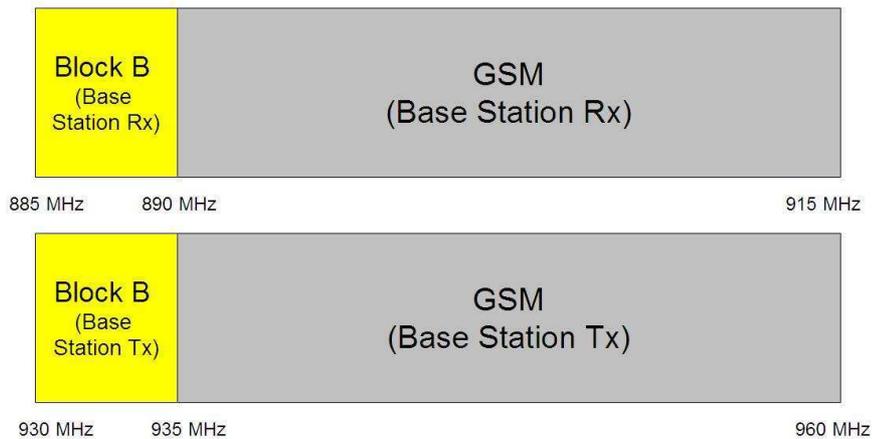


Figure 2 The available radio spectrum (Block B) in the 900 MHz band

Guangzhou-Shenzhen-Hong Kong Express Rail Link (“XRL”)

6. XRL will be a new cross border railway connecting Hong Kong, Shenzhen and Guangzhou. The Government will build the Hong Kong Section of XRL with the construction work scheduled to commence at end 2009 and the railway to operate by 2015. As the Ministry of Railways has decided to adopt the railway communications and control system based on GSM-R³ for the XRL and the frequency band of 885 – 889 MHz paired with 930 – 934 MHz (4 MHz x 2) (denoted as “Block bb” hereafter) are to be used for such a purpose, there is a need to adopt the same communications system

³ GSM-R is a wireless communication standard for railway network based on the European GSM standard.

and use the same operating frequencies along the XRL from the Mainland to Hong Kong to ensure safe, seamless and reliable operations. In this connection, the Highways Department as the government department managing the operation of the XRL has requested the TA to assign the relevant frequency spectrum from 2013 for its necessary installation, testing and operation of the GSM-R system for the XRL.

7. The preliminary design of Hong Kong Section of the XRL has been completed⁴. The Hong Kong Section of XRL will mainly be built underground with a length of 26 km. Its terminus will be located at West Kowloon. There will be seven tunnel ventilation buildings and an emergency access point along the XRL in Hong Kong, plus another ventilation building being part of the plant building for the terminus at West Kowloon. Besides, an emergency rescue station cum stabling siding which is at the ground level will be located at Shek Kong. The alignment for Hong Kong Section of XRL is shown in Annex 1.

8. As there is a need to ensure compatibility and seamless radiocommunications along the entire route of the XRL, the TA is minded to assign the required frequency spectrum within Block bb to the Highways Department for its deployment of the GSM-R system for railway communications and control along the XRL and other future cross border railways. The frequency assignment for use along XRL will be around 2013. Given the XRL will run mainly within underground tunnel, the TA is of the view that it is technically feasible for the XRL to use the same radio spectrum on a sharing basis with the public mobile services. However, to avoid possible interference between the two services there is a need for close coordination between the railway operator and the MNO assigned with the same radio spectrum.

⁴ The plan of the XRL is available at <http://www.hyd.gov.hk/eng/major/road/rail/xrl/index.htm>.

Hong Kong-Shenzhen Western Express Line (“WEL”)

9. To foster closer cooperation between the Hong Kong International Airport and the Shenzhen Airport, the Government and the Shenzhen Municipal Government set up a Joint Task Force on Airport Co-operation between Hong Kong and Shenzhen (the “Task Force”) in January 2008 to follow up, among others, the proposal of establishing a connecting rail link between the two airports and between the western part of Hong Kong and Shenzhen. The joint preliminary study commissioned by the Task Force has concluded that the proposal was technically feasible.

10. Under the preliminary project design, the Hong Kong Section of the proposed WEL and its stations will be underground except for a depot which will be at the ground level and possibly located at Hung Shui Kiu. The tentative alignment of WEL can be found in Annex 2. According to the Highways Department, the proposed WEL is still at the preliminary feasibility study stage and it is possible that WEL will also adopt the GSM-R technology for railway system and communications.

11. As mentioned above, the TA intends to assign the required frequency spectrum within Block bb to the Highways Department for its deployment of the GSM-R system for railway communications and control along the future cross border railways. This would include assignment for use along WEL if it is confirmed that GSM-R system is to be deployed. Given the WEL will also be underground within the territory, the TA holds the view that the sharing of Block bb, which is a sub-band of Block B, for the public mobile services and the railway operations (including XRL and WEL) is technically feasible provided that the users of the same frequency spectrum shall work together closely in order to avoid mutual interference.

Use in Country Parks and Remote Areas

12. Since 2006, frequency channels in the 900 MHz (including some in Block B) and 1800 MHz bands are assigned to MNOs to provide service coverage in the country parks and remote areas (the “Designated Areas”). To encourage MNOs to provide service in these areas, the use of the relevant frequency channels serving the Designated Areas⁵ is not subject to Spectrum Utilization Fee (“SUF”). Given the importance of mobile service in the Designated Areas, the TA will continue to give priority to assign the radio spectrum in the 900 MHz (including those in Block B) and 1800 MHz bands to base stations serving these areas. Nonetheless, the TA is of the view that further assignment of the frequency channels in Block B for provision of services outside the Designated Areas is possible although close coordination among the users of the same frequency spectrum will be needed.

Policy Consideration for Block B

13. In accordance with the Spectrum Policy Framework⁶ (“SPF”) promulgated by the Government in 2007, a market-based approach⁷ will be used for frequency assignment whenever the TA considers that there are likely to be competing demands for the frequency spectrum, unless there are overriding public policy reasons to do otherwise.

14. As mentioned in the preceding paragraphs, the TA proposes to assign on a sharing basis Block bb for railway communication use (including XRL, WEL and any other future cross border railways), and Block B for provision of public mobile services within the Designated Areas. It is in the public

⁵ The Designated Areas are specified in the Gazette of “Notice of the Designated Area” published on 3 April 2009 which can be downloaded at <http://www.ofta.gov.hk/en/industry/1800/gn2068.pdf>.

⁶ The document is available at <http://www.cedb.gov.hk/ctb/eng/legco/pdf/spectrum.pdf>.

⁷ Market-based approach for spectrum management refers to the methods relying on market forces to ensure the efficient use of radio spectrum as a scarce public resource.

interest for the Government to continue to support the provision of public mobile services in the Designated Areas to meet the communications needs of hikers. There is also a need on public interest ground for appropriate spectrum for use by the GSM-R system to ensure safe, seamless and reliable operations of the future cross-border rail links. Based on these policy considerations, the TA would therefore assign administratively Block bb to the Highways Department for its deployment of the GSM-R system to any future cross border railways, and Block B to MNOs for provision of public mobile services within the Designated Areas. As for the assignment of Block B for provision of public mobile services outside the Designated Areas, the TA is minded to adopt the market-based approach.

2 GHz Band

15. The International Telecommunication Union has designated the frequency band of 2010 – 2025 MHz for the implementation of mobile services using the International Mobile Telecommunications-2000⁸ (“IMT-2000”) set of standards. At present, popular technical standards for this frequency band include the Time Division Duplex (“TDD”) standard developed by the 3rd Generation Partnership Project (“3GPP”) and the Time Division-Synchronous Code Division Multiple Access (“TD-SCDMA”) standard championed by the Mainland.

16. In January 2009, the Ministry of Industry and Information Technology issued three 3G licences for operation of 3G mobile networks in the Mainland. China Mobile was awarded a licence to operate a 3G network based on the TD-SCDMA standard. It has launched service in the major cities of the Mainland and has plans to provide service to all the cities in the Mainland by 2011.

⁸ <http://www.itu.int/osg/spu/imt-2000/technology.html>.

17. According to the SRP, the TDD spectrum 2010 – 2019.7 MHz (denoted as “Block C1 and C2” hereafter) in the 2 GHz band is available for assignment (see Figure 3).

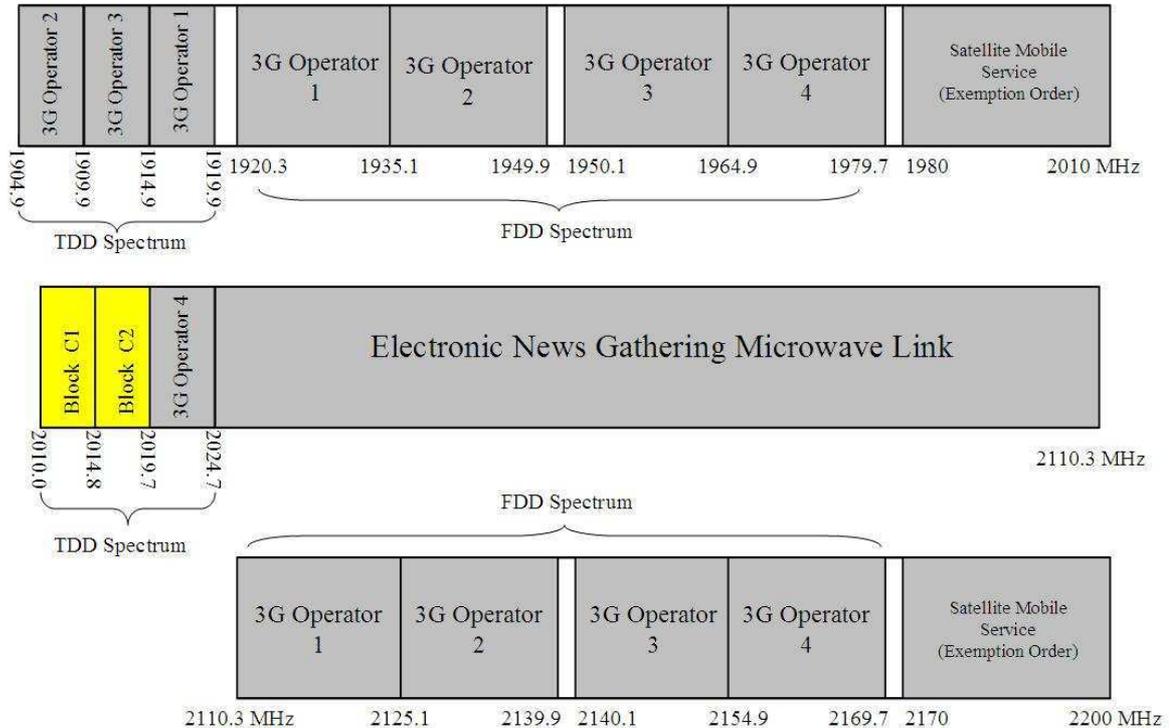


Figure 3 The available radio spectrum (Block C1 and C2) in the 2 GHz band

18. In September 2001, four MNOs were assigned by auction with 5 MHz of unpaired spectrum and 14.8 MHz x 2 paired spectrum in the 2 GHz band for provision of 3G mobile services. In line with the existing 2 GHz TDD band plan, the TA will divide the available frequency spectrum in the 2GHz band into similar block size. Block C1 having 4.8 MHz and Block C2 having 4.9 MHz will be available for assignment. According to the TD-SCDMA standard, each TD-SCDMA carrier occupies 1.6 MHz channel bandwidth and 4.8/4.9 MHz bandwidth can support up to three carriers.

ASSIGNMENT OF THE AVAILABLE RADIO SPECTRUM

Market-based Approach

19. In line with the SPF⁹, a market-based approach for frequency assignment will be adopted. Assignment by auction is regarded as the most appropriate market means for the assignment of spectrum resources as it provides a fair, transparent, objective and economically efficient means to determine to whom the spectrum should be assigned.

Eligibility of Bidders

20. A total of 20 MHz of paired spectrum (i.e. 2 blocks of 5 MHz x 2) and 9.7 MHz of unpaired spectrum (i.e. 2 blocks of 4.8 MHz and 4.9 MHz) are 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 is of the preliminary view that the four blocks of frequency spectrum should be open for bidding by any interested parties, including existing MNOs and new entrants, for the provision of public mobile services.

Question (1): Do you agree that the frequency blocks should be open for bidding by any interested parties, including the existing MNOs and new entrants, for the provision of public mobile services?

Spectrum Cap

21. The existing mobile market is extremely competitive. In June 2009, the mobile service penetration in Hong Kong reached 167%, one of the

⁹ In line with the Spectrum Policy Framework, a market-based approach for frequency assignment is adopted wherever the TA 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.

highest in the world. There are five MNOs offering competitive 2G and 3G services. With the recent assignment of spectrum in the 2.5/2.6 GHz bands, more advanced and innovative mobile broadband services are expected in the near future. 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 rather small fraction of the pool of existing assigned spectrum. Even if all four frequency blocks are acquired by a single incumbent MNO, it will not change the competition landscape significantly. The TA is therefore 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.

Question (2): Do you agree that there should be no spectrum cap imposed upon any bidder in the auction to be held for Blocks A, B, C1 and C2?

Technology Neutrality

22. 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 these frequency blocks (i.e. Blocks A, B, C1 and C2). 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. MNOs which will be successful in getting this spectrum may opt for technologies which best meet their business plans. This policy will enable MNOs to deploy new and advanced technologies in a timely manner that may appear in the market in future.

Technical Consideration

850 MHz Band

23. Block A with a bandwidth of 5 MHz x 2 in the 850 MHz band is at the upper end of the frequency block already assigned for CDMA2000 services. In view of the limited amount of spectrum available in the 850 MHz Band, the TA does not contemplate further division of the 5 MHz x 2 spectrum into smaller blocks for assignment.

24. In the band plan shown in Figure 4 below, there is a guard band of 2.5 MHz between Block A (base transmitting) and Block B (base receiving). However, it is still necessary for the successful bidder of Block A to prevent and tackle any potential interference to the systems operating in Block B, in particular the GSM-R system(s) for the cross border trains. In case of unresolved interference, priority of use will generally be given in the following descending order: GSM-R system(s) for railway operation, base stations of another MNO which have an earlier installation date.



Figure 4 Guard band between Block A and Block B

900 MHz Band

25. As discussed in paragraphs 5 to 14, some frequency channels in Block B have been assigned to MNOs for coverage in the Designated Areas, and Block bb has been reserved for the GSM-R system(s) to be used along the routes of the XRL and WEL and any other future cross border railways. To avoid radio interference between the different systems, the proposed assignment of Block B is restricted for provision of mobile services outside the Designated Areas and away from the rail link(s). Because of this geographical restriction, the TA does not contemplate further division of the 5 MHz x 2 spectrum into smaller blocks for assignment as this will render the deployment difficult and inefficient.

26. It is necessary for the successful bidder of Block B to coordinate closely and to resolve any co-channel and adjacent channel interference issues with the railway operator and MNOs using frequency channels in Block B in the Designated Areas. In case of unresolved interference, priority of use will generally be given in the following descending order: GSM-R system(s) for railway operation, base stations for public mobile services within the Designated Areas and last of all, base stations for public mobile services outside the Designated Areas.

2 GHz Band

27. According to the SRP, the 2 GHz band is allocated for fixed and mobile services. The available TDD spectrum in the 2 GHz band will be used by the existing 3G operators and the successful bidders of Block C1 and C2. All parties using the 2 GHz band should prevent or tackle any potential interference to and from base stations in the vicinity.

Question (3): Do you have any view about the interference control measures to be applied to the successful bidder(s) of the four frequency blocks?

METHOD OF ASSIGNMENT

Pre-qualification Requirements

28. Similar to the previous spectrum auctions, the TA considers that there should only be minimal qualification requirements for registering of bidders' interest and for demonstration of the financial capability of the bidders. The TA preliminarily considers that the following are required for a bidder to be qualified:

- (a) Lodge with the Government of a specified amount of deposit which may be forfeited if it violates the auction rules or fails to take up the licence after winning the auction;
- (b) Submit any other relevant supporting information that the TA may deem necessary.

Auction Format

29. Subject to the outcome of this consultation and the expression of interest on Blocks A, B, C1 and C2 from interested parties, the TA is of the preliminary view that these frequency bands should be assigned by way of a single auction using Simultaneous Multi-Round Ascending ("SMRA") format¹⁰. Using this format, all available frequency bands will be auctioned simultaneously over multiple rounds with price changing on each frequency band independently. Bidders may bid for one or more frequency bands, or all of them. Bidders may also switch their bids among frequency bands from round to round, and withdraw highest bid submitted in the immediately

¹⁰ Except for the proposed assignment within the frequency band Block B to the future cross border railway operators for railway communications and to MNOs for provision of public mobile services within Designated Areas. See paragraph 14.

preceding round subject to a potential withdrawal liability.

30. SMRA auction format is widely used in many advanced economies, such as the United States and the United Kingdom. The TA also adopted this format in the auction of radio spectrum in the 2.3 GHz and 2.5/2.6 GHz bands in January 2009 and 1800 MHz band in June 2009. For bidders who wish to acquire more than one frequency band and not less, the withdrawal mechanism in this auction format has the benefit of minimizing the risk of winning some but not all of the bands in which they are interested. For bidders who wish to acquire one frequency band only, they may bid on a particular band of frequency. Another potential advantage of adopting this auction format is that it saves time and administrative efforts of both bidders and the auctioneer who otherwise would need to arrange and participate in separate auctions for each of the frequency band concerned.

31. As the release of the available radio spectrum is subject to the outcome of this consultation process and the subsequent amendment of subsidiary legislation, the TA plans to conduct the auction in the last quarter of 2010 at the earliest.

Question (4): Do you have any view on the proposed auction format and the time frame for conducting the auction?

LICENSING ARRANGEMENT

Licensing and Validity Period

32. 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. For an incumbent MNO, it may apply to the TA for combining its existing UCL with the new UCL subsequent to the grant of the new licence.

Network and Service Rollout Obligation

33. In order to prevent spectrum hoarding and to ensure the timely provision of advanced telecommunications services for the benefits of the general public, network and service rollout obligation will in general be imposed on the successful bidders of the frequency spectrum.

34. In this connection, 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 population¹¹ within five years from the issue of the licence. The TA is also inclined to require the successful bidder to lodge a performance bond to ensure its compliance with the rollout obligations. The proposed arrangement is in line with those adopted in the recent assignment of the spectrum in the 2.5/2.6 GHz band. The amount of the performance bond will be specified by the TA nearer the time of the auction.

35. While a new entrant may need to build an entirely new network, an incumbent MNO may deploy the newly acquired frequency spectrum in existing or planned new base stations for the purpose of expanding the existing network capacity. The TA is inclined to mandate the successful bidder, be it a new entrant or an incumbent MNO, to lodge a performance bond of the same amount for safeguarding its compliance with the same rollout obligation, i.e. a minimum coverage of 50% of population within five years from the grant of licence. In case the successful bidder is an

¹¹ 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.

incumbent MNO, it may make use of its existing network (instead of establishing a completely new network) to fulfil the proposed network rollout requirement if the newly acquired spectrum is demonstrated to serve the purpose of expanding its existing network. Once the roll-out obligation is fulfilled, the performance bond will be discharged.

Question (5): Do you agree that the licensee assigned with Block A, B, C1 or C2 should be subject to the network and service rollout obligation to provide a minimum coverage of 50% of population within five years from the grant of the licence?

Question (6): Do you agree that the successful bidder for Block A, B, C1 or C2 shall lodge a performance bond as a guarantee of its compliance with the aforesaid network and service rollout obligation?

Open Network Access Requirement

36. The MNOs which have been assigned with 3G spectrum in 2001 are required under their licences to open at least 30% of their network capacity for access by non-affiliated mobile virtual network operators or content providers. This is known as the Open Network Access (“ONA”) requirement. The terms and conditions of the access are to be determined by the relevant parties through commercial negotiation and the TA will only intervene as the last resort in the event of a dispute over access. While the ONA requirement is also imposed on the 2G licensees when their licences were renewed in 2005 and 2006, the TA has decided that the ONA requirement shall not apply to them for the first six years¹², and may consider granting extension to the waiver for the remaining nine years assignment period.

¹² The TA Statement entitled “Licensing of Mobile Services on Expiry of Existing Licences for Second Generation Mobile Services” issued on 29 November 2004 refers.

37. The TA previously consulted the industry in relation to the withdrawal of the ONA requirement for 2G and 3G licensees and decided in early 2007¹³ that more time should be allowed for the industry to consider the relevant issues in detail before deciding whether the ONA requirements under all the existing 2G and 3G licences should be withdrawn. With the lapse of time and rapid changes in the environment of the telecommunications market in the last few years and considering the fact that the waiver of the ONA requirement imposed on the 2G licensees will expire in 2011 and 2012, the TA would like to revisit the issue in this consultation paper.

38. In fact, the TA has no longer 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 he has not received any request for regulatory intervention concerning the ONA requirement for 3G spectrum thus far.

39. 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 situations. This is especially so when a large number of mobile networks are operating in the market and with the release of additional spectrum to the market, more networks are going to be built. It is believed that market force should efficiently serve the community in the years ahead. The TA is therefore of the preliminary view that the ONA requirements as applicable to the existing 2G and 3G licensees should also be withdrawn. Subject to the outcome of this consultation, the TA will liaise with the existing licensees to remove the

¹³ It was promulgated in the TA statement entitled "Licensing of Spectrum in the 850 MHz Band to Enable the Provision of CDMA2000 Service" dated 27 April 2007. The document is available at <http://www.ofta.gov.hk/en/tas/mobile/ta20070427.pdf>.

relevant licence conditions concerning the ONA requirements.

40. To maintain a level playing field and taking into consideration the relevance of the ONA requirements in the current market conditions, the TA proposes that it is not necessary to impose any ONA obligation on the networks making use of Block A, B, C1 or C2 as well.

Question (7): Do you agree that the licensee assigned with Block A, B, C1 or C2 should not be subject to the ONA requirement?

Question (8): Do you agree that the ONA requirement currently imposed on the 2G and 3G licensees should be lifted?

SPECTRUM UTILIZATION FEE

41. Under the SPF, SUF will in principle be applicable for all non-Government use of frequency spectrum. At present, the frequency spectrum assigned for public mobile services is invariably subject to payment of SUF. It is therefore logical that SUF should be imposed on Blocks A, B, C1 and C2 assigned for commercial use. Given the purpose of the assignment of frequencies in Block bb to the Highways Department is to ensure compatibility and seamless radiocommunications along the future cross-border railways, the TA is not minded to impose SUF on such usage. Further, to encourage MNOs to provide service coverage to country parks and remote areas, it remains the Government's policy that the use of the relevant spectrum in Designated Areas only should not be subject to SUF.

42. Regarding the payment method of SUF payable for commercial use, the TA takes the following preliminary view. An upfront lump sum payment was adopted in 2.5/2.6 GHz band auction and CDMA2000 auction. This

method has the merit of being simple and easy to administer. The TA is inclined to adopt the same payment method for Bands A, B, C1 and C2. While the exact amount of SUF will be determined by 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 and which will be specified nearer the time of the auction.

43. At present, the use of frequency spectrum in the 900 / 1800 MHz bands and 1.9 – 2.2 GHz band for provision of public mobile services is subject to the payment of annual SUF. According to the SUF formula, the annual SUF is based on a minimum annual fee or 5% of the Network Turnover, whichever is greater. For the purpose of SUF calculation, Network Turnover is defined as the revenue arising from or attributable to the provision of any telecommunications services over any telecommunications network using the frequency bands to which the SUF relates.

44. The TA notes that if an incumbent MNO acquires Block B, C1 and C2, the frequency spectrum may be used interchangeably with its existing frequency spectrum. To save administrative effort to segregate the Network Turnover due to existing spectrum from the Network Turnover due to newly acquired spectrum, a simple pro-rata method is proposed to allocate the Network Turnover in proportion to the respective amount of radio spectrum¹⁴.

Question (9): Do you have any comment on adopting a one-off SUF payment for each of Block A, B, C1 and C2?

¹⁴ For example, if Network Turnover for an incumbent MNO holding existing frequency spectrum of 39.8 MHz in the 900 / 1800 MHz bands and newly acquired frequency spectrum of 10 MHz in Block B is HK\$100 million, the Network Turnover allocated to the existing frequency spectrum would be prorated to HK\$79.9 million only (i.e. HK\$100 million x 39.8MHz / 49.8 MHz). The remaining HK\$20.1 million of Network Turnover is not subject to the SUF formula since the incumbent MNO has already paid the upfront lump sum SUF for Block B.

INVITATION FOR COMMENTS

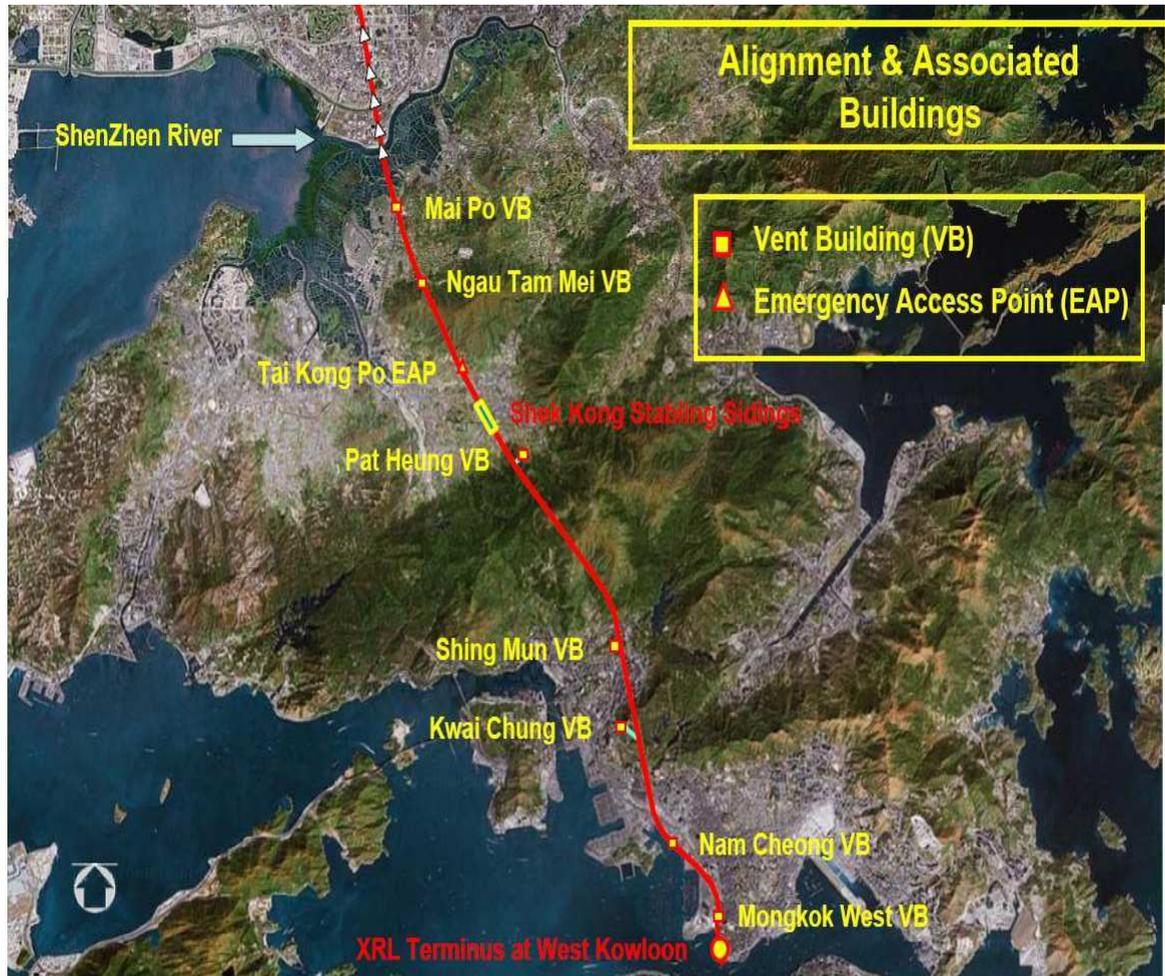
45. Views and comments on the issues raised in this consultation paper are invited and should reach the Office of the Telecommunications Authority **on or before 20 January 2010**. Any person who submits views and comments should note that the TA may publish all or any part of the submissions received and disclose the identity of the source in such manner as the TA sees fit. Any part of the submission which is considered commercially confidential should be clearly marked. The TA would take such markings into account in making his decision as to whether or not to disclose such information. To gauge the level of commercial interest in the four frequency blocks in question, the TA will invite separately the expression of interest from interested parties for bidding of the relevant radio spectrum. The TA will take due consideration on the submissions to the consultation and expressions of interest before making the decision. Submission should be addressed to:

Office of the Telecommunications Authority
29/F Wu Chung House
213 Queen's Road East
Wanchai
Hong Kong
Attention: Senior Regulatory Affairs Manager (R22)
Fax: (852) 2834 1501
E-mail: consult850-900-2000@ofta.gov.hk

An electronic copy of the submission should be provided by e-mail to the address indicated above.

Office of the Telecommunications Authority
20 November 2009

**Alignment of the Hong Kong Section of
Guangzhou – Shenzhen – Hong Kong Express Rail Link**



Tentative Alignment of Hong Kong – Shenzhen Western Express Line

