

**Arrangements for the Frequency Spectrum in
the 850 MHz Band upon Expiry of the Existing Assignment for
Public Mobile Telecommunications Services
and the Related Spectrum Utilisation Fee**

Consultation Paper

19 August 2020

PURPOSE

This consultation paper is jointly issued by the Communications Authority (“CA”) and the Secretary for Commerce and Economic Development (“SCED”) to seek views and comments of the telecommunications industry and other affected persons on the proposed arrangements for re-assignment of the spectrum in the 825 – 832.5 MHz band paired with the 870 – 877.5 MHz band (“850 MHz Band”) upon expiry of the existing assignment on 19 November 2023 and methods for setting the related spectrum utilisation fee (“SUF”).

BACKGROUND

2. In April 2007, having taken into account the responses to a public consultation¹, the former Telecommunications Authority (“TA”) issued the Statement entitled “Licensing of Spectrum in the 850 MHz Band to Enable the Provision of CDMA2000 Service”², setting out his decision to make available the paired spectrum of 2 x 7.5 MHz in the 850 MHz band for the provision of CDMA mobile services after 20 November 2008 based on the CDMA2000 standard.

3. The 15 MHz of spectrum in the 850 MHz Band was assigned in 2008 by way of an auction. Hong Kong Telecommunications (HKT) Limited (“HKT”), being the only bidder, was assigned the spectrum for the provision of CDMA2000 services for a term of 15 years which will expire on 19 November 2023. The assignment was made on the basis that the assignee should only use the CDMA2000 family of technical standards

¹ In 2006, the former TA issued a consultation paper entitled “Licensing of Spectrum in the 850 MHz Band to Enable the Provision of CDMA2000 Service” to review the need to release spectrum to the market to enable the continuity of CDMA mobile services in Hong Kong. CDMA means Code Division Multiple Access technology.

² The Statement is available at <https://tel.archives.ofca.gov.hk/en/tas/mobile/ta20070427.pdf>.

adopted by the 3rd Generation Partnership Project 2 (“3GPP2”) for provision of public mobile services under the mobile carrier licence granted to it (“CDMA2000 Licence”).

4. However, in contrast to Wideband CDMA, its competing standard for third generation (“3G”) mobile services, CDMA2000 failed to gain popularity in the world. Also, there has been a continuous decline in the number of CDMA2000 users globally over the last decade. In Hong Kong, HKT has been providing CDMA2000 service to inbound roamers only without offering any local service with the CDMA2000 Licence. The amount of roaming traffic has been declining over the recent years in line with the global trend.

5. The existing assignment of spectrum in the 850 MHz Band is due to expire in November 2023. Taking into account that this spectrum is currently used only for inbound roaming service and such traffic (if any) is negligible, the CA intends to make its decision and inform the existing assignee by early 2021 on the arrangements for re-assignment of spectrum in the 850 MHz Band. There will be a notice period of nearly three years which should be sufficient for the existing assignee to make necessary arrangements before the expiry of the current assignment.³

LEGAL AND REGULATORY FRAMEWORK

6. Under section 32G(1) of the Telecommunications Ordinance (Cap. 106) (“TO”), the CA has the statutory duty to promote the efficient allocation and use of the radio spectrum as a public resource of Hong Kong. Sections 32H(2) and 32I(1) of the TO empower the CA to assign radio frequencies and to designate which of them shall be subject to the payment of SUF following such consultation with the telecommunications industry and other affected persons as is reasonable in all the circumstances of the case.

7. Section 4(4) of the Communications Authority Ordinance (Cap. 616) (“CAO”) stipulates that the CA, in performing its functions, must have regard to such of the following as appear to it to be relevant in the circumstances: (a) the fostering of an environment that supports a

³ According to the Statement issued by the former TA in January 2008 (<http://tel.archives.ofca.gov.hk/en/tas/others/ta20080131.pdf>), insofar as it is practicable in the circumstances, a notice period of not less than three years would be given to the incumbent assignee for variation or withdrawal of its spectrum assignment upon and before its expiry. The statement further states that the [CA] is entitled to depart or deviate from the stated minimum notice periods where the circumstances so warrant.

vibrant communications sector to enhance Hong Kong's position as a communications hub in the region; (b) the encouragement of innovation and investment in the communications market; (c) the promotion of competition and adoption of best practices in the communications market for the benefit of the industry and consumers; and (d) acting in a manner consistent with the provisions of the Hong Kong Bill of Rights Ordinance (Cap. 383).

8. Sections 32I(2) and 32I(4) of the TO empower SCED to prescribe the method for determining the SUF and to specify the minimum fee of the SUF (including the minimum fee or reserve price of an auction where it is used for determining the SUF).

9. The Radio Spectrum Policy Framework ("Spectrum Policy Framework") promulgated by the Government in April 2007 identifies the policy objectives and the guiding principles in spectrum management which the CA should take into account in discharging its spectrum management responsibilities under the TO⁴. The former TA explained in his statement issued in April 2007 that, in exercising his statutory powers under the TO, he would, in addition to all relevant considerations as required by law, give due regard to the Spectrum Policy Framework to the extent that there would be no inconsistency with the objectives and provisions of the TO⁵.

10. According to the Spectrum Policy Framework, there is no legitimate expectation that there will be any right of renewal or right of first refusal upon the expiry of a spectrum assignment under the TO. In addition, the policy inclination is that a market-based approach will be used in spectrum management wherever the CA 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. The Spectrum Policy Framework also states that SUF will generally be applicable to all non-Government use of spectrum.

PROPOSED RE-ASSIGNMENT APPROACH

11. The 850 MHz Band can support various generations of mobile services, including 3G, fourth generation ("4G") and fifth generation

⁴ The Spectrum Policy Framework is available at:
<https://www.cedb.gov.hk/ccib/eng/legco/pdf/spectrum.pdf>.

⁵ The TA Statement on the Spectrum Policy Framework is available at:
http://tel_archives.ofca.gov.hk/en/tas/others/ta20070424.pdf.

(“5G”) services. User devices and network equipment which support 3G and/or 4G services using the 850 MHz Band are widely available in the market. In comparison with mid and high frequency bands, the low frequency band below the 1 GHz band has superb radio propagation characteristics allowing mobile network operators (“MNOs”) to deploy mobile services with a wider area of coverage and better building penetration, and therefore is among the favourite frequency bands of the industry for the provision of mobile services. Since 2017, the CA has received requests from the industry for releasing more spectrum in the low frequency band for provision of 4G or 5G services. However, the supply of spectrum in the low frequency band allocated for mobile services is very limited. The outcome of the spectrum auction held in December 2018 revealed that there was keen competition from MNOs for the spectrum in the 900 MHz band which has more or less the same radio propagation characteristics as that in the 850 MHz Band.

12. Having regard to the above, the CA considers that there are likely to be competing demands for the spectrum in the 850 MHz Band. As such, according to the guiding principle in spectrum management as set out in the Spectrum Policy Framework, a market-based approach should be adopted for the re-assignment of the 15 MHz of spectrum in the 850 MHz Band.

13. Based on the fact that there are no local customers and negligible, if not nil, in-bound roamers using the CDMA2000 services operating in the 850 MHz Band, there is no concern about ensuring service continuity for a large population of existing users as in the two previous exercises conducted by the CA for re-assignment of mobile spectrum.⁶ As such, the CA cannot identify any overriding public policy reason for any deviation from the default market-based approach for this re-assignment exercise for the 15 MHz of spectrum in the 850 MHz Band upon expiry of the existing assignment.

⁶ See the CA’s decisions on the re-assignment of the spectrum in the 1.9 – 2.2 GHz band (http://www.coms-auth.hk/filemanager/statement/en/upload/237/ca_statements20131115_en.pdf) and re-assignment of the spectrum in the 900 MHz and 1800 MHz bands (https://www.coms-auth.hk/filemanager/statement/en/upload/429/ca_statements20171219_en.pdf) published in November 2013 and December 2017 respectively.

PROPOSED RE-ASSIGNMENT ARRANGEMENTS

Re-assignment of Spectrum by Auction

14. In the light of the aforementioned circumstances, the CA considers that of the various market-based approaches⁷, auction is the most appropriate for the re-assignment of the spectrum in the 850 MHz Band. Auction allows the fair value of the spectrum to be determined in an open and transparent way and ensures that the successful bidder is the one who both value the spectrum most and can be expected to put it to the most efficient use during the term of assignment. Use of an auction approach is also consistent with practices adopted by many overseas administrations for handling similar cases. The CA therefore proposes to assign the 15 MHz of spectrum in the 850 MHz Band by way of auction, which would be open for bidding by any interested parties subject to paragraph 15 below.

15. Similar to previous spectrum auctions, the CA considers that there should only be minimal qualification requirements for registering bidders' interest and demonstrating their capabilities in providing satisfactory service. The CA's preliminary view is that to qualify, a bidder must—

- (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) demonstrate its capability to provide service in fulfilment of the licensing obligations to the satisfaction of the CA and submit any other relevant supporting information that the CA may deem necessary.

Question 1: Do you have any views on re-assigning the spectrum in the 850 MHz Band through an auction open for all interested parties?

Band Plan

16. As there is only a relatively small amount of paired spectrum (i.e. 2 x 7.5 MHz) in the 850 MHz Band available for re-assignment, further fragmentation of the frequency block will lower spectrum efficiency and is hence not recommended. In the same vein, the CA

⁷ Footnote 1 to paragraph 3.1 of the Spectrum Policy Framework explains that a “market-based approach” refers to “methods relying on market forces to ensure the efficient use of spectrum as a public resource”.

considers it unnecessary to impose a bidding restriction in the form of a spectrum cap for its re-assignment. The CA therefore proposes to re-assign the spectrum in the 850 MHz Band as one frequency block to a single user, as shown in Table 1 below –

Table 1: Frequency block and bandwidth

| Frequency Block | Frequency Range | Bandwidth |
|------------------------|--|------------------|
| A1 | 825 – 832.5 MHz paired with 870 – 877.5 MHz | 2 x 7.5 MHz |

Question 2: Do you have any views on the proposed re-assignment of the spectrum concerned as a single frequency block of bandwidth of 2 x 7.5 MHz?

Auction Format and Timing

17. As only one frequency block of spectrum will be assigned by auction, it is proposed that a simple multiple round ascending (“MRA”) auction format should be adopted for the bidding of the frequency block over multiple rounds with price adjusted upward if one or more bids are received in the immediately preceding round. The industry should be familiar with the MRA auction format as it was adopted in 2010 for the assignment of one frequency block of spectrum⁸. If there is any other spectrum to be made available for assignment or re-assignment in a similar time frame, the CA will carefully consider whether it is feasible to arrange a single auction such as based on the simultaneous MRA format for blocks of spectrum in different frequency bands.

18. Subject to the outcome of this consultation exercise, the CA intends to make a decision on the relevant assignment arrangements for the available spectrum by early 2021. Taking into account the time needed for enacting the relevant legislative amendments, the auction is expected to be conducted around late 2021.

Question 3: Do you have any views on the proposed format and timing of the auction?

⁸ The MRA auction format was adopted in 2010 for the auction of frequency spectrum in the 678 – 686 MHz band (see <https://tel.archives.ofca.gov.hk/en/industry/mobiletv/main.html>).

PROPOSED LICENSING ARRANGEMENTS

Licensing and Validity Period

19. The CA proposes to issue to the successful bidder a new unified carrier licence (“UCL”). To be coterminous with the term of the UCL, the assignment of the radio spectrum in the 850 MHz Band will be valid for 15 years (from 20 November 2023 to 19 November 2038) for the provision of public mobile services. An incumbent licensee which successfully bids for spectrum in the proposed auction may apply to the CA for combining its existing UCL with the new UCL to be issued.

Technology Neutrality

20. With the decline in use of the CDMA2000 standard, the policy reasons for ensuring the continuity of CDMA mobile services which existed at the time of the last assignment of the spectrum in the 850 MHz Band are no longer relevant to the forthcoming spectrum re-assignment exercise in 2023. As such, there is no need to maintain a technology-specific approach for the use of spectrum in the 850 MHz Band as had been adopted in the CDMA2000 Licence. The CA will, in line with the general practice for assignment of spectrum for public mobile services, adopt a technology neutral approach for the spectrum in the 850 MHz band in the next term of assignment whereby the assignee is free to use whatever technology it chooses for service provision subject to compliance with the licence conditions of the UCL to be granted for use of the spectrum. In other words, the new assignee will be free to use the spectrum for providing 5G or other generations of mobile services under its UCL, so long as the technology to be used is a widely recognised standard and will not cause any harmful interference to other legitimate services.

Question 4: Do you have any views on the adoption of a technology neutral approach for the use of spectrum in the 850 MHz Band in any new assignment which follows the expiry of the existing assignment?

Network and Service Rollout Obligations

21. In order to prevent spectrum hoarding and to ensure that the auctioned spectrum is used for the provision of public mobile services in an efficient and timely manner to serve the interests of the general public, network and service rollout obligations will be imposed on successful bidders of a spectrum auction.

22. In view of the superb radio propagation of spectrum in the 850 MHz Band, which facilitates the provision of wide geographical coverage, the CA considers it appropriate to impose a stringent network and service rollout requirement on the 850 MHz Band. Having regard to the rollout requirements prescribed for successful bidders in the previous auction of spectrum in the 900 MHz band in December 2018, the CA considers that the successful bidder should be required to roll out its network and provide mobile coverage to a minimum of 90% of the population in the first five years after the issue of the licence.

23. The CA is inclined to mandate the successful bidder to lodge a performance bond for safeguarding its compliance with the rollout obligation⁹. The amount of the performance bond will be specified by the CA nearer the time of the auction.

Question 5: Do you have any views on the proposed network and service rollout obligations, as well as the proposed imposition of a performance bond on the successful bidder?

SPECTRUM UTILISATION FEE

24. Since the CA proposes the adoption of an auction as the appropriate market-based approach for the re-assignment of spectrum in the 850 MHz Band, the successful bidder should pay the final bidding price as SUF for use of the spectrum. For the purpose of kick-starting the competitive bidding process, there will be a reserve price for the frequency block, which will be set at a level that represents the minimum base value of the spectrum. The auction reserve price will be specified by SCED nearer the time of the auction.

25. Regarding the method of payment of SUF, to afford greater flexibility to the spectrum assignee to make financial arrangements for the

⁹ Under the CDMA2000 Licence, the existing assignee is currently only deploying its CDMA2000 network at specific locations rather than on a territory-wide basis for the provision of inbound roaming services to visitors, with negligible or nil traffic generated. Furthermore, since it is proposed that the subject spectrum will be assigned on a technology neutral basis in any new assignment following the expiry of the current assignment, it is likely that the existing assignee may deploy new equipment to use the spectrum if it were to successfully acquire the spectrum in the coming auction to be conducted for the spectrum. Accordingly, the CA does not consider it appropriate to allow the existing assignee, if it were to successfully bid for spectrum in the 850 MHz Band in this reassignment exercise, to rely on its use of its existing CDMA2000 network to fulfil the network rollout obligation, as justification for not providing a performance bond to safeguard compliance with the obligation.

payment of SUF, SCED proposes that the spectrum assignee be given a choice to pay the SUF either by –

- (a) lump sum payment upfront, which is the lump sum amount determined in the auction; or
- (b) annual instalments, with the first instalment equivalent to the lump sum amount referred to in (a) above divided by 15 (i.e. the number of years of assignment), and subsequent instalments to be increased every year by a pre-set percentage which aims to reflect the time value of money to the Government.

Question 6: Do you have any views on the proposed arrangement in relation to SUF above?

INVITATION OF COMMENTS

26. This consultation paper sets out preliminary views and proposals of the CA and SCED on the arrangements for re-assignment of the spectrum in the 850 MHz Band and the related SUF. For the avoidance of doubt, all the information provided and views expressed in this consultation paper are for the purpose of discussion and consultation only. Nothing in this consultation paper represents or constitutes any decision made by the CA or SCED. The consultation contemplated by this consultation paper is without prejudice to the exercise of the powers by the CA and SCED under the CAO, the TO or any subsidiary legislation thereunder.

27. After taking into account the views and comments received in response to this consultation, the CA and SCED will endeavour to announce by early 2021 their respective decisions on the arrangements for re-assignment of the spectrum in the 850 MHz Band and the related SUF. The decisions will be followed by the necessary preparatory works including the making of relevant legislative amendments for the auction of the spectrum.

28. Any person wishing to respond to the public consultation should submit their views and comments to the following contact of the Office of the Communications Authority on or before **15 September 2020**.

Office of the Communications Authority
29/F Wu Chung House
213 Queen's Road East
Wan Chai
Hong Kong
(Attention: Principal Regulatory Affairs Manager (R13))

Fax: 2803 5112
E-mail: consult-850MHz@ofca.gov.hk

Please note that late submissions would not be considered. The CA and SCED may publish all or part of the views and comments received, and disclose the identity of the source in such manner as they see fit. Any part of the submissions considered commercially confidential should be clearly marked. However, for the avoidance of doubt, the CA and SCED may determine at their sole discretion whether the marked information should be disclosed or not.

**Commerce and Economic Development Bureau
(Communications and Creative Industries Branch) and
Office of the Communications Authority
19 August 2020**