

Licensing of Spectrum in the 850 MHz Band to Enable the Provision of CDMA2000 Service

Statement of the Telecommunications Authority

27 April 2007

INTRODUCTION

On 29 November 2004, the Telecommunications Authority (“TA”) issued a statement entitled “Licensing of Mobile Services on Expiry of Existing Licences for Second Generation Mobile Services” announcing his decision concerning the licensing arrangement of the second generation (“2G”) mobile services upon expiry of the licences held by the incumbent licensees. Among other things, the TA decided that the “right of first refusal” would not be granted to the licensee providing mobile services using the IS-95 CDMA standard (“CDMA service”), on the ground that it did not make use of the assigned spectrum efficiently. Instead it was offered to retain one-third of the originally assigned spectrum for the purpose of subscriber migration over a period of 3 years.

2. The 3-year migration period granted to the licensee providing CDMA service will expire on 20 November 2008. On 27 October 2006, the TA issued a consultation paper entitled “Licensing of Spectrum in the 850 MHz Band to Enable the Provision of CDMA2000 Service” (“the Consultation Paper”) to solicit views from the industry and other interested parties on the need and the way forward to release spectrum to enable the continuity of the CDMA services in Hong Kong after the expiry of the migration period. At the closing of the consultation on 27 December 2006, a total of 19 submissions were received. The list of respondents is given in Annex I. All the submissions can be downloaded from website of the Office of the Telecommunications Authority (“OFTA”) at <http://www.ofa.gov.hk>.

3. Having duly considered all the views and comments received in response to the Consultation Paper, the TA concludes the consultation exercise by setting out in this Statement how he will deal with the relevant

issues. In addressing the relevant issues in releasing spectrum for the CDMA services, the TA will give due regard to relevant Government's spectrum management policy objectives / strategies as announced on 24 April 2007 (see paragraph 4 below). As required by the Telecommunications Ordinance ("the Ordinance"), subsidiary legislation has to be enacted for imposing spectrum utilisation fee ("SUF") on the use of spectrum and for prescribing the method of determining the SUF. The Government will in due course table the relevant legislative proposal to the Legislative Council for consideration.

PROMULGATION OF THE SPECTRUM POLICY FRAMEWORK

4. On 24 April 2007, the Commerce, Industry and Technology Bureau ("CITB") announced the Radio Spectrum Policy Framework (the "Policy Framework") that it had adopted upon completion of the review on Government's spectrum policy. The Policy Framework sets out the following spectrum policy objectives:

- (a) to facilitate the most economically and socially efficient use of spectrum with a view to attaining maximum benefit for the community;
- (b) to achieve technically efficient use of spectrum to facilitate the introduction of advanced and innovative communications services and strengthen Hong Kong's position as a telecommunications and broadcasting hub;
- (c) to fulfil Hong Kong's regional and international obligations relating to the use of spectrum;
- (d) to strengthen Hong Kong's strategic position as a world city and the gateway between the Mainland of China and the world by facilitating the provision of key services in Hong Kong which are deployed, or will be deployed, globally or in the Mainland of China; and

- (e) to ensure that necessary spectrum is reserved for services to be provided by or on behalf of the Government (“Government services”).

5. In the TA Statement issued on 24 April 2007, the TA has indicated that he will, in addition to all relevant considerations as required by law, give regard to the Policy Framework in exercising his statutory powers for the management of the radio spectrum under the Ordinance. The TA Statement of 24 April 2007 is applicable to the release of spectrum for CDMA services.

LICENSING CONSIDERATIONS

Enabling the Provision of the CDMA2000 Service in Hong Kong

Proposal 1

The TA should make available to the market spectrum which enables the provision of a CDMA2000 mobile service after 20 November 2008.

Views and Comments by the Respondents

6. In respect of **Proposal 1** to issue a single new licence in the 850 MHz band to enable the continued provision of the CDMA services in Hong Kong after 20 November 2008, there was general support from CDMA2000 service providers and equipment suppliers overseas. These overseas CDMA2000 service providers included those from Mainland China, the US, Japan, South Korea, Indonesia, New Zealand and Thailand. They unanimously agreed that, consistent with Hong Kong’s status as Asia’s world city and the telecommunications hub in the Asia-Pacific region, CDMA roaming services should continue to be provided in Hong Kong. As an important destination for business and leisure travels, Hong Kong should ensure that its telecommunications infrastructures and services would be compatible with the rest of the world.

7. In its submission, China Unicom Limited (“Unicom”) pointed out

that the existing CDMA roaming service provided in Hong Kong to its subscribers was limited and suffered from problems like unsatisfactory network coverage, high drop call rate and poor voice quality. According to Unicom, Hong Kong was the destination of more than half of its CDMA subscribers travelling abroad. There were already a rising number of complaints from these subscribers when they roamed to Hong Kong. This would inevitably tarnish the image of Hong Kong as a world city.

8. Unicom also advised that, following the issue of a CDMA2000 1x EV-DO licence in Macau in October 2006, the technologically more advanced CDMA2000 service was already available in the Greater China region, with the exception of Hong Kong. If CDMA2000 service was also available in Hong Kong, CDMA2000 service would be available throughout the whole Greater China region, thus facilitating the development of the service and the related industrial sector with synergy effects.

9. Among the local operators, China Mobile Peoples Telephone Company Limited (“Peoples”) and Wharf T&T Limited (“Wharf T&T”) were supportive of the proposal to license the available spectrum in the 850 MHz band for the provision of CDMA2000 service. SmarTone Mobile Communications Limited (“SmarTone”) was neutral as to whether the spectrum vacated from the existing IS-95 CDMA service should be made available for a new licence, but it would like the Government to make sure that a clear and certain long term spectrum policy should be in place so that potential investors could make informed decisions on spectrum bidding.

10. The other three mobile network operators, namely Hong Kong CSL Limited / New World PCS Limited (“CSL”), Hutchison Telephone Company Limited (“Hutchison”) and Mandarin Communications Limited / SUNDAY 3G (Hong Kong) Limited (“SUNDAY”), disagreed with the proposal and objected to the release of the vacated spectrum for a new licence prior to the completion of the consultations on Spectrum Policy Review (“SPR”) and Fixed-Mobile Convergence (“FMC”). They were of the opinion that the “Policy First” principle should be observed such that the licensing of the spectrum, as well as the related issues on the amount of SUF and the licence conditions, should be determined holistically within the context of the SPR.

11. CSL, Hutchison and SUNDAY argued that the Hong Kong mobile market was already facing over-competition and it would be severely affected by the introduction of an additional licence. Furthermore, there was no evidence that the market would require a specific CDMA2000 licence. They were of the view that the proposal to make available spectrum for the CDMA service was in fact not a market-driven approach. Hutchison further considered that it was only necessary for the TA to license a CDMA network dedicated for carriage of roaming traffic only catering for inbound visitors. In particular, Hutchison suggested that one possible solution was to permit the operation of its existing IS-95 CDMA service beyond the expiry date to provide the required roaming service.

12. Hutchison opined that the CDMA2000 service would bring complications to the consumers given that the service interoperability between WCDMA and CDMA2000 was uncertain. Content providers would need to make provisions for two types of technologies, leading to market fragmentation. Consumers would also be confused or dissatisfied with the services.

13. From the technology point of view, some respondents considered that specifying the deployment of CDMA2000 technology explicitly in the proposed spectrum band was not “technology-neutral”. In particular, if the Government’s policy was to uphold “technology-neutrality”, the TA should not specify the use of CDMA2000 standard. If it was Government policy to move away from “technology neutrality”, some respondents considered that this should be clearly and publicly stated by the Government to reduce investment uncertainties.

TA’s Consideration

14. The TA notes the general support given by the international community to the proposal to make available spectrum in the 850 MHz band to enable the provision of a CDMA2000 service. Having regard to the Government policy objective (under the Policy Framework) of strengthening Hong Kong’s strategic position as a world city and the gateway between the Mainland of China and the world, the TA considers it necessary to make spectrum available at the right time to ensure the

continued availability of the CDMA2000 service in Hong Kong. The strategic reasons mentioned in the Consultation Paper that the Government needs to make available spectrum to enable the continuity of the CDMA service remains valid. Firstly, as a world city, Hong Kong should provide visitors from all over the world with first-class mobile services. Secondly, to strengthen Hong Kong's strategic position as the gateway between the Mainland of China and the world, roaming service in Hong Kong should continue to be made available to visitors using CDMA handsets. Thirdly, the availability of mobile platforms using all the major cellular standards of the world, including the CDMA2000 standard, will enable the industry to acquire experience in operating the services and in the development of new applications and content for all these platforms. All these points are in line with the Government's spectrum management policy objectives set out in the Policy Framework.

15. The TA agrees that the policy of "technology neutrality" should be adhered to unless overridden by Government policy or other public interest considerations. Having regard to Government policy given in paragraph 4 above, the TA considers that he may need to deviate from the "technology-neutrality" principle to provide spectrum to the market on this particular occasion. However, the current deliberations on the need to ensure the continuity of the CDMA2000 service in Hong Kong should not in any way be deemed as setting a precedent for the spectrum release considerations in future.

16. Regarding the comments that the Government should complete the SPR and FMC review exercises first before release of spectrum, as the Government has already published the Policy Framework on 24 April 2007, the argument relating to the "Policy First" principle on spectrum management has been satisfactorily dealt with. The TA has also announced today his conclusions on the consultation exercise on the deregulation for FMC. All these should serve to provide regulatory certainty and predictability in the market in relation to the release of spectrum. Incumbent and potential new operators should now have a clearer picture of their future business environment, including the likely constraints and competition they would have to resolve and encounter.

17. As pointed out in the Consultation Paper, the SPR will involve

multiple implementation phases. Issues such as secondary trading of spectrum and spectrum liberalisation require further debates and deliberation. It will take time before these issues can be resolved satisfactorily. In view of the ongoing developments of the telecommunications industry and the need for a new CDMA2000 service by November 2008, it is unreasonable and undesirable to withhold or delay the release of spectrum altogether until the resolution of all related issues, as this would hamper the introduction of advanced and innovative telecommunications services in Hong Kong. To cater for rapid technological and market developments, it is inevitable that regulatory policies, including spectrum management policies, should evolve over the licence term of the existing spectrum assignments. Having said that, the TA will ensure that, in offering the spectrum in the 850 MHz band for bidding, a comprehensive bidding document will be available setting out the relevant terms and conditions for the use of the spectrum which a potential bidder would reasonably expect to be informed of before it makes the bidding decisions.

18. Concerning the allegations of “over-competition” in the mobile market, the TA is of the view that when the vacated spectrum is made available for auction, it is open to the interested parties to make the commercial decision as to whether or not to bid for the spectrum. In making such a decision, the market situation including the level of competition will be an important factor for the interested investors to take into account. If no bid is received during the spectrum auction, the TA will withdraw the spectrum. Consistent with the market-based approach endorsed as the guiding principle under the Policy Framework, the TA’s role in this exercise is to make available the spectrum to the industry and investors will determine whether to bid for the spectrum or not based on their business plan and the market status. If the so-called “over-competition” exists, it will be reflected in the auction exercise, i.e. no bidder will offer to bid for the spectrum and to provide the service.

19. The TA also disagrees with the claim that the CDMA2000 service would bring complications to the consumers given the potential interoperability problems between WCDMA and CDMA2000. Hong Kong has the tradition of operating multiple standards in the mobile service market (e.g. the CDMA and GSM services operating in parallel since 1995)

and no significant consumer confusion has arisen as a result of the co-existence of multiple standards. As for consumers, the service capabilities, user interface and the ease of service operations, rather than the underlying technology deployed, should be the primary concerns for service subscription choices. Through marketing campaigns and consumer education that may be provided by the new licensee, consumers in Hong Kong can readily understand the difference between the services provided by the incumbent operators and the new licensee. Similarly, content providers would have choices whether to develop their value-added applications for different technology platforms. For good reasons, the content providers will have the incentives, and probably with the assistance of the network operators, to develop cross-platform contents.

20. As regards the proposal of permitting the operation of the existing IS-95 CDMA service beyond the expiry date to provide the required roaming service, the TA considers that, in order that Hong Kong may have the best telecommunications services to meet the challenges of the information age, the state-of-the-art CDMA technology and standard capable of providing high speed data service with data rates comparable to those using 3G technologies should be adopted. The deployment of obsolescent technologies, such as the old CDMA standard of the existing CDMA network in Hong Kong, is undesirable for the wider benefits of Hong Kong.

21. Turning to the proposal of licensing the spectrum for roaming services only, the TA considers that this restriction is likely to result in suppressed spectrum value in the bidding process, commercial disincentive for the successful bidder to invest in an efficient, state-of-the-art network infrastructure that can fully exploit the potential of the spectrum and therefore ultimately inefficient use of the spectrum. This is inconsistent with the statutory duty of the TA under section 32G of the Ordinance to promote the efficient allocation and use of the radio spectrum as a public resource of Hong Kong and policy objective (a) of the Policy Framework.

22. The TA concludes that he should make available spectrum to the market which enables the provision of a CDMA2000 mobile service after 20 November 2008.

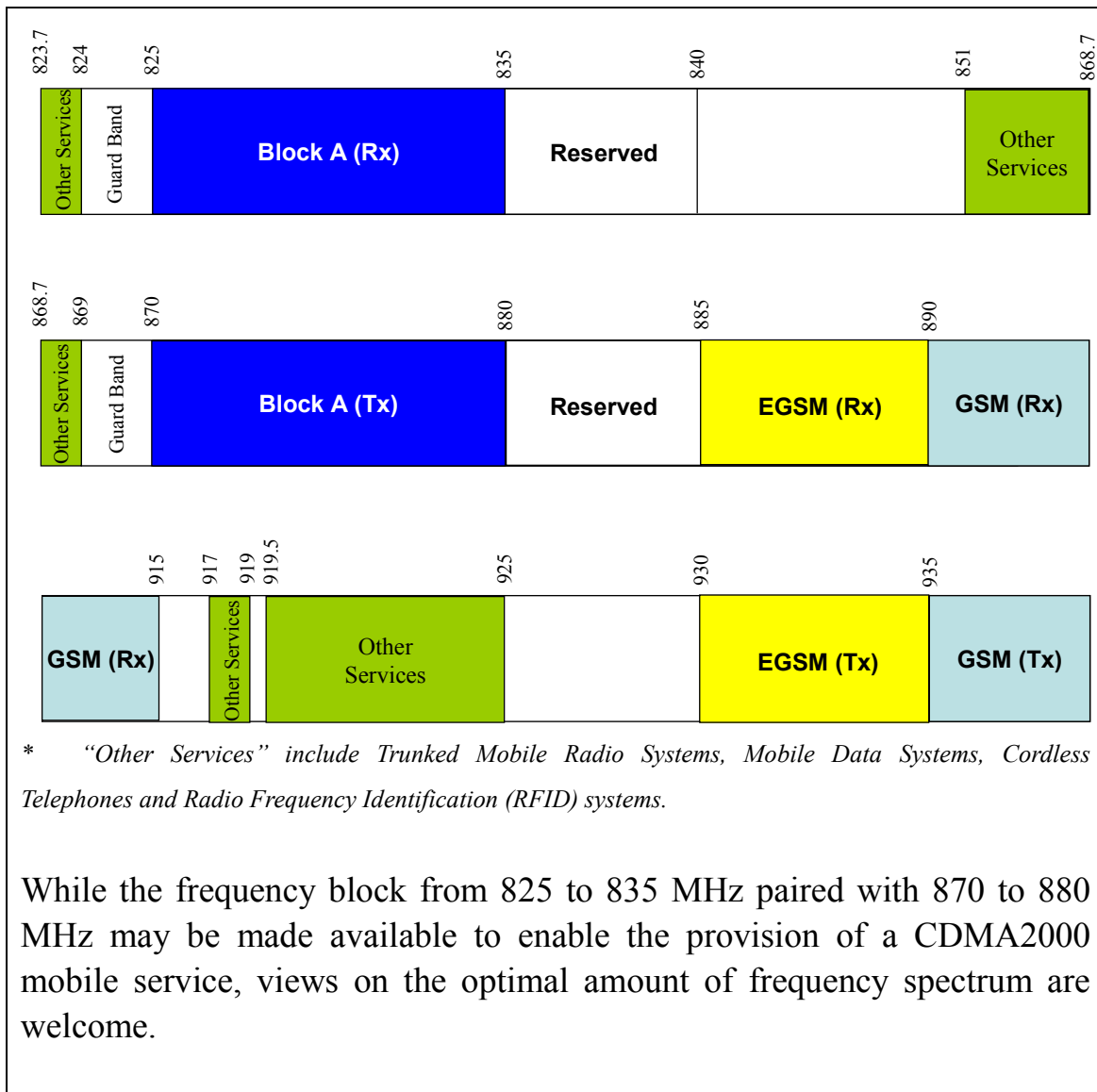
Proposal 2

Auction should be used to determine to whom the spectrum released should be assigned.

23. The TA notes that the respondents did not have opposing views on the proposal to conduct an auction to determine to whom the concerned spectrum should be assigned. The TA maintains that spectrum, being a scarce public resource, should be utilised in the most efficient manner. It is generally the consensus of the industry that assignment by auction is an appropriate and market-driven means to decide who would be assigned with the spectrum. **Therefore the TA concludes that auction should be used to determine to whom the spectrum released should be assigned.**

SPECTRUM PLAN IN THE 850 MHz BAND**Proposal 3**

The proposed band plan in the 850 MHz band as depicted in the following figure should be adopted.



Views and Comments by the Respondents

24. The TA notes that Peoples, Wharf T&T and other overseas equipment provider and service providers were in support of the assignment of the proposed band plan for the provision of the CDMA2000 service. As a matter of fact, the proposed band plan was in popular use around the world for the provision of CDMA2000 service. The existing wide availability of CDMA2000 network infrastructure and commercial equipment in the market could also readily support the provision of CDMA2000 service in Hong Kong.

25. Meanwhile, Hutchison advised that the 800 – 900 MHz block could also be used as the expansion band for WCDMA systems and hence

the amount of bandwidth for CDMA2000 should be carefully considered. Hutchison was of the view that a bandwidth of 5 MHz x 2 should be optimal for a CDMA2000 network providing roaming services only.

26. Apart from the comments from Hutchison, the TA notes that there were no other opinions on the optimal amount of frequency spectrum for the new licence, other than the total bandwidth of 10 MHz x 2 as suggested in the Consultation Paper.

TA's Consideration

27. Given the strategic reasons for ensuring the continuity of CDMA service in Hong Kong as mentioned in paragraph 14 above, the TA proposes to release sufficient spectrum for auction for the provision of CDMA2000 service only at this juncture. To avoid complicating the entire exercise, other uses of the vacated spectrum would not be considered at the moment.

28. The TA takes note of the comment of Hutchison on the amount of spectrum that should be assigned. For the reasons given in paragraph 21 above, he does not intend to restrict the new CDMA2000 licensee to provide roaming services only as this would result in under-utilisation or inefficient use of the spectrum assigned. Considering that the existing licensee providing CDMA services was all along assigned with spectrum of a bandwidth of 7.5 MHz x 2 only, an amount of spectrum of 10 MHz x 2 may be more than sufficient. With a width of spectrum of 7.5 MHz x 2, the new CDMA2000 licensee will have six (6) carriers at its disposal and this should be adequate for it to provide a full range of services in the territory. In future, if the CDMA2000 licensee requires additional spectrum, it may make a request to the TA who will then consider to place the requested spectrum on the next issue of the spectrum release plan. With this in mind, **the TA intends to make available the spectrum of 7.5 MHz x 2 at this juncture to enable the provision of the CDMA2000 service.**

PAYMENT OF SPECTRUM UTILISATION FEE (SUF)

Proposal 4

The use of spectrum by the licensee should be subject to the payment of a one-off SUF the amount of which will be determined through open auction.

Views and Comments by the Respondents

29. On the payment of SUF, while the majority of the respondents did not object to **Proposal 4**, there were divided views on the anticipated amount of SUF, and hence the auction reserve price, for the use of the available spectrum in the 850 MHz band by the proposed new licensee.

30. CSL considered that the amount of the reserve price in the proposed open auction should be set at exactly the same level as the amount of SUF paid by the existing 3G licensees during the auction of the 3G spectrum in 2001. CSL drew reference to recent spectrum auctions conducted in the US, which showed that a similar block of spectrum still cost a substantial amount of money comparable to the level paid in 2001 during the so-called “IT Bubble”. SmarTone shared similar views in that the SUF issue should be considered in light of its impacts on competition and the consumers as a whole. It argued that there might be distortions to the market and to the regulatory framework if different levels or structures of SUF were used.

31. Hutchison was of the opinion that the issue of SUF should be resolved holistically within the context of the SPR as the amount of the reserve price could not be determined appropriately and the bidders could not properly assess their business case in the absence of a clear understanding of the long term spectrum policy. SUNDAY considered that restricting the available spectrum for the provision of CDMA service would only reduce the value of the spectrum and even an open auction would not reflect its true value. This would upset the current level playing field.

32. Meanwhile, CSL opined that the appointment of consultants for

the determination of the reserve price could be construed as a “pre-determination”, i.e. the TA disregarding the views of the respondents, as the TA did not advise that such a consultant would be appointed in the Consultation Paper and nor had the TA indicated the weight that would be given to the opinion of the consultant in comparison to the opinions of the respondents.

33. On the contrary, Unicom and Wharf T&T considered that the auction reserve price should be considerably lower than that of the 2G and 3G licensees, based on the facts that the market situation had become less bullish compared to 2001 when the 3G auction was conducted, the proposed new licensee would be having a slower start compared with the other 3G licensees, and lastly the global market size for the CDMA2000 standard was comparatively smaller than that of the WCDMA standard, which was being adopted by the four incumbent 3G licensees in Hong Kong.

TA's Consideration

Level and Structure of SUF

34. The amount of SUF payable by the proposed new licensee will be an important consideration for potential investors who will need to develop the business case to ensure the viability of the new licence, and also for the incumbent market players who look for the maintenance of a level playing field. Mindful that the amount of SUF should be determined through a market-driven and competitive process, the TA has therefore recommended the conduct of an open auction to determine the amount of SUF and to whom the new licence will be granted. Logically, the level and structure of the SUF, and the mode of payment, for a particular auction exercise have to reflect the market situation and investment climate prevailing at the time of the auction. As such, new spectrum auction exercises should not adopt the same parameters that were determined in previous auction exercises but should rather be subject to fresh assessments. If the reserve price and structure of SUF being set to reflect the prevailing environment are considered to be favourable by the market, any perceived advantage should then be automatically reflected in the auction process when bidders will be more aggressive to place bids and the bid price should adequately reflect

the prevailing market value of the spectrum. The auction process is by itself the ultimate safeguard to ensure that the amount of SUF is appropriate and commensurate with market valuation.

35. As mentioned in the Consultation Paper, the one-off SUF lump sum payment is a popular and simple payment scheme such that the bidders simply place bids through auction on the amount of one-off payment they are willing to pay for the use of spectrum. This arrangement is simpler, quicker and easier to administer than the royalty payment scheme adopted for the 3G licensees. During the design of the 3G auction in 2001, the royalty payment approach was adopted to address the concerns that an excessively high SUF lump sum payment would divert resources needed by the successful bidders to roll out the 3G infrastructure and enabled some sharing of risks between the Government and the bidders in view of the uncertainties about 3G services. These concerns were connected with the then prevailing sentiment about the prospects of 3G services. Such concerns are no longer applicable at this point in time. Most importantly, the amount of SUF determined by the one-off SUF lump sum will also equally reflect the market value of the spectrum and safeguard the Government's revenue in SUF. **Based on these considerations, the TA will recommend to the Secretary for Commerce, Industry and Technology that, in the making of the regulation under section 32I(2) of the Ordinance, the level, or the method for determining the level, of SUF will be based on a scheme whereby the SUF is paid as a one-off lump sum.**

Setting of Auction Reserve Price

36. In the proposed spectrum auction, the Government will need to prescribe the auction reserve price. The auction reserve price should represent the minimum acceptable value for the Government to assign the right to use the spectrum for providing the CDMA2000 services. The appropriate level of the auction reserve price should therefore be considered meticulously. As required by law, subsidiary legislations need to be introduced for imposing SUF on the spectrum concerned and for prescribing the level of SUF or the method for determining SUF, which may include the minimum fee.

37. In this regard, OFTA has commissioned an independent consultant to provide advice and recommendations on, *inter alia*, the calculation methodologies and mathematical models for determining the amount of the auction reserve price. The consultant was tasked to study and advise, not only on the calculation methodologies and mathematical models for the 850 MHz band for the provision of CDMA2000 services on the assumption that it will be released for auction by end 2007, but also on the applicability of such calculation methodologies and mathematical models to spectrum auctions for other types of radiocommunications services. At the time when the consultancy study was commissioned, there was no pre-determination by the TA that the spectrum should be released for provision of CDMA2000 services at the minimum fee recommended by the consultant. Whilst the TA has, in considering the issues raised in the consultation, taken due consideration of all the responses from the industry and the public, the outcome of the consultancy study, i.e. the recommended calculation methodologies and mathematical models, will be used as reference for the Government in preparing for the legislative proposal to Legislative Council for consideration and in specifying the minimum fee in due course. In fact, the TA welcomes industry participation whenever practicable. In response to CSL's request for interviewing with the appointed consultant, the TA had invited CSL to provide the information which it considers useful for the consultant, so that the information may be forwarded for consideration or reference by the consultant, though the TA did not receive from CSL any information for the consultant.

38. As the way forward, the Government will table the legislative proposal for imposition of SUF and determination of SUF by auction for consideration and vetting by the Legislative Council. The proposed legislation will empower the Secretary for Commerce, Industry and Technology to specify the minimum fee by notice in the Gazette which will be published nearer the time when the auction is conducted.

SPECTRUM AUCTION FOR AWARDING THE NEW LICENCE

Auction Format

Proposal 5

It is proposed that a simple multi-round ascending auction (MRAA) should be adopted in the licensing of the relevant frequency block. Bidders should place open bids in multiples of the bid price increment, starting from the reserve price.

Both the reserve price and the bid price increment will be announced by the Government nearer the time of the auction.

The details of the auction process will be published in due course.

Views and Comments by the Respondents

39. CSL was of the view that the proposed auction should be identical to the one conducted in 2001 for the 3G auction. The proposed auction in the current form was flawed in the sense that the second highest bidder should not be awarded the licence in the event that the highest bidder failed to take up the licence. In that case, CSL considered that the auction process should be re-started. SmarTone would like the TA to further clarify whether there were any measures to prevent collusive behaviour and manipulation of auction result in the proposed open bidding. The TA should conduct a fresh auction if the winning bid defaulted.

40. Wharf T&T also advised that the present proposed pre-qualification requirements were inadequate. Bidders should submit network and service rollout plans with clear targets and timeframe. Only those with the most aggressive and realistic rollout plans should be admitted.

TA's Consideration

41. As there is only one single block of frequencies available for

licensing and as it is expected that there are competing demands in the market, the TA believes that a simple open auction remains to be the most cost-effective means for the award of the new licence. As emphasized in paragraph 34 above, new spectrum auction exercises should not necessarily follow the same parameters that were determined in previous auction exercises, but should be subject to the prevailing market condition. There is no point to slavishly follow the same auction format as in the 3G auction conducted back in 2001.

42. The TA disagrees with Wharf T&T and maintains that there should only be minimal pre-qualification requirements solely for registering of bidders' interest and for demonstration of the financial capability of the bidders. The TA is mindful of keeping the pre-qualification requirements simple in order to foster active participation from the industry and investors. This is also in line with the practice adopted in the previous 3G auction exercise.

43. However, the TA agrees that some of the issues raised by the respondents have merits and deserve further considerations. For example, OFTA will reconsider the proposal to award the new licence to the second highest bidder whenever the highest bidder defaulted. The Government will also take into account the potential problems due to collusive behaviour and manipulation of auction result when it devises detailed auction rules. OFTA will commission an independent consultant to provide advice and recommendations on the auction design, including the auction format and measures to prevent abusive conducts, collusive behaviours and manipulation of the auction. In formulating its advice and recommendations, the appointed consultant will carefully consider the views and concerns expressed by the respondents and take them into account when devising the auction rules. **Before finalizing the auction rules and related arrangements, the TA will carefully study the recommendations to ensure that all the concerns expressed by the respondents have been addressed and the spectrum auction will be conducted fairly and properly. The auction details will be published nearer the time when the auction is conducted.**

Eligibility of Incumbent Carriers or their Related Companies

Proposal 6

Incumbent 2G and 3G licensees should be permitted to take part in the open auction for spectrum in the relevant frequency block provided that they meet the pre-qualification requirements. In this exercise, there will not be any bidding restriction in the form of a spectrum cap i.e. an upper limit on the total amount of spectrum which will disqualify an incumbent 2G/3G licensee from bidding the spectrum.

An individual company or group of companies may not enter more than one bid.

Existing licensees may form joint venture to bid for the licence and prior consent from the TA is not required for participation in the auction.

Views and Comments by the Respondents

44. While the incumbent operators were generally in support of **Proposal 6**, Wharf T&T disagrees that the incumbent operators were permitted to bid for the spectrum on fairness grounds. New entrant to the market should be encouraged, but the incumbent operators would likely bid for the purpose of preventing entry of new operators. Effectiveness of the proposed measures to prevent spectrum hoarding was thus doubtful. Wharf T&T also disagreed that there was no spectrum cap applicable to the incumbent operators.

TA's Consideration

45. Having considered Wharf T&T's view on **Proposal 6**, the TA remains convinced that the incumbent 2G and 3G licensees or their related companies should be permitted to bid for the spectrum in the relevant frequency block provided that they meet the pre-qualification requirements. Following the market driven approach, the Government should refrain from imposing restrictions as far as practicable so long as there is no market failure or when competition will not be significantly lessened. There are

currently five mobile operators in Hong Kong and the mobile service market is very competitive. It is not likely that an incumbent operator will be in a more advantageous position as compared with other operators or competition will be significantly lessened simply because additional spectrum has been acquired by it in this exercise. Without any restriction on incumbent operators to participate in the bidding process, there would be more potential bidders, thus ensuring that the auction result will reflect the true market value of the available frequency block. Furthermore, the technical expertise of the 2G and 3G licensees will also enable faster rollout of service. In addition, the licence obligation on network and service coverage requirements together with the placement of a performance bond to be mentioned in the subsequent paragraphs should be adequate measures to prevent any spectrum hoarding by the new licensee.

46. Based on the above, the TA does not find it necessary to impose a bidding restriction in the form of a spectrum cap i.e. an upper limit on the total amount of spectrum that can be held by a licensee and its related companies which would disqualify the incumbent operator from bidding for the spectrum. Given the extremely competitive nature of the local mobile market, it is not likely that one operator will be in a more advantageous position as compared with others, or competition will be significantly lessened, because additional spectrum has been acquired by a particular incumbent operator in this exercise.

47. As mentioned in the Consultation Paper, the applicants will need to satisfy a set of conditions governing “related parties¹”, so as to qualify for participation in the proposed auctioning exercise. Apart from the specific rules suggested in the Consultation Paper, the TA will re-visit the rules governing “related parties” and the consultant as mentioned in paragraph 43 above will be asked to devise the appropriate rules to address this subject matter.

¹ Related parties means parties with a close relationship by means of a participation, indirect interest, or control.

APPLICABLE REGULATORY FRAMEWORK AND LICENCE CONDITIONS

Open Network Access (“ONA”) Requirement

Proposal 7

The new licensee using spectrum in the relevant frequency block should not be subject to the ONA requirement.

Also, the ONA requirement as applicable to the existing 2G and 3G licensees should be withdrawn altogether.

Views and Comments by the Respondents

48. CSL, SmarTone and SUNDAY showed their support to the TA’s proposal not to impose the ONA requirements on the proposed new licensee and also to withdraw the ONA requirements as applicable to the existing 2G and 3G licensees altogether. However, Peoples and the Society of External Telecommunications Service Providers (“ETS Society”) queried the justification for the withdrawal of the ONA requirements. They considered that there was no concrete evidence supporting the proposal and the fact that there was not yet any request from the industry for regulatory intervention did not necessarily imply the ONA requirements could be withdrawn. The proposal was also unfair to the Mobile Virtual Network Operators (“MVNO”) and the content providers. At present, the ONA requirement did provide a scale of regulatory protection available to the MVNOs and content providers against discrimination in the market. Withdrawal of the ONA requirement would remove this regulatory protection and it might be possible that the MVNOs and the content providers would be subject to unfair and discriminatory treatment by the mobile network operators. Wharf T&T also opined that a separate consultation on the subject should be required.

TA’s Consideration

49. The TA notes the views expressed by Peoples and the ETS Society.

In the existing four 3G licences issued in 2001, the ONA requirements have been incorporated as a licence obligation. This obligation should have been taken into account by the 3G licensees when they bid for the spectrum in 2001. The same ONA requirements have also been extended to all the 2G licensees who are required to comply with the requirements five years after the commencement of their new licences issued in 2005 and 2006. This obligation has also been made known to the industry including potential MVNOs and content providers. While the TA considers that the ONA requirements should be removed due to sufficient competition in the market, the TA accepts that more time should be allowed for the industry to consider the relevant issues in detail before drawing any conclusion as to whether or not the ONA requirements under all the existing 2G and 3G licences should be withdrawn. **Therefore the TA decides that the ONA requirements for all the existing 2G and 3G licences should be retained for the time being.**

50. As regards the application of the ONA requirements in the proposed CDMA2000 licence, the TA considers that the telecommunications market in Hong Kong has developed to such a stage that *ex ante* regulation (i.e. regulation before the event) should be withdrawn unless market failure exists or is expected to exist after withdrawal of the regulation. For those reasons given in paragraphs 59 and 60 of the Consultation Paper, the rationale for using regulation to mandate ONA has become increasingly questionable. While the ONA obligations under existing licences should be dealt with through a due process, the TA would not slavishly extend such obligations to new licences. **The TA therefore decides not to impose the ONA obligation in the CDMA2000 licence.** If there is market failure because of the absence of the ONA obligation in the CDMA2000 licence, the TA can still have resort to the powers under the Telecommunications Ordinance, such as section 36A, which empowers the TA to determine the terms and conditions of interconnection between the CDMA2000 network and MVNO after taking into account the factors concerning government policy, consumer interest, investment, competition, etc. under section 36A(10). The absence of the ONA obligation as an *ex ante* regulation will be reflected in the possibly higher bidding price for the spectrum – therefore a level playing field will be maintained between the operators with and without the ONA requirements as an *ex ante* obligation.

Other Licence Obligations

Proposal 8

The new licensee should be subject to the following special licence conditions:-

- Network and Service Coverage Obligation
- Performance Bond
- Denial of Service to Suspected Stolen Handsets

The new licensee will **NOT** be subject to the Domestic Roaming Requirement.

Views and Comments by the Respondents

51. There are general support to the proposed licence obligations from SmarTone, Peoples and SUNDAY. However, the TA notes that other respondents have different views on some of the proposed licence obligations. First of all, CSL considered that the proposed licence conditions must be aligned with those imposed on the existing 3G licensees. Hutchison maintained that the licence conditions applicable to the new licensees should be resolved holistically within the context of the SPR.

52. Wharf T&T disagreed with the imposition of the network and service coverage obligation and the performance bond requirement. Wharf T&T believed that the new licensee would have every incentive to roll out its network given that it had paid for the spectrum. Further, CSL also questioned how to impose coverage at strategic locations given that the TA did not have statutory power over those parties managing those strategic locations.

53. On the denial of service to suspected stolen handsets, Qualcomm Inc. (“Qualcomm”) advised that for non-removable user interface module (“non-RUIM”) CDMA2000 handsets or devices, it was possible for the CDMA2000 network to identify the individual CDMA2000 handset and to

deny service as required. For RUIM-based CDMA2000 handsets or devices, the implementation would rely on the use of the Mobile Equipment ID (“MEID”) which was already defined in the latest CDMA2000 technical specifications. Theoretically, operators who had implemented the Equipment Identity Register (“EIR”) could then make use of this MEID to identify individual handsets and to implement the required denial of service to suspected stolen handsets. However, this was an optional feature only. As such, both network infrastructure and handset vendor support were needed to ensure that this feature was implemented on a global basis in all CDMA2000 handsets. It was not yet clear whether this capability could be guaranteed for all handsets in use from November 2008 and onwards. It might therefore be necessary to delay the imposition of such licence condition.

54. Regarding the domestic roaming requirement, Qualcomm and SUNDAY both urged the TA to consider imposing such a requirement on the new licensee.

TA’s Consideration

55. The TA intends that the licence conditions applicable to the new CDMA2000 licensee and the 3G licensees should largely be the same, except appropriate adjustments will be made pursuant to the prevailing market conditions and policy considerations (e.g. the ONA obligation).

56. The TA maintains that the network and service coverage obligation is necessary to ensure that the new licensee will be obliged to roll out the new network expeditiously, thus replacing the network coverage of the CDMA Licensee in the shortest possible time frame. The TA does not subscribe to the opinion of Wharf T&T that the new licensee would have every incentive to roll out its network given that it has paid for the spectrum. As a matter of fact, the payment of SUF by the new licensee is only one of the factors for deciding whether to roll out the network. Other factors such as the change in market climate and operator’s own financial status may also play a significant role. The network and service coverage obligation and the performance bond mechanism will therefore act as a deterrent to any potential spectrum hoarding to protect the community and the Government against any default by the new licensee to ensure the

continuity of CDMA mobile service in November 2008.

57. When determining the terms for the imposition of the network and service coverage obligation at strategic locations, the TA will make reference to the previous Public Radiocommunications Service Licences for Personal Communications Services in which each of the licensees made similar coverage commitments to locations like the MTRC and KCRC railway systems, tunnels, together with corresponding performance bond requirements. Similar network rollout and coverage obligation will be imposed on the new licensee and the compliance with the obligation will be checked against the availability of necessary site and ancillary facilities of the concerned strategic locations.

58. On the denial of service to suspected stolen handsets, the TA maintains that it is necessary to combat the use of unlicensed or otherwise unlawful apparatus. The same licence condition providing the TA with the reserve power to require the licensees not to provide services to stolen apparatus have already been imposed on the 2G licensees. The TA therefore considers it appropriate to impose the same on the new licensee. However, the TA is aware that this specific network feature is still under development by equipment vendors. The TA will fully consult the new licensee, the Police and equipment vendors/suppliers before mandating the compliance of this licence condition.

59. Concerning the domestic roaming requirement, the TA remains of the view that it is not necessary to mandate such a requirement. The new licensee will always have the option to become a Mobile Virtual Network Operator (“MVNO”) and negotiate for a commercial deal with the incumbent 2G or 3G licensees for using their network platforms.

60. As a conclusion, with due considerations to the views and comments of the respondents, **the TA decides to impose the following special licence conditions to the new CDMA2000 licensee:-**

- **Network and Service Coverage Obligation**
- **Performance Bond** - The exact amount and other pertinent details of the performance bond will be announced nearer the time of auction

- **Denial of Service to Suspected Stolen Handsets**

61. **The TA will not impose the Domestic Roaming Requirement on the new licensee.**

62. Before the auction, the TA will issue a comprehensive bidding document including the licence conditions which will be imposed under the new licence, for information and consideration of the interested bidders.

WAY FORWARD

63. As the way forward, the TA will make an order under section 32I(1) of the Ordinance designating the 850 MHz band to be subject to SUF and will recommend to the Secretary for Commerce, Industry and Technology the enactment of the necessary regulation under section 32I(2) to determine the SUF by auction. Upon completion of the relevant subsidiary legislations under the Ordinance by the Legislative Council, the TA will publish a comprehensive bidding document including auction rules and the licence conditions which will be imposed under the new licence and conduct the spectrum auction, tentatively in October 2007.

Office of the Telecommunications Authority
27 April 2007

**List of Respondents to
the Consultation Paper on
“Licensing of Spectrum in the 850 MHz Band
to Enable the Provision of CDMA2000 Service”**

- Lo Siu Man
- China Unicom Limited
- Dr John Ure
- Verizon Wireless
- Qualcomm Inc.
- CDMA Development Group
- The Society of External Telecommunications Service Provider
- Sprint Nextel Corporation
- Hong Kong CSL Limited and New World PCS Limited
- KDDI Corporation
- SmarTone Mobile Communications Limited
- China Mobile Peoples Telephone Company Limited
- SK Telecom
- Wharf T&T Limited
- Mandarin Communications Limited & SUNDAY 3G (Hong Kong) Limited
- Hutchison Telephone Company Limited
- PT. Mobile-8 Telecom
- Telecom New Zealand Limited
- CAT Telecom