

**Genius Brand Limited**

**Arrangements for the Frequency Spectrum in the 2.5/2.6 GHz Band upon  
Expiry of the Existing Assignments for the Provision of Public Mobile  
Services and the Related Spectrum Utilisation Fee**

**Response to Consultation Paper**

10 November 2020

**INTRODUCTION**

1. Genius Brand Limited (“**GBL**”) makes this submission in response to the consultation paper entitled *Arrangements for the Frequency Spectrum in the 2.5/2.6 GHz Band upon Expiry of the Existing Assignments for the Provision of Public Mobile Services and the Related Spectrum Utilisation Fee* (“**Consultation Paper**”) jointly issued by the Communications Authority (“**CA**”) and the Secretary for Commerce and Economic Development (“**SCED**”) on 23 September 2020.
2. The Consultation Paper concerns the re-assignment arrangements for the 2 x 45 MHz (i.e. 90 MHz) of spectrum in the frequency range:
  - (i) 2500 – 2515 MHz paired with 2620 – 2635 MHz; and
  - (ii) 2540 – 2570 MHz paired with 2660 – 2690 MHz (collectively, the “**Available Spectrum**”)

when the current assignment period for this spectrum expires in March 2024.

3. GBL, the holder of Unified Carrier Licence No. 007, is a 50:50 joint venture between Hong Kong Telecommunications (HKT) Limited (“**HKT**”) and Hutchison Telephone Company Limited (“**Hutchison**”), and is one of the licensees currently assigned with 30 MHz of the Available Spectrum.
4. In this submission, GBL firstly addresses some key matters to be brought to the attention of the CA and SCED and then provides its responses to each of the individual questions raised in the Consultation Paper.

**Key Matters**

5. While this consultation specifically deals with the treatment of the Available Spectrum, GBL notes that there is a 50 MHz tranche of spectrum in the frequency range 2515 – 2540 MHz paired with 2635 – 2660 MHz (the “**Remaining Spectrum**”) located within the stretch of Available Spectrum which is also currently assigned to mobile operators. However, the assignment period for the Remaining Spectrum expires some four years later (May 2028) than the Available Spectrum.
6. In addition, there is a total of 50 MHz of spectrum separating the uplink and downlink channels of the Available Spectrum and the Remaining Spectrum, made up of 40 MHz assigned for Government use in the 2575 – 2615 MHz range and 10 MHz used as guard bands.
7. The following diagram shows the location of these spectrum blocks within the 2.5/2.6 GHz band:

		Available Spectrum Expire March 2024			Remaining Spectrum Expire May 2028					Available Spectrum Expire March 2024					Guard Band	Government	Guard Band		
		5	5	5	5	5	5	5	5	5	5	5	5	5	5				
Lower	2500	2505	2510	2515	2520	2525	2530	2535	2540	2545	2550	2555	2560	2565	2570	2575	.....	2615	2620
Upper	2620	2625	2630	2635	2640	2645	2650	2655	2660	2665	2670	2675	2680	2685	2690				

8. As can be seen from the diagram, the location of the Remaining Spectrum creates an artificial “gap” in the 2.5/2.6 GHz band.
9. The location of the Government-use spectrum within the band also creates a “break” in the frequency range 2500 – 2690 MHz that is supposedly allocated for mobile services in Hong Kong per the *Hong Kong Table of Frequency Allocations* issued by OFCA in April 2020.
10. From this, it is clear that the CA should not simply look at the re-assignment of the Available Spectrum in isolation. It needs to consider the adjacent frequency blocks located within the 2.5/2.6 GHz band in order to ensure that the entire band is put to its most efficient use. Indeed, this is one of the CA’s fundamental spectrum management obligations under the Telecommunications Ordinance.<sup>1</sup>
11. With this aim in mind, GBL would like the CA to consider the following actions:
  - (i) Extend the existing assignment period for the Available Spectrum (roughly four years) so that the expiry date coincides with that for the Remaining Spectrum, i.e. May 2028. This would then enable both the Available Spectrum and the Remaining Spectrum to be re-assigned in one single exercise.
  - (ii) Carry out a review of the spectrum currently assigned for Government use in the 2.5/2.6 GHz band and consider whether any part, or all, of this spectrum can be vacated for mobile use. If feasible, the spectrum vacated by the Government can form part of the spectrum assignment exercise under (i) above.
12. By aligning the expiry dates of the Available Spectrum and the Remaining Spectrum and freeing up more spectrum for mobile use from the Government assigned blocks, this would create a large continuous tranche of spectrum available for re-assignment in 2028. This brings about several significant benefits to the industry:
  - *Larger contiguous blocks of spectrum can be assigned.* With an unbroken stretch of frequency (made up of the Available Spectrum and the Remaining Spectrum) now being made available at the same time, the CA will be able to assign larger contiguous blocks of spectrum to each operator compared to the case where two separate assignment exercises are conducted at different times. Larger contiguous blocks of spectrum are more spectral efficient and provide the operator with greater flexibility in the use of the spectrum.
  - *The problem with the misaligned assignment periods will be fixed.* Unless the CA takes steps to synchronize the expiry dates of the assignment periods for the Available Spectrum and the Remaining Spectrum, there will always be an inconvenient “gap” sitting in the middle of the 2.5/2.6 GHz band which will continue to prevent optimal use of the band. The CA should therefore seize the opportunity to rectify this problem once and for all by extending the current

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<sup>1</sup> Section 32G of the Telecommunications Ordinance requires the CA to “promote the efficient allocation and use of the radio spectrum as a public resource of Hong Kong”.

assignment period for the Available Spectrum. Indeed, this is not the first time the CA has had to postpone spectrum assignment expiry dates.<sup>2</sup>

- *More time will be allowed to consider the development of FDD v. TDD in this band.* The 2.5/2.6 GHz band in Hong Kong currently adopts a Frequency Division Duplex (“FDD”) mode of operation for 4G services whereby spectrum is being used in paired blocks. However, on the Mainland, the 2515 – 2675 MHz range is already being deployed for 5G services, but using a Time Division Duplex (“TDD”) mode of operation whereby spectrum is used in unpaired blocks. On this basis, there is likely to be some point in the future when Hong Kong needs to decide whether the 2.5/2.6 GHz band will continue using FDD or whether it will switch to using TDD for the provision of 5G services.<sup>3</sup> This decision will largely depend on developments worldwide, including the Mainland, on how this band is being used. Given that both the Available Spectrum and the Remaining Spectrum will be assigned for a period of 15 years and a choice will need to be made at the start of the assignment period (and maintained during the whole 15 year period) as to whether the spectrum will be assigned in paired (FDD) blocks or unpaired (TDD) blocks, the four year extension period suggested by GBL for the Available Spectrum would provide the industry with more time to observe worldwide developments on the use of the 2.5/2.6 GHz band before having to decide in 2028 on whether to adopt the TDD mode of operation for both the Available Spectrum and the Remaining Spectrum.<sup>4</sup>
- *Administrative costs and effort will be saved.* As only one single re-assignment exercise will need to be performed by the CA (instead of two separate exercises for the Available Spectrum and the Remaining Spectrum), this should result in a substantial saving in cost and effort by the Government as well as the industry.

Accordingly, GBL strongly suggests that the CA consider the foregoing broader issues when deciding on how to handle the re-assignment of the Available Spectrum.

13. In the following section of this submission, GBL provides its comments in response to the specific questions contained in the Consultation Paper.

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<sup>2</sup> Refer to the original 2G spectrum awarded to the Public Radiocommunications Service Licensees and the extension of expiry date for the 900 MHz band in respect of Hutchison and SmarTone Mobile Communications Limited.

<sup>3</sup> Note there is already interference being experienced by 4G services in Hong Kong along the border with Shenzhen due to the use of incompatible systems between Hong Kong and the Mainland.

<sup>4</sup> In fact, this issue was discussed between OFCA and the mobile operators at the Radio Spectrum and Technical Standards Advisory Committee meeting held in January 2020 and it was decided that the FDD mode of operation in the 2.5/2.6 GHz band should be continued in Hong Kong until expiry of the assignment period for the Available Spectrum in 2024 or the expiry of the assignment period for the Remaining Spectrum in 2028.

**RESPONSES TO THE SPECIFIC QUESTIONS IN THE CONSULTATION PAPER**

14. GBL would like to respond to the questions raised in the Consultation Paper as follows:

**Question 1:**

Do you agree with the use of a market-based approach for re-assignment of the Available Spectrum pursuant to the Spectrum Policy Framework?

15. Per the Radio Spectrum Policy Framework<sup>5</sup>, the CA is required to adopt a “market-based approach” to re-assign spectrum if there are likely to be competing demands for the spectrum, unless there are overriding public policy reasons to do otherwise. Where a market-based approach has been deployed by the CA, it has tended to use an auction process.
16. In the Consultation Paper, the CA concludes there to be competing demands for the Available Spectrum in view of the attractiveness of the frequency band from a technical perspective. In addition, the CA considers there to be no public policy reasons to depart from the use of a market-based approach. On this basis, the CA proposes to use an auction mechanism to re-assign all of the Available Spectrum.
17. While GBL is unsure whether the CA’s simple analysis provides sufficient evidence to support the proposition that there is actual competing demand for the spectrum, for the purposes of this submission, GBL will adopt the CA’s assumption that competing demand does exist for the Available Spectrum.
18. In past spectrum re-assignment exercises (i.e. not new releases of spectrum), the CA has taken into account certain public policy objectives<sup>6</sup> and, in recognition of the need for the incumbent spectrum assignees to maintain customer service continuity, offered each of the existing spectrum holders a Right-of-First-Refusal (“**RFR**”) on part of the spectrum they are currently using to provide service. It is only the remaining spectrum which is then auctioned. Oddly, the CA has not elected to take such an approach in this case. The CA has suggested that it is not necessary to offer the incumbent spectrum assignees any RFR after considering the Public Policy Objectives.
19. GBL disagrees with the CA’s proposed approach. In the Introduction section of this submission, GBL has already outlined its suggestion to combine the re-assignment exercises for the Available Spectrum and the Remaining Spectrum into one. In fact, the Public Policy Objectives fully support GBL’s proposal:
- *Ensuring customer service continuity.* The risk of customer service continuity for the incumbent spectrum assignees would be eliminated if the assignment period for the Available Spectrum were to be extended by some four years (to

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<sup>5</sup> Radio Spectrum Policy Framework promulgated by the Government in April 2007.

<sup>6</sup> These public policy objectives include the need to ensure: (i) customer service continuity; (ii) efficient spectrum utilization; (iii) promotion of effective competition; and (iv) encouragement of investment and promotion of innovative services (“**Public Policy Objectives**”).

coincide the expiry of the assignment period for the Remaining Spectrum). In fact, the CA is mistaken when it assumes that the development of 5G services will result in a significant portion of the current 4G traffic being offloaded onto 5G spectrum bands and hence operators no longer needing to rely on the spectrum they are currently using in the 2.5/2.6 GHz band (i.e. the Available Spectrum). From past experience, migrating customers from one generation of mobile services to another takes a long time. Furthermore, the Available Spectrum is presently being used to provide 4G services in the MTR where 5G spectrum bands cannot yet be deployed. Rolling out the 5G spectrum bands will take some time and likely cause mobile service disruption in the MTR if the Available Spectrum cannot continue to be used by the incumbent spectrum assignees.

- *Efficient spectrum utilization.* GBL's proposal to carry out one overall re-assignment exercise for the Available Spectrum and the Remaining Spectrum would allow larger contiguous blocks of spectrum to be assigned to operators and hence is consistent with the objective to ensure efficient spectrum utilization. This would not be possible if two separate auction exercises were conducted for the Available Spectrum and the Remaining Spectrum.
- *Promotion of effective competition.* Assignment of larger spectrum blocks to operators enable them to optimize their spectrum holdings and thus lead to even more effective competition.
- *Encouragement of investment and promotion of innovative services.* Conducting one overall auction of the Available Spectrum and the Remaining Spectrum is just as likely to result in spectrum changing hands amongst the operators as compared with two separate auctions being carried out, and hence result in further investment being made by the respective spectrum assignees. This investment, in turn, leads to opportunities for service innovation.

Accordingly, GBL would suggest that, based on the Public Policy Objectives, the CA would be justified in extending the assignment period for the Available Spectrum and conduct an overall auction of the combined Available Spectrum and Remaining Spectrum in one single exercise in order to deal with the re-assignment of the spectrum in the 2.5/2.6 GHz band.

20. If, on the other hand, the CA is able to come up with stronger public policy reasons to keep the re-assignment exercises for the Available Spectrum and the Remaining Spectrum separate, then GBL sees no reason why the incumbent spectrum licensees should not be granted an RFR for the Available Spectrum, just like in previous spectrum re-assignment exercises. This would at least give the incumbent spectrum assignees some assurance that they will be able to maintain their services after the assignment period for their spectrum expires in 2024.

**Question 2:**

Do you have any views on the proposal that the Available Spectrum be divided into nine paired frequency blocks with a bandwidth of 2 x 5 MHz each?

21. If the CA accedes to GBL's request to extend the assignment period of the Available Spectrum and conduct a combined auction for the Available Spectrum/ Remaining Spectrum later on, then it would make more sense to wait until nearer the time of this auction to decide on the band plan as this will depend on whether the FDD mode of operation (i.e. paired blocks) will continue to be used in the future or if Hong Kong will switch over to TDD (i.e. unpaired blocks).
22. On the other hand, if the auction of the Available Spectrum is to proceed separately and earlier to that of the Remaining Spectrum then GBL does not see any choice at the moment other than to continue adopting the current band plan consisting of paired blocks of 2 x 5 MHz, this being the current minimum allowable channel bandwidth for 4G services using FDD-LTE as specified by 3GPP.

**Question 3:**

Do you have any views on the proposed spectrum cap of 2 x 25 MHz to be imposed on each bidder for the re-assignment of the Available Spectrum?

23. As the proposed spectrum cap of 2 x 25 MHz, i.e. 50 MHz would enable the current spectrum assignees to regain their current spectrum holdings in the Available Spectrum, GBL does not object to the proposed cap.
24. GBL, nevertheless, considers that its participation in any spectrum auction should not bar either of its two parent holding companies (HKT and Hutchison) from participating in the auction as long as the "effective" amount of spectrum acquired by HKT or Hutchison at the auction does not exceed the spectrum cap imposed by the CA.<sup>7</sup>

**Question 4:**

Do you have any views on re-assigning the Available Spectrum by allowing all interested parties to apply for participation in the auction?

25. GBL sees no reason to bar any particular party from applying to participate in the spectrum auction as long as it satisfies the minimal requirements specified in the Consultation Paper, namely the lodging of a deposit and a substantiation of its technical and financial capability to provide satisfactory mobile services using the spectrum.

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<sup>7</sup> The effective amount of spectrum acquired by HKT or Hutchison at auction is calculated by adding the amount of spectrum directly acquired by HKT or Hutchison to 50% of the spectrum acquired by GBL (given that GBL is a 50:50 joint venture between HKT and Hutchison).

26. GBL would, nonetheless, urge the CA to more carefully vet any applications by “new entrants” in order to avoid a repeat of the previous experience involving 21 ViaNet Group Limited (“21 ViaNet”), a new entrant who had successfully bid for spectrum in the 2.3 GHz band in 2012 but then failed to make use of the spectrum to provide mobile services. It was not until recently (i.e. some 8 years after the spectrum was assigned to 21 ViaNet) that the company has revised its service scope to provide mobile services with a new roll-out obligations to cover 50% of the population in Hong Kong by April 2021.

**Question 5:**

Do you have any views on the adoption of the SMRA auction format for the re-assignment of the Available Spectrum?

27. An SMRA format would be the only practical option if the Available Spectrum were to be auctioned in a separate exercise to the Remaining Spectrum given that there is an inconvenient “gap” in the middle of the Available Spectrum (being the Remaining Spectrum) which makes a Clock auction format difficult to implement.
28. On the other hand, if the Available Spectrum were to be auctioned at the same time as the Remaining Spectrum, this would make a continuous stretch of 2 x 70 MHz available for assignment and hence facilitate the use of a Clock auction format, which ensures the assignment of contiguous spectrum blocks to each bidder.

**Question 6:**

Do you have any views on the proposed licensing arrangements as specified in paragraphs 28 – 34 above? In particular, do you have any views on the network and service rollout obligations proposed to be imposed on the successful bidders of the Available Spectrum, and the associated performance bond or network coverage statistics as the case may be proposed for ensuring compliance?

29. *Licensing and validity period.* GBL considers that a longer spectrum assignment period would enable operators to more adequately recover their investment, i.e. price paid for the spectrum as well as network rollout costs. Accordingly, GBL would prefer to see spectrum assignment terms of at least 20 years instead of the 15 years as proposed by the CA.
30. *Restriction on frequency swap.* GBL sees no reason why the CA should prohibit swapping of frequency blocks within the Available Spectrum until after the Remaining Spectrum has been re-assigned in May 2028. The objective of frequency swapping is to enable operators to make the most efficient use of spectrum by combining their spectrum blocks with those exchanged from other operators. Imposing an initial moratorium on frequency swapping can result in inefficient use of spectrum and hence increase operators’ costs.

31. *Technology neutrality.* GBL agrees with the CA's proposal to impose no requirements on the technology to be adopted with the use of the spectrum.
32. *Network and service rollout obligations.* Given the intensely competitive mobile services market in Hong Kong, operators who have acquired spectrum would be keen to rollout their networks and make use of the spectrum as quickly as possible. It is therefore unnecessary for the CA to impose network and service rollout obligations to ensure that the spectrum is put to efficient use. Nevertheless, if the CA is minded to impose such obligations then these should be the same as those which were imposed when the spectrum was originally assigned. On this basis, GBL notes that both the Available Spectrum and Remaining Spectrum were previously assigned with an obligation to merely cover a minimum of 50% of the population in Hong Kong within 5 years (and not the 90% population coverage as proposed by the CA in the Consultation Paper).
33. *Performance bond for rollout obligations.* To guarantee compliance with the network and service rollout obligations, the CA proposes that the spectrum assignee be required to provide a performance bond, the amount of which is to be specified prior to the spectrum auction. Following on from the foregoing, if the CA requires network and service rollout obligations to be imposed then GBL would accept the need for a performance bond to be provided, except where the operator has been re-assigned the spectrum it currently holds and is able to demonstrate that it has already met the network and service rollout requirements.

**Question 7:**

Do you have any views on the proposal in relation to the setting and collection of SUF as specified in paragraphs 35 – 36 above?

34. The CA has proposed the use of an auction to determine re-assignment of the Available Spectrum. The SUF payable for each frequency block will therefore be the final bidding price for that block of spectrum. The starting price for each block (auction reserve price) is to be specified by the SCED nearer the time of the auction and is proposed to be set at the "minimum base value" of the spectrum.
35. As the purpose of the auction reserve price is merely to kick-start the bidding process, there is no need for the SCED to set the reserve price with reference to any assumed current market price for the spectrum. The true market price of the spectrum will naturally be discovered through the competitive bidding process.
36. On this basis, GBL urges the SCED to set minimal reserve prices for any spectrum auction to be conducted. The SCED should set opening prices which are at a level no higher than the auction reserve prices used in the previous 5G spectrum auctions.<sup>8</sup>

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<sup>8</sup> The previous auction reserve prices set were as follows: (i) 3.3 GHz band at \$2m per MHz; (ii) 3.5 GHz band at \$4m per MHz; and (iii) 4.9 GHz band at \$3m per MHz.

37. In order to ease the pressure on operators' cash flow, GBL also supports the option to allow the SUF to be paid over 15 annual instalments instead of one lump sum upfront. Nevertheless, in view of the decreasing cost of funds, the SCED should consider reducing the pre-set fixed percentage used to uplift each annual SUF instalment (currently at 2.5%).

**Submitted by**  
**Genius Brand Limited**  
**10 November 2020**