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# Hutchison Telephone Company Limited

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**Arrangements for Assignment of Additional Spectrum in the 4.9 GHz Band for the Provision of Public Mobile Services and the Related Spectrum Utilisation Fee**

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**Date: 1 September 2020**





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## Introduction

Hutchison Telephone Company Limited (“**Hutchison**”) makes this submission in response to the Consultation Paper entitled “Arrangements for Assignment of Additional Spectrum in the 4.9 GHz Band for the Provision of Public Mobile Services and the Related Spectrum Utilisation Fee” (the “**Consultation Paper**”) jointly issued by the Communications Authority (the “**CA**”) and the Secretary for Commerce and Economic Development (the “**SCED**”) on 22 July 2020.

Hutchison welcomes the CA’s proposal to make available additional spectrum in the 4.9 GHz band for the provision of 5G mobile services in Hong Kong. In this submission, we summarize our views in Part I; explain our great concerns over the issues of spectrum over-concentration and fair competition in Part II; and provide our responses to the specific questions raised in the Consultation Paper in Part III.

### I. Executive Summary

1. Only seven months after the assignment of 80 MHz of spectrum in the 4.9 GHz band to two mobile network operators, the CA proposes to offer, among others, the two existing assignees in the 4.9 GHz band another 80 MHz of spectrum in the same band.
2. Given the same propagation characteristics of the spectrum band and the proximity of the two assignments, the CA should take a holistic approach to setting the spectrum cap, i.e. 40 MHz of the total 160 MHz of spectrum in the 4.9 GHz band. Failing to do so is inequitable and unjust.
3. The CA deviates from its usual practices by waiving the performance bond requirement for network and service rollout for the existing assignees. This favor gives incentives and unfair advantages to them over the other non-incumbent assignees. No policy justification for this preferential treatment is provided. This is prejudicial.
4. If the two existing assignees were each to be assigned 40 MHz of spectrum in the 4.9 GHz band again, their holding of the total 5G spectrum (i.e. 3.3 GHz, 3.5 GHz and 4.9 GHz bands) would reach an alarming level of nearly 70%. Undoubtedly, this leads to spectrum over-concentration, which is detrimental to the telecommunications industry and consumers’ interests in Hong Kong.
5. To duly perform its regulatory duty and maintain a level playing field in the industry, the CA should offer the two non-incumbent assignees/ mobile network operators each a right of first refusal to acquire the 40 MHz of spectrum in the 4.9 GHz band.



## II. Main Issues - Over-Concentration of Spectrum and Fair Competition

### Background

6. The Consultation Paper refers to Section 4(4) of the Communications Authority Ordinance (the “**CAO**”), which stipulates that the CA is under a duty to exercise its functions taking account of four main areas, which include “the promotion of competition and adoption of best practices in the communications market for the benefit of the industry and consumers”<sup>1</sup>.
7. On 23 October 2019, an auction for a total of 80 MHz of spectrum in the 4.84 – 4.88 GHz and 4.88 – 4.92 GHz bands, divided into two 40 MHz blocks and identified as Block 1 and Block 2 (the “**Assigned Spectrum**”), was held. Since 30 December 2019, the Assigned Spectrum has been allocated to two mobile network operators in Hong Kong<sup>2</sup> (the “**Existing Assignees**”).
8. Seven months after the assignment, the CA and the SCED<sup>3</sup> propose to make available an additional 80 MHz of spectrum in the 4.80 – 4.84 GHz and 4.92 – 4.96 GHz band, configured as two 40 MHz blocks and identified as Block 3 and Block 4 (collectively “**New Spectrum**”) on 22 July 2020. The proposed assignment is open to all interested parties, including the Existing Assignees, with a spectrum cap set at 40 MHz for each prospective assignee.
9. In the Consultation Paper, the Government proposes to give a special favor to the Existing Assignees by offering an option to provide an undertaking in lieu of a performance bond, which has been generally required by the CA to all mobile network operators<sup>4</sup> (the “**MNOs**”) to guarantee their fulfillment of the obligations to roll out a mobile network at the frequency band assigned within a specified period of time.

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<sup>1</sup> Para. 3, the Consultation Paper.

<sup>2</sup> China Mobile Hong Kong Company Limited (“**CMHK**”) and Hong Kong Telecommunications (HKT) Limited (“**HKT**”).

<sup>3</sup> The CA and the SCED are collectively referred to as “The Government” in this paper.

<sup>4</sup> Currently, there are four MNOs in Hong Kong, namely CMHK, HKT, Hutchison Telephone Company Limited (“**Hutchison**”) and SmarTone Mobile Communications Limited (“**SmarTone**”).



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## Level of Spectrum Cap

10. According to an independent paper prepared for the GSM Association entitled “Mobile Broadband, Competition and Spectrum Cap”, spectrum caps have been applied in various mobile communication markets to help ensure that no single mobile operator can acquire all or almost all spectrum on offer. The goal is to prevent operators from gaining positions through large holdings of spectrum, “which they may then exploit anti-competitively, so as to cause market failures with deleterious effects for customers and overall economic welfare.”<sup>5</sup>
11. When proposing the level of spectrum cap for the New Spectrum, the Government simply adopts the same level of cap (i.e. 40 MHz or 50% out of the 80 MHz spectrum available) as that set for the last auction of the spectrum in the 4.9 GHz band conducted on 23 October 2019 (the “**Last Auction**”), without providing any convincing justification in the Consultation Paper.
12. Further, there is no analysis as to why the Assigned Spectrum and the New Spectrum should be treated separately. Given the deployment characteristics of the 4.9 GHz band (essentially the same) and the proximity of the two assignments (being very close in time), we are of the view that the available spectrum in the 4.9 GHz band should be treated as a whole. Otherwise, each of the Existing Assignees would effectively be offered a total of 80 MHz spectrum, instead of 40 MHz. This arrangement is unfair to the MNOs who are the non-incumbent assignees of the 4.9 GHz band (“**Non-incumbent Assignees**”)<sup>6</sup>.
13. In addition, when designing the level of spectrum cap, reference should be made to other 5G assignments in Hong Kong and other jurisdictions. Upon review, we have found that the spectrum cap is generally set in the range of 30% to 40%, but not 50% as currently set for the 4.9 GHz band.
14. For Hong Kong, a cap was set at 35% of the total available spectrum in the 3.5 GHz band and 40% in the 3.3 GHz band during last year’s assignment. For assignment of 3.5 GHz band in other jurisdictions in Asia, for instance, a cap at 37% was set for Taiwan<sup>7</sup> and 35.7% for the South Korea<sup>8</sup>. All these are well below 50%.

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<sup>5</sup> “*Mobile Broadband, Competition and Spectrum Caps*”, by Arthur D Little, January 2009.

<sup>6</sup> Hutchison and SmarTone.

<sup>7</sup> National Communications Commission of Taiwan: <https://www.ncc.gov.tw/english/>

<sup>8</sup> Ministry of Science and ICT of South Korea: <https://english.msit.go.kr>



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## Deployment Characteristics

15. In the last Joint Statement on the arrangement for assignments of the spectrum in the 3.3 GHz and 4.9 GHz bands, the Government affirmed that when setting the level of the spectrum cap, two issues must be taken into account, namely (1) the different deployment characteristics of the spectrum bands; and (2) the need to prevent over-concentration of spectrum holding by any individual operator.<sup>9</sup>
16. However, these two issues had not been critically analyzed in the Consultation Paper.
17. On the deployment characteristics, the role of the 4.9 GHz band is indeed unique as compared with the other two 5G spectrum in market, i.e. 3.3 GHz and 3.5 GHz bands. The 3.3 GHz band is restricted to indoor use only, whereas the 3.5 GHz band is for territory-wide deployment but being negatively impacted by the restriction zones located in Tai Po Industrial Estate and Stanley.
18. The restriction zones cover wide areas, including Tai Po, Ma On Shan, part of Shatin (where The Chinese University of Hong Kong and the Hong Kong Science Park are located), Sai Kung, Faling and Stanley. It is estimated that over one million population would be affected.
19. The 4.9 GHz band has the advantage of being able to support deployment of 5G services in any locations in Hong Kong. It is vital to the spectrum holders of the 3.3 GHz and 3.5 GHz bands, particularly for the Non-incumbent Assignees to provide 5G coverage to their subscribers who are unfairly deprived of using 5G services over the 3.5 GHz band in the restriction zones. Moreover, the restriction zones will also affect machine-to-machine communications like Internet of Things made in the vicinity of the restriction zones. In view of the emerging 5G services, vendors and operators alike have been working on innovative applications. These smart applications play an essential role in achieving the Government's goal of making Hong Kong a world class smart city.
20. Hence, this is a public interest issue.

## Spectrum Over-Concentration

21. Regarding the issue of spectrum over-concentration, the Government uses a table to show the existing distribution of spectrum among major MNOs in an attempt to justify the proposed offer of the New Spectrum to the two Existing Assignees. In fact, only

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<sup>9</sup> The 2018 Joint Statement is available at: [https://www.coms-auth.hk/filemanager/statement/en/upload/482/joint\\_statement\\_st\\_072018.pdf](https://www.coms-auth.hk/filemanager/statement/en/upload/482/joint_statement_st_072018.pdf)



two paragraphs in the Consultation Paper have covered the issue of spectrum cap. It is stated in paragraph 21 of the Consultation Paper that:

“If the MNO which is an existing assignee of 40 MHz spectrum in the 4.9 GHz band and currently holds the largest amount of spectrum overall acquires another 40 MHz of the additional spectrum in the 4.9 GHz band, its share in the spectrum available for the provision of public mobile services will **slightly increase from 30.5% to 32%**<sup>10</sup>, **while the shares of spectrum holding by the other major MNOs will be in the range of 19% – 30%**” *[Emphasis added]*

22. Nonetheless, this analysis is oversimplified.
23. It is not a “like-for-like” comparison, as it mixes all the frequency bands together (i.e. 2G, 3G, 4G and 5G) in order to play down the impact by reaching a conclusion that only 1.5% increment in the total spectrum holding “should not give rise to any competition concern as each of the major MNOs has been assigned with hundreds of MHz of spectrum across various frequency bands...”<sup>11</sup>. This figure substantially understates the potential harm caused by over-concentration of spectrum.
24. Considering the high capacity and low latency propagation characteristics of the 5G spectrum, the analysis of spectrum holding should focus on the 5G spectrum only. In this respect, we have prepared the following table to show the existing distribution of 5G spectrum among the four MNOs in Hong Kong. Currently, the two Existing Assignees each holds 31.6% share in the 5G spectrum, whereas the two Non-incumbent Assignees each holds 18.4%:

	<b>3.3 GHz</b>	<b>3.5 GHz</b>	<b>4.9 GHz</b>	<b>Total 5G Spectrum</b>	<b>Total % Share</b>
<b>CMHK</b>	20	60	40	<b>120</b>	<b>31.6%</b>
<b>HKT</b>	30	50	40	<b>120</b>	<b>31.6%</b>
<b>Hutchison</b>	30	40	0	<b>70</b>	<b>18.4%</b>
<b>SmarTone</b>	20	50	0	<b>70</b>	<b>18.4%</b>
<b>Total</b>	<b>100</b>	<b>200</b>	<b>80</b>	<b>380</b>	<b>100%</b>

<sup>10</sup> Calculation of the spectrum holding shares by major MNOs does not include spectrum assignments in the 26 GHz and 28 GHz bands, as this millimetre-wave spectrum is of different radio propagation characteristics and serves different purposes as compared to the low- and mid-band frequencies in the provision of mobile services.

<sup>11</sup> Para.21 of the Consultation Paper.



25. If the two Existing Assignees were each to be assigned 40 MHz of spectrum in the 4.9 GHz band again, they would each hold 34.8% share in the 5G spectrum, which amounts to nearly 70% share of the entire 5G market in Hong Kong. Each of them would hold nearly 20% more share in the 5G spectrum holding than the Non-incumbent Assignee. This is absolutely alarming:

	<b>3.3 GHz</b>	<b>3.5 GHz</b>	<b>4.9 GHz</b>	<b>Total 5G Spectrum</b>	<b>Total % Share</b>
<b>CMHK</b>	20	60	80	<b>160</b>	<b>34.8%</b>
<b>HKT</b>	30	50	80	<b>160</b>	<b>34.8%</b>
<b>Hutchison</b>	30	40	0	<b>70</b>	<b>15.2%</b>
<b>SmarTone</b>	20	50	0	<b>70</b>	<b>15.2%</b>
<b>Total</b>	<b>100</b>	<b>200</b>	<b>160</b>	<b>460</b>	<b>100%</b>

26. Undoubtedly, the scenario described in paragraph 25 above would lead to spectrum over-concentration, which is detrimental to the telecommunications industry and consumers' interests in Hong Kong. Non-dominating MNOs with less comparative advantages may risk being squeezed out of the Hong Kong market, which would ultimately leave consumers with less choices for diversified and innovative services. This is an unhealthy situation.
27. No evidence has been given of any benefits of the Government's proposal which outweigh this substantial harm to consumers and innovation. In particular, the proposal will not promote competition – it is more likely to lessen competition on what is already an intensely competitive telecommunications market<sup>12</sup>.

## Performance Bond

28. The Government proposes to give a favor to the Existing Assignees by offering an option to provide an undertaking in lieu of a performance bond, which has been generally required by the CA to all MNOs to guarantee their fulfillment of the obligations to roll out a mobile network at the frequency band assigned within specified period of time.

<sup>12</sup> Hong Kong has one of the highest mobile penetration rates in the world at approximately 276% as of April 2020, according to the statistics of OFCA. Available at: [https://www.ofca.gov.hk/en/data\\_statistics/data\\_statistics/key\\_stat/](https://www.ofca.gov.hk/en/data_statistics/data_statistics/key_stat/).



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29. This proposed arrangement deviates from the past practices. Yet, no policy justification for this preferential treatment is provided to justify a departure from the usual approach to the performance bond requirements.
  30. For comparison, the spectrum in the 2.5/2.6 GHz band was assigned in the auctions held in 2009 and 2013 respectively. At that time, prospective assignees were required to lodge a performance bond to ensure compliance with the network and service rollout obligation in the 2009 assignment. Again, the same performance bond requirements were imposed in the 2013 assignment<sup>13</sup>, notwithstanding they had previously acquired the spectrum in the same frequency band.
  31. Obviously, this special offer would give incentives to the Existing Assignees and create unfair advantages to them over the Non-incumbent Assignees, as they could acquire more spectrum in the 4.9 GHz band without additional actual bonds requirement.

## **Fair Competition**

32. Fair competition is competition in which all companies operate on a level playing field. When competitors can compete freely on a “level playing field” with none of them having an unfair advantage, economies thrive. Consumers will be offered more choices, lower prices and innovative services.
33. In order to duly perform its regulatory role as stipulated under the CAO, we urge the CA to take a holistic approach to the setting of the spectrum cap, i.e. 40 MHz of the total 160 MHz of spectrum in the 4.9 GHz band to all the MNOs. In this way, the Non-incumbent Assignees would be given a fair opportunity to acquire 40 MHz of spectrum in the 4.9 GHz band, leading to a fair outcome that the currently available spectrum in the 4.9 GHz band be divided equally between the four MNOs. This is equitable.
34. We see the CA’s role as being responsible for maintaining a level playing field in the telecommunications industry in Hong Kong. The overriding policy objective should no longer be raising as much revenues as possible via spectrum auction. Funds should properly be invested by MNOs in advanced technology and innovation to satisfy the public demands in this intensively competitive Hong Kong market. As described above, it is in the public interest to assign administratively the New Spectrum to the Non-incumbent Assignees with a first right of refusal, i.e. one 40 MHz block in the 4.9 GHz band to each of the two Non-incumbent Assignees.

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<sup>13</sup> Paragraph 65 of the Statement of the Communications Authority: Assignment of the Available Radio Spectrum in the 2.5/2.6 GHz Band for Wireless Broadband Services, 4 July 2013. Available at: [https://www.coms-auth.hk/filemanager/common/policies\\_regulations/ca\\_statements/07\\_2012.pdf](https://www.coms-auth.hk/filemanager/common/policies_regulations/ca_statements/07_2012.pdf)





35. Taking a holistic approach to spectrum assignment would also avoid only two deep-pocketed investors from dominating the 5G mobile markets, thereby maintaining a multi-players environment and healthy competitions in the Hong Kong telecommunications market.
36. Building a fair and healthy economy is one of the keys to success in up-keeping Hong Kong's status as an international financial centre and communication hub. Decidedly, it helps achieve the Government's vision to build Hong Kong into a world class "smart-city" under its Smart City Blueprint<sup>14</sup>.

### III. Response to the Specific Questions in the Consultation Paper

Question 1: Do you have any views on the proposed amendment to the Hong Kong Table of Frequency Allocations as regards the allocation of the 4.80 – 4.83 GHz band to mobile service on a co-primary basis in addition to fixed service, and the 4.99 – 5.00 GHz band to fixed service on a co-primary basis in addition to radio astronomy service?

37. We welcome the Government's proposal to allocate 80 MHz of spectrum in the 4.80 – 4.84 GHz and 4.92 – 4.96 GHz bands for the provision of the public mobile service, and hence agree with the proposed amendment to the Hong Kong Table of Frequency Allocations.

Question 2: Do you have any views on assigning the additional spectrum in the 4.9 GHz band by way of auction and allowing all interested parties to apply for participation in the auction?

38. Please refer to Part II – "Main Issues - Over-Concentration of Spectrum and Fair Competition" of our submission above for details.

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<sup>14</sup> The Office of the Government Chief Information Officer website: <https://www.ogcio.gov.hk/en/>. The Smart City Blueprint covers six major aspects, namely smart mobility, smart living, smart environment, smart people, smart government and smart economy.



39. As explained above, we do not agree with the proposed assignment arrangements by way of auction. We consider that an administrative assignment with the first right of refusal given to the Non-incumbent Assignees would best serve the public interest.
40. Regarding new entrants, we are not convinced by the brief reasons put forth in support of auctions open to all interested parties. The reality is that an auction would add nothing to spectral efficiency, and may even reduce spectral efficiency, if it results in spectrum “hoarding” by an operator which is prepared to pay a very high price for spectrum with no immediate use for it, other than to exclude competitors. This is evidential in the case of 21 ViaNet Group Limited (“**ViaNet**”), a new entry to the mobile telecommunications market in Hong Kong, which successfully bid for 30 MHz of unpaired spectrum in the 2.3 GHz band in February 2012. However, the spectrum was not utilised for mobile services, as ViaNet subsequently submitted an application to the CA in July 2015 to amend its network and rollout requirement so that it could provide local fixed broadband services to village houses in the rural areas.

Question 3: Do you have any views on the proposal to divide the additional spectrum in the 4.9 GHz band into two 40 MHz blocks?

41. Having considered the existing assignment of the 4.9 GHz band and the standards defined under the 3GPP<sup>15</sup> specifications, we consider the proposal to divide the additional spectrum in the 4.9 GHz band into two 40 MHz blocks is reasonable.

Question 4: Do you have any views on the proposed spectrum cap of 40 MHz to be imposed on each bidder?

42. Please refer to Part II – “Main Issues - Over-Concentration of Spectrum and Fair Competition” of our submission above for details.

Question 5: Do you have any views on adoption of the SMRA auction format for the assignment of the additional spectrum in the 4.9 GHz band?

<sup>15</sup> The Third Generation Partnership Project, a consortium of industry associations and standard organizations.



43. We have no adverse comments on the adoption of the SMRA auction format.

Question 6: Do you have any views on the network and service rollout obligations proposed to be imposed on the successful bidders of the additional spectrum in the 4.9 GHz band, and the associated performance bond (in the case of new assignees of spectrum in the 4.9 GHz band) or undertaking (in the case of existing assignees of spectrum in the 4.9 GHz band) proposed to be provided by successful bidders to secure compliance?

44. Please refer to Part II – “Main Issues - Over-Concentration of Spectrum and Fair Competition” of our submission above for details.

Question 7: Do you have any views on the proposal in relation to the setting and collection of SUF as specified in paragraphs 30 and 31 above?

45. If the Government is minded proceeding with the market-based approach to making spectrum available for auction, the reserve price should be set at a minimal level. Letting the market decide on its appropriate price level is in line with the market-based approach adopted by the CA.

46. Studies have shown that extracting too high a price for SUF would be counterproductive, resulting in reduced investment and higher consumer prices. In a paper published by GSMA entitled “5G Spectrum – GSMA Public Policy Position”, it reminds the authorities that:

“Governments and regulators should avoid inflating 5G spectrum prices as this risks limiting network investment and driving up the cost of services. This includes excessive reserve prices or annual fees, limiting spectrum supply (e.g. set asides), excessive obligations and poor auction design.”<sup>16</sup>

47. Reference should be made to the Last Auction. Given the economy of Hong Kong has not been improving since October 2019 when the Last Auction was conducted, the

<sup>16</sup> “5G Spectrum – GSMA Public Policy Position”, P.2, March 2020.



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reserve price of this same frequency band should be at least the same or even lower than that set for the Last Auction, i.e. at or below HK\$3 million per MHz. In fact, we suggest that an even lower reserve price should be adopted as the economy has been hard hit by the COVID-19 pandemic this year.

48. For the payment methods, we support the proposition that spectrum assignees should be given an option to pay the SUF either by lump sum payment upfront or by annual instalments.

- The End -