
Hutchison Telephone Company Limited

Arrangements for Assignment of the Spectrum in the 3.3 GHz and 4.9 GHz Bands for the Provision of Public Mobile Services and the Related Spectrum Utilisation Fee

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I. Introduction

1. Hutchison Telephone Company Limited (“**Hutchison**”) makes this submission in response to the Consultation Paper entitled “Arrangements for Assignment of the Spectrum in the 3.3 GHz and 4.9 GHz Bands 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 28 August 2018.
2. Hutchison welcomes the CA’s proposal to make available the spectrum in the 3.3 GHz band (3.3 – 3.4 GHz) and the 4.9 GHz band (4.83 GHz – 4.93 GHz) for the provision of 5G mobile services in Hong Kong. However, we have some concerns about the assignment arrangements for these two bands.
3. Part II of this submission contains our answers to the specific questions raised in the Consultation Paper.

II. Response to the Specific Questions in the Consultation Paper

<p><u>Question 1:</u> Do you have any views on the proposed amendment to the Hong Kong Table of Frequency Allocations as regards the allocation of the 3.3 – 3.4 GHz band and the 4.83 – 4.94 GHz band for mobile service on a co-primary basis in addition to the respective existing uses?</p>

4. We welcome the CA’s proposal to allocate 100 MHz of spectrum in the 3.3 – 3.4 GHz band and another 100 MHz of spectrum in the 4.83 – 4.93 GHz band for the provision of public mobile service, and hence agree with the proposed amendment to the Hong Kong Table of Frequency Allocations. However, it is unclear from the Consultation Paper how the radio stations of co-primary users operating in these two bands will be protected, and thus we would like to seek clarification from the CA.
5. According to the Consultation Paper, both the 3.3 – 3.4 GHz band and the 4.83 – 4.93 GHz band will be allocated to mobile service on a co-primary basis, with the former to be assigned additional to the existing allocation for radiolocation and the latter to be assigned additional to the existing allocation for fixed service. To avoid causing harmful interference from the territory-wide radiolocation service being operated outdoors, the mobile service operating in the 3.3 GHz band will be restricted to indoor use only. In order to minimize mutual interference with the government service currently operating in the 4.94 – 4.99 GHz band, 10 MHz of spectrum in the 4.93 –



4.94 will be partitioned as a guard band.¹

6. Referring to the above proposed arrangement, it is unclear how the radio stations of co-primary users operating in these two bands will be protected. Would there be any criteria for protection, such as first-come-first-served? If so, what is the definition of being “come first”? Would it be judged by the time of allocation of spectrum by the CA, by installation of radio facilities, or by the actual usage of the spectrum? A clear definition and guideline are called for to avoid future disputes.

<p><u>Question 2:</u> Do you have any views on assigning the spectrum in the 3.3 GHz and 4.9 GHz bands by way of auction?</p>

7. We have reservation about the CA’s proposal to assign the spectrum in the 3.3 GHz and 4.9 GHz bands by way of auction.
8. The Consultation Paper refers to the Radio Spectrum Policy Framework (“**Policy Framework**”) promulgated by the Government in April 2007, which sets out the policy objectives and the guiding principle in spectrum management. Whenever the CA considers that there are likely to have competing demands for the spectrum, it will adopt the market-based approach, unless there are overriding public policy reasons to do otherwise.
9. In the present consultation, the CA considers that there are likely to be competing demands for the 3.3. GHz and 4.9 GHz bands mainly based on three reasons, namely scarcity of radio spectrum in frequency bands below 6 GHz suitable for mobile use; the deployment for 5G services; and the expected supply of 5G standard equipment supporting these two bands. Hence, it considers that auction would be the proper way of assignment of the spectrum in these two bands.
10. Nonetheless, we are not convinced by the brief reasons put forth by the CA. Indeed, we found no in-depth analysis of the demands for these two bands has been conducted by the CA, particularly of their deployment characteristics. For the 3.3 GHz band, the spectrum to be assigned will be limited to indoor only and hence with limited usage. This is unprecedentedly restrictive. For the 4.9 GHz band, the global ecosystem has not been fully established, not to mention the readiness of 5G standard compliant equipment for this frequency band. Furthermore, only 100 MHz of spectrum will be made available for each of the 3.3 GHz and 4.9 GHz band. In view of the proposed spectrum caps, prospective assignees could only get 40 MHz in the 3.3 GHz band and 50 MHz in the 4.9 GHz band at most, which are relatively

¹ Paragraph 9, the Consultation Paper.



fragmented for proper 5G network rollout.

11. Against this background, we are of the view that there are *unlikely* to be competing demands for the 3.3 GHz and 4.9 GHz bands. We urge the CA to re-evaluate its proposal for auction, take into account the fragmented nature of spectrum made available this time, and consider adopting the administrative assignment approach instead of the market-based approach, as it did recently for the release of the spectrum in the 26 GHz and 28 GHz bands.

<p><u>Question 3:</u> Do you have any views on the proposal that the bandwidth of each frequency block in the 4.9 GHz band spectrum should be up to 50 MHz?</p>

12. We have no adverse comment.

<p><u>Question 4:</u> Do you have any views on the proposal to divide the spectrum in the 3.3 GHz band into 10 frequency blocks, each with a bandwidth of 10 MHz?</p>

13. We agree with the proposed band plan with the division of the available spectrum into ten frequency blocks, each with a bandwidth of 10 MHz.

<p><u>Question 5:</u> Do you have any views on the proposed spectrum cap of 40 MHz to be imposed on any bidder in the auction for the 3.3 GHz band?</p>

14. Please see our answer to Question 2 above. Given our view that administrative assignment approach should be adopted, this question is not relevant.

<p><u>Question 6:</u> Do you have any views on limiting any bidder to acquire only one frequency block with a bandwidth of up to 50 MHz of spectrum in the auction for the 4.9 GHz band?</p>

15. Please see our answer to Question 2 above. Given our view that administrative assignment approach should be adopted, this question is not relevant.



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16. In addition, we noted from the Consultation Paper that 4.94 – 4.99 GHz band is being operated for government services currently. However, it is unclear which government services are being used in that band and how much spectrum has been utilized. By the same token, we are uncertain which type of fixed service is being used, if any, in the 4.80 – 4.83 GHz. As such, we urge the CA to disclose such information to the public. If the spectrum in the 4.80 – 4.83 GHz and 4.94 – 4.99 GHz band is found to be under-utilized, then it should be re-allocated and give way to 5G services. In this way, a total of 200 MHz of spectrum in the 4.8 – 5.0 GHz band will be made available for 5G deployment.

Question 7: Do you have any views on the proposed format of and timing for the auctions of the 3.3 GHz band and the 4.9 GHz band?

17. Please see our answer to Question 2 above.
18. If the administrative assignment approach would not be adopted, we propose that auctions of the 3.3 GHz and 4.9 GHz bands should be held together with the upcoming auction for the 3.5 GHz band, which is also scheduled for 2019. According to the CA’s timetable, the auctions of the 3.3 GHz and 4.9 GHz bands are planned to take place around mid-2019. Given the planned auctions are only few months apart, they should be held at the same time to save resources and facilitate better planning.
19. Our proposal would enable incumbent mobile network operators (“MNOs”) and prospective spectrum assignees to have an overview of the availability and pricing of the spectrum, so as to facilitate better technical and business plans for 5G network rollout. This is important to the telecommunications industry, as 5G rollout requires substantial capital expenditures and technical capabilities.
20. Take India for an example. Earlier this year, the Department of Telecom (“DoT”) instructed operators to vacate spectrum in the 3.3 – 3.4 GHz band by the end of September 2018, so it could be included in a new auction. The next auction being planned by the DoT would be a major one covering spectrum not only in the 3.3 GHz and 3.5 GHz bands, but also in the 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2.1 GHz, 2.3 GHz, and 2.5 GHz bands.²

² Available at: <https://www.telecomasia.net/content/dot-orders-telcos-surrender-33-ghz-spectrum>



Question 8: Do you have any views on the proposed network and service rollout obligations, as well as the imposition of the associated performance bond on successful bidders for the 3.3 GHz and the 4.9 GHz bands?

21. We agree with the proposed network and service rollout obligations on the prospective spectrum assignees for the 4.9 GHz band, but not for the 3.3 GHz band.
22. In respect of the 3.3 GHz, the CA proposes to require each spectrum assignee to establish at least 500 indoor base stations operating at the band within the first five years from the date of issue of the licence. However, the term “base station” was not defined. Should the term be referred to conventional radio base stations for 4G network, then such target is hard to achieve, given the difficulty being faced by the MNOs to find indoor cell sites, such as in shopping malls and office buildings. Should the term be referred to 5G new radio (“NR”)³, then the rollout obligation for 500 NR is arguably acceptable.
23. Given the huge demand for 5G connectivity, we anticipate the demand for 5G NR (Access Points) will be tremendously high. In this connection, 5G site planning will be a lot different from the previous generations of mobile technologies, which involves multi-dimensional aspects in terms of spectrum (low-band, mid-band and high-band) and locations (where 5G NR to be placed). Hence, for the purpose of efficient deployment of 5G services and realization of smart city initiatives, we suggest the Government take a proactive role in coordinating with various of its departments to facilitate MNOs access to government premises, street furniture and new public development project sites for cell-site installation in a timely manner.
24. Regarding the imposition of the associated performance bond, we agree with the proposed arrangement.

Question 9: Do you have any views on the proposal in relation to SUF above?

25. Given our answer to Question 2 above, we consider that it is appropriate to set the SUF based on the SUF charging scheme for spectrum assigned administratively as introduced by the SCED and the former Telecommunications Authority in 2011. That is, SUF will be charged if the frequency bands become congested (i.e. 75% or more occupied) and are anticipated to become more congested in the future.

³ 3GPP Release 15 introduced a formal definition of a 5G New Radio (NR) mobile communications standard. For details, please refer to “5 Things To Know about 5G New Radio”. Available at: <http://www.ni.com/en-us/innovations/5g/new-radio.html>