

SINGAPORE TELECOM MOBILE PTE LTD

RESPONSE TO CONSULTATION PAPER - ALLOCATION OF SPECTRUM IN THE 1800 MHz FREQUENCY BAND

1. INTRODUCTION

- 1.1 Singapore Telecom Mobile Pte Ltd (**SingTel Mobile**) refers to the Info-communications Development Authority of Singapore (**IDA**) consultation paper dated 5 September 2008 on the framework for the allocation of spectrum in the 1800 MHz frequency band (**Consultation Paper**).
- 1.2 SingTel Mobile is licensed to provide Public Cellular Mobile Telecommunications Services (**PCMTS**) in Singapore and has acquired 2G Spectrum Right(s) to provide 2G mobile services and 3G Spectrum Right(s) to provide 3G mobile services. SingTel Mobile also acquired Wireless Broadband Access Spectrum Right(s) and is licensed to provide wireless broadband services.
- 1.3 SingTel Mobile is committed to the provision of state-of-the-art mobile telecommunications services and technologies in Singapore. As a leading provider of mobile telecommunications services over GSM and 3G networks, high speed data services through GPRS and HSDPA technology and wireless services on our WiFi platforms, SingTel Mobile has a strong interest in the proposed framework for the allocation of spectrum in the 1800 MHz frequency band.
- 1.4 SingTel Mobile welcomes the opportunity to make this submission on the Consultation Paper and the various issues identified by the IDA.
- 1.5 This submission is structured as follows:

Section 1 – Introduction
Section 2 – Executive Summary
Section 3 – Detailed Response
Section 4 – Conclusion
- 1.6 SingTel Mobile would be pleased to clarify any of the views and comments made in this document, as appropriate.

2. EXECUTIVE SUMMARY

2.1 The key points made by SingTel Mobile in this submission are:

Continued strong demand for 2G mobile services

- (a) There is a continuing strong demand for 2G mobile services and mobile operators require the use of the spectrum in the 1800 MHz frequency band to provide PCMTS in Singapore.
- (b) Existing mobile operators have obligations in their respective FBO licences to offer PCMTS using the spectrum on 900 MHz and/or 1800 MHz frequency bands (**GSM spectrum**). These licences do not expire until March 2017. The existing mobile operators are efficiently utilizing the allocated GSM spectrum to serve approximately 4 million end-users. Mobile operators have also made substantial investments in GSM or 2G network infrastructure and have invested in enhancements of this infrastructure over the years (such as GPRS).
- (c) SingTel Mobile therefore supports the IDA proposal to allocate additional 1800 MHz frequency spectrum for the delivery of PCMTS.
- (d) SingTel Mobile recognises that there may be a need for spectrum to be available for temporary or trial uses. However, SingTel Mobile submits that where there is a need for the spectrum to provide commercial services to end-users efficiently, this need should be accorded priority.
- (e) For the purpose of future and ad hoc usage (e.g. temporary allocation for R&D, events, testing etc), SingTel Mobile submits that the IDA reserve one (1) lot (i.e. 2 x 5 MHz) of 1800 MHz frequency spectrum and one (1) lot (i.e. 2 x 5 MHz) of EGSM frequency spectrum. Hence, the IDA can then make available two (2) lots of 1800 MHz frequency spectrum for allocation to mobile operators for the provision of PCMTS to end-users.
- (f) Whilst SingTel Mobile notes that the IDA used an auction process in the PCMTS Spectrum Auction in February 2008, SingTel Mobile submits that the current circumstances surrounding the allocation of the additional 1800 MHz frequency spectrum do not require an auction process.
- (g) SingTel Mobile would caution the IDA that an auction process is highly likely to increase costs and such costs would need to be passed-on to end-users.

- (h) SingTel Mobile submits that the IDA has grounds to use an administrative allocation method to allocate the additional 1800 MHz frequency spectrum. As part of the administrative allocation, the IDA could ensure that no one mobile operator could obtain more than one (1) lot (i.e. 2 x 5 MHz) of 1800 MHz frequency spectrum.
- (i) Given that mobile operator(s) that acquire the additional 1800 MHz frequency spectrum do so for the delivery of PCMTS, it does not make sense that the IDA should set a shorter duration for the spectrum right, thereby reducing the business certainty for the mobile operator(s). SingTel Mobile submits that the duration of the spectrum rights for the additional 1800 MHz frequency spectrum should be aligned with the duration of the prevailing spectrum rights granted to the mobile operators i.e. the spectrum right(s) should be valid until 31 March 2017.
- (j) In relation to the price of the additional 1800 MHz frequency spectrum, SingTel Mobile submits that the price to be charged by the IDA under its administrative allocation exercise should accordingly be no more than the reserve price applied by the IDA during the February 2008 PCTMS Spectrum Auction.
- (k) SingTel Mobile notes that Lot C as identified in the Consultation Paper is currently assigned to temporary and experimental use and agrees that this should continue. In relation to the requirement for guard band, we note that the guard band should in fact be for 100 KHz from the lower band of the frequency pairs. We propose that IDA revise its requirement on guard band accordingly.

2.2 SingTel Mobile submits its detailed comments in the following sections.

3. DETAILED RESPONSE

Making available 1800 MHz frequency spectrum

- 3.1 The IDA has stated that the main use of the 1800 MHz frequency spectrum would be for PCMTS, and there would be less demand for use of the 1800 MHz frequency spectrum for delivery of other services, e.g. 3G and wireless broadband. The IDA has also asked whether one (1) lot (i.e. 2 x 5 MHz) of 1800 MHz frequency spectrum should be made available for PCMTS in this allocation exercise.

- 3.2 SingTel Mobile agrees that the main use of the 1800 MHz frequency spectrum is for the delivery of PCMTS. There is likely to be continued demand for PCMTS delivered over the 900 MHz and 1800 MHz frequency bands (i.e. GSM or 2G) for many years to come and this means that there is a need to continually review the allocation of spectrum to deliver PCMTS.
- 3.3 Existing mobile operators have obligations in their respective FBO licences to offer PCMTS using the spectrum on 900 MHz and/or 1800 MHz frequency bands (**GSM spectrum**). These licences do not expire until March 2017. The existing mobile operators are efficiently utilizing the allocated GSM spectrum to serve approximately 4 million end-users. Mobile operators have also made substantial investments in GSM or 2G network infrastructure and have invested in enhancements of this infrastructure over the years (such as GPRS).
- 3.4 In short, it is critical that sufficient spectrum is made available to mobile operators to support the continued provision of existing PCMTS. As such, SingTel Mobile supports the IDA proposal to allocate additional 1800 MHz frequency spectrum for the delivery of PCMTS.

Reservation of 1800 MHz spectrum for uses other than PCMTS; allocation of one (1) lot (i.e. 2 x 5 MHz) of 1800 MHz for PCMTS

- 3.5 The IDA has expressed concern that it could not make available all the remaining three (3) lots (i.e 2 x 5 MHz each) of 1800 MHz frequency spectrum for long term allocation, given that it must provide for sufficient 1800 MHz spectrum for temporary, trial and experimental uses. As a result, the IDA proposes to only make available one (1) lot (i.e. 2 x 5 MHz) of 1800 MHz frequency spectrum for PCMTS in the upcoming allocation exercise.
- 3.6 SingTel Mobile understands that there are three (3) lots (i.e 2 x 5 MHz each) of 1800 MHz frequency spectrum reserved by the IDA. In addition, there is one (1) lot (ie 2 x 5 MHz) of spectrum available on the Extended GSM (**EGSM**) frequency band (i.e. the 880 - 890 MHz / 925 – 935 MHz band).
- 3.7 SingTel Mobile recognises that there may be a need for spectrum to be available for temporary or trial uses. However, SingTel Mobile submits that where there is a need for the spectrum to provide commercial services to end-users efficiently, this need should be accorded priority.

- 3.8 For the purpose of future and ad hoc usage (e.g. temporary allocation for R&D, events, testing etc), SingTel Mobile submits that the IDA reserve one (1) lot (i.e. 2 x 5 MHz) of 1800 MHz frequency spectrum and one (1) lot (i.e. 2 x 5 MHz) of EGSM frequency spectrum. This would allow two (2) lots of 1800 MHz frequency spectrum (at 2 x 5 MHz each) to be made available for allocation to mobile operators for the provision of PCMTS to end-users.
- 3.9 SingTel Mobile therefore submits that the IDA make available two (2) lots of 1800 MHz frequency spectrum (at 2 x 5 MHz each) for mobile operators to use for delivery of PCMTS.

Administrative Allocation vs. Auction

- 3.10 The IDA has recommended an auction process to allocate the additional 1800 MHz frequency spectrum.
- 3.11 Whilst SingTel Mobile notes that the IDA made use of the auction process in the PCMTS Spectrum Auction in February 2008, SingTel Mobile submits that the current circumstances surrounding the allocation of the additional 1800 MHz frequency spectrum do not require an auction process.
- 3.12 For example, in the February 2008 PCMTS Spectrum Auction, the IDA was concerned that there should be efficient usage of the spectrum, the possibility of deploying different technologies and the opportunity for entry to market by additional interested parties who were not existing Facilities-based Operators (**FBOs**) licensed to provide PCMTS.
- 3.13 None of these circumstances prevail today. Furthermore,
- (a) there was (and there is still) no evidence of inefficient usage of the frequency spectrum. There is likely to be continued demand for 2G services for many years to come and this would correspondingly mean that there will be a need to continually review the need for allocation of additional spectrum to deliver PCMTS;
 - (b) there is currently a base of approximately 4 million end-users using PCMTS on the GSM or 2G frequency spectrum (i.e. spectrum on the 900 MHz and / or 1800 MHz frequency bands), forming approximately 65% of the total mobile customer base in Singapore;

- (c) mobile operators have already made substantial investments in GSM / 2G network infrastructure and invested in enhancements to this infrastructure over time (such as GPRS) to drive the development of new innovative services; mobile operators need to be able to obtain sufficient frequency spectrum to realise the benefits of their extensive network investments;
 - (d) furthermore, mobile operators are obliged, under their respective FBO licence obligations in relation to PCMTS (which do not expire until March 2017), to deliver a certain quality to their end-users;
 - (e) the IDA has in the February 2008 PCMTS Spectrum Auction already identified that the IDA would permit the deployment of different technologies provided the spectrum in both the 900 MHz and 1800 MHz frequency bands was used to deliver PCMTS;
 - (f) the IDA made provisions for the possible entry of new interested parties in the February 2008 PCMTS Spectrum Auction with its auction framework. There was no new entry. The existing mobile operators were the only parties that submitted initial offers for the spectrum that was made available during the auction; and
 - (g) the existing mobile operators have also demonstrated that they met the eligibility criteria drawn up by the IDA in the auction framework for the February 2008 PCMTS Spectrum Auction, e.g. they have the financial and technical capability to acquire a PCMTS Spectrum Right and operate a telecommunication system for the purposes of providing PCMTS and have demonstrated compliance with the respective FBO licence obligations. In short, the existing mobile operators have demonstrated their ability to fulfil obligations in relation to delivery of PCMTS; they should not be deprived of additional 1800 MHz spectrum should they so require it for the delivery of PCMTS.
- 3.14 In short, the reasons for which the IDA had advocated an auction method to allocate spectrum in the February 2008 PCMTS allocation exercise do not prevail now. SingTel Mobile submits that the IDA has grounds to use an administrative allocation method to allocate the additional 1800 MHz frequency spectrum.
- 3.15 SingTel Mobile would also caution the IDA that the use of an auction process would only result in increasing costs; mobile operators would have to pass on such costs to end-users.

- 3.16 In light of the above, SingTel Mobile submits that the IDA allocate the additional 1800 MHz frequency spectrum by way of administrative allocation; under such an allocation method, the IDA could require the mobile operators to show evidence that they have maximised usage of the spectrum that they have already been allocated before additional spectrum is allocated to them. As indicated above, the IDA could make available two (2) lots of 1800 MHz frequency spectrum (at 2 x 5 MHz each) for mobile operators to use for delivery of PCMTS. As part of the administrative allocation, it could ensure that no one mobile operator could obtain more than one spectrum lot of 1800 MHz frequency spectrum (ie 2 x 5 MHz).

Duration of spectrum right

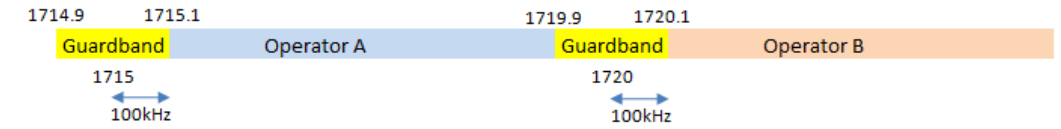
- 3.17 The IDA proposes to set the spectrum right of the additional spectrum to be allocated at 3 years.
- 3.18 SingTel Mobile submits that the duration of the spectrum rights for the additional 1800 MHz frequency spectrum should be aligned with the duration of the prevailing spectrum rights granted to the mobile operators for the delivery of PCMTS.
- 3.19 Given that the mobile operator(s) that acquire the additional 1800 MHz frequency spectrum does so for the delivery of PCMTS, it does not make sense that the IDA should set a shorter duration for the spectrum right, thereby reducing the business certainty for the mobile operator(s).
- 3.20 The IDA has already made provisions to extend the spectrum rights of the existing 2G Spectrum Rights until end-2008 and to grant the PCMTS Spectrum Rights from 1 January 2009 to 31 March 2017; SingTel Mobile submits that setting a spectrum right duration of only 3 years for the additional 1800 MHz frequency spectrum would also be confusing administratively.
- 3.21 SingTel Mobile submits that the duration of the spectrum rights for the additional 1800 MHz frequency spectrum should therefore be aligned with the duration of the prevailing spectrum rights granted to the mobile operators i.e. the spectrum right(s) should be valid until 31 March 2017.

Spectrum Lot

- 3.22 SingTel Mobile notes that Lot C as identified in the Consultation is currently assigned to temporary and experimental use and agrees that this should continue. SingTel Mobile also notes that the IDA proposes that the operator that obtains the additional 1800 MHz frequency spectrum provide a guard band of at least 200 KHz on the lower

frequency boundaries of the lot(s) being assigned unless the operator also holds the spectrum right for the lot on the left.

- 3.23 SingTel Mobile notes that the guard band should in fact be for 100 KHz from the lower band of the frequency pairs, as illustrated below. We propose that IDA revise its requirement on guard band accordingly.



Reserve Price

- 3.24 SingTel Mobile notes that the IDA has proposed to set the reserve price at S\$110,000 based on the reserve price in the February 2008 PCMTS Spectrum Auction, taking into account the IDA's proposed 3 year spectrum right duration.
- 3.25 As indicated above, SingTel Mobile submits that the IDA should align the duration of the spectrum rights for the additional 1800 MHz frequency spectrum with the prevailing spectrum rights i.e. the spectrum right(s) should be valid until 31 March 2017.
- 3.26 In relation to the price of the additional 1800 MHz frequency spectrum, SingTel Mobile submits that the price to be charged by the IDA under its administrative allocation exercise should accordingly be no more than the reserve price applied by the IDA during the February 2008 PCTMS Spectrum Auction.

4. CONCLUSION

- 4.1 SingTel Mobile agrees that the main use of the 1800 MHz frequency spectrum is for the delivery of PCMTS. Nonetheless, there is likely to be continued demand for 2G services for many years to come. As such, SingTel Mobile supports the IDA proposal to allocate additional 1800 frequency spectrum for the delivery of PCMTS.
- 4.2 For the purpose of future and ad hoc usage (e.g. temporary allocation for R&D, events, testing etc), SingTel Mobile submits that the IDA reserve one (1) lot (i.e. 2 x 5 MHz) of 1800 MHz frequency spectrum and one (1) lot (i.e. 2 x 5 MHz) of EGSM frequency spectrum. This would make two (2) lots of 1800 MHz frequency spectrum available for allocation to mobile operators for the provision of PCMTS to end-users.

- 4.3 SingTel Mobile therefore submits that the IDA make available two (2) lots of 1800 MHz frequency spectrum (at 2 x 5 MHz each) for mobile operators to use for delivery of PCMTS.
- 4.4 The current circumstances surrounding the allocation of the additional 1800 MHz frequency spectrum do not require an auction process. SingTel Mobile submits that the IDA has grounds to use an administrative allocation method to allocate the additional 1800 MHz frequency spectrum. As part of the administrative allocation, the IDA could ensure that no one mobile operator could obtain more than one (1) lot of 1800 MHz frequency spectrum (i.e. 2 x 5 MHz).
- 4.5 SingTel Mobile submits that the duration of the spectrum rights for the additional 1800 MHz frequency spectrum should be aligned with the duration of the prevailing spectrum rights already granted to the mobile operators, i.e. the spectrum right(s) should be valid until 31 March 2017.
- 4.6 SingTel Mobile notes that Lot C as identified in the Consultation Paper is currently assigned to temporary and experimental use and agrees that this should continue. In terms of guard bands, SingTel Mobile submits that the guard band should be 100 KHz from the lower band of the frequency pairs. We propose that IDA revise its requirement on guard band accordingly.
- 4.7 Finally, the price to be charged by the IDA under its administrative allocation exercise should be no more than the reserve price applied by the IDA during the February 2008 PCTMS Spectrum Auction.