M1'S RESPONSE TO IDA'S CONSULTATION PAPER ON THE ALLOCATION OF SPECTRUM IN THE 1800 MHZ FREQUENCY BAND

3 October 2008

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1. M1 has been providing cellular mobile services to the Singapore market since 1 April 1997 and in 2000, we launched our international telephone services. In February 2005, M1 took the lead in introducing 3G technology and launching our 3G services. This was followed by the launch of our Mobile Broadband service in December 2006. In August 2008, M1 became a full-fledged broadband player with the introduction of M1 Fixed Broadband service, transforming M1 from a single-play mobile operator to a dynamic multi-play operator with interests in the mobile and fixed sectors.

2. We welcome the opportunity to submit our comments to IDA for its consideration on the allocation of spectrum in the 1800 MHz frequency band. M1 is interested in the allocation of additional 1800 MHz spectrum. We have earlier highlighted this likely requirement in our response to IDA's consultation on the proposed framework for the reallocation of Public Cellular Mobile Telecommunication Services ("PCMTS") spectrum.

3. M1 puts forth to IDA that the allocation of additional spectrum in 1800 MHz band must not be evaluated solely from a 2G market or technology perspective, particularly if the proposed spectrum is permitted to be used for the provision of PCMTS using 2G, 3G or other technologies which share a similar platform or WBA. There needs to be careful and balanced assessment of the implications and ramifications on competition as well as future growth and development of the mobile industry.

4. In this response, we would address:
   - M1's interest in additional 1800 MHz spectrum;
   - No necessity to reserve spectrum in 1800 MHz frequency band; and
   - Criticality of providing <u>equal opportunity</u> for all existing operators to acquire additional <u>contiguous</u> 1800 MHz spectrum

M1's interest in additional 1800 MHz spectrum

5. As an existing operator in the PCMTS (GSM 900/1800) market, additional spectrum will provide more bandwidth for M1's growing subscriber base as well as service development. More efficient and flexible spectrum management could also be achieved to cater for higher speed data services and accommodate changing market/technological conditions with optimal exploitation of our spectrum resources.

6. The 1800MHz band has been identified for the 3G expansion band and Long Term Evolution ("LTE"). LTE is envisaged to make use of a wider channel bandwidth to provide a peak downlink throughput of 100 Mb per second. It is also capable of

higher spectral efficiency than the current 3G technology. However, to realize the maximum potential and benefits of this new technology in terms of user throughput, operators will need to have sufficient **contiguous** channel bandwidth.

7. According to equipment vendors, LTE is expected to be available in 2009/2010. As such, IDA's proposed allocation of spectrum in the 1800 MHz frequency band will be timely in the preparation for implementation of LTE. To maintain leadership in technology/service innovation, M1 is certainly interested in the deployment of LTE which can bring about a range of exciting, high bandwidth, next generation mobile services that will further spur the growth of the industry.

No necessity to reserve spectrum in 1800 MHz frequency band; and

8. M1 note that besides the 3 lots of 1800 MHz spectrum, there are ample unallocated spectrum lots, namely 15 MHz on the 2100 MHz and part of the 10 MHz on the extended GSM band. All these bands should provide sufficient unallocated spectrum to cater for:
   - Any new entrant to the PCMTS market;
   - Handset testing;
   - Temporary, trial and experimental uses; and
   - Surges in traffic volumes during large scale events held in Singapore.

9. Hence, our view is that there is no need to reserve additional 1800 MHz spectrum specifically for the above purposes. Such provision would, in fact, be inefficient and ineffective use of a scarce resource that could otherwise be deployed for the provision of PCMTS to better serve the needs of the mobile market.

Criticality of providing equal opportunity for all existing operators to acquire additional contiguous 1800 MHz spectrum

10. IDA and industry players would be aware that there are many inherent advantages associated with having contiguous spectrum lots. Some of the key advantages are highlighted as follows:

    - Contiguous channel bandwidth is needed for realizing the maximum potential and benefits of LTE;

    - The number and width of guard bands necessary can be minimised with an allocation of contiguous blocks of spectrum. Such operators will be able to co-ordinate their own frequencies, thereby minimising the number of guard bands necessary and maximise spectrum available for the provision of services;

    - Contiguous bands will allow for better network planning/optimal design and improved spectral efficiency;

- In practice, there are applications that will only be cost-effective with a block of spectrum that is contiguous across a large frequency range; and

- Non-contiguous spectrum may pose an issue when designing a common combiner to the exact allocated spectrum for common telecom infrastructure in MRT or road tunnels and in-building sites.

11. As all three existing PCMTS operators have 1800 MHz spectrum, it is only fair and reasonable that each be given equal opportunity to acquire additional contiguous 1800 Mz spectrum in the proposed allocation framework.

12. Regarding IDA's proposal, we note that each of the three 1800 MHz lots which are not assigned (see Table 1 below) are contiguous lots next to an existing mobile operator's 1800 MHz spectrum. However, although all 3 lots are not assigned, Lot C (the contiguous lot next to M1's spectrum) is the only lot that would not be made available for allocation.

Table 1: 1800 MHz spectrum lots which are not assigned

Lot	Lower Band (MHz)	Upper Band (MHz)	Availability under Proposed Framework	Remarks
A	1730-1735	1825-1830	Available	Contiguous lot next to SingTel's ("STM") spectrum
B	1735-1740	1830-1835	Available	Contiguous lot next to StarHub's ("SHM") spectrum
C	1780-1785	1875-1880	**Not available**	Contiguous lot next to M1's spectrum

M1 therefore, requests IDA revise its proposal to enable all existing operators to have an equal opportunity to acquire an additional contiguous 1800 MHz spectrum. Specifically, Lot C (contiguous lot next to M1's spectrum) should be made available for allocation.

In the unlikely event that for some reason, Lot C cannot be made available, then it will only be reasonable for IDA to limit the allowable use of the other 1800 MHz spectrum for 2G services only to maintain a level playing field among the operators. The allowable use for this additional 1 lot of 1800 MHz spectrum could be expanded to include 3G technologies/other technologies which share a similar platform, or WBA only when there are "equivalent", contiguous, spectrum lots available for the other two existing mobile operators to acquire.

13. In summary, M1 submits that:

- IDA should ensure an equal opportunity for all existing operators to acquire an additional contiguous 1800 MHz spectrum by making lots A, B, and C available for acquisition.

- If the above is not feasible, then IDA should limit the allowable use of the additional 1 lot of 1800 MHz spectrum to 2G services only in view of its impact and ramifications on competition and the future growth and development of the mobile industry.