

**For information  
On 9 May 2005**

**Legislative Council Panel  
on Information Technology and Broadcasting**

**Assignment of the Available Spectrum  
in the 800 MHz and 1800 MHz Bands  
to the Existing Mobile Network Operators**

**Purpose**

This paper briefs Members on the public consultation conducted by the Telecommunications Authority (“TA”) on 28 February 2005 on the assignment of the available spectrum in the 800 MHz and 1800 MHz bands to the existing Mobile Network Operators (“MNOs”) for the second generation (“2G”) mobile services.

**Assignment of the Available Spectrum to the Six Incumbent Mobile Network Operators**

2. In the context of the licence renewal of the 2G licences with two rounds of consultations conducted in 2003 and 2004, some of the MNOs for the 2G mobile services raised concerns about their spectrum shortage problems and applied for the assignment of additional radio spectrum. The TA saw a need to assign additional spectrum to the eligible incumbent licensees as soon as possible. On 29 November 2004, the TA issued a statement concluding on matters arising from the licensing of mobile services on expiry of the existing licences for 2G mobile services. The TA set out, *inter alia*, his decision that the following spectrum should be assigned to the existing MNOs only for capacity expansion:-

- 885 – 890 MHz / 930 – 935 MHz (Bandwidth = 5 MHz x 2)  
(available after 23 July 2005)
- 1780.1 – 1785 MHz / 1875.1 – 1880 MHz (Bandwidth = 4.9 MHz x 2)

(available immediately)

3. The decision is made with due regard to the spectrum shortage problems faced by the existing MNOs and their need for introducing more advanced, bandwidth intensive multimedia services. In accordance with the statutory requirement under section 32G(2) of the Telecommunications Ordinance, the TA is required to consult the public on the assignment of radio spectrum. The TA therefore issued on 28 February 2005 a consultation paper (“Consultation Paper”) on how to assign the available spectrum to the existing six MNOs.

### **Proposed Assignment Method**

4. For efficient allocation and use of the radio spectrum, the TA is minded to assess the performance of the MNOs in the utilization of the existing assigned spectrum in order to determine the eligibility of individual MNOs for assignment of the available spectrum<sup>1</sup>. The assessment results show that all the MNOs have managed to achieve a high level of frequency re-use and spectral efficiency, and supported a large number of subscribers with their assigned radio spectrum.

5. It is worth noting that the MNOs currently are assigned with different amount of radio spectrum for the provision of 2G mobile services. Three MNOs having operations in both the 900 MHz and 1800 MHz bands (“Dual-Band Operators”) are assigned with a bandwidth of 19.9 MHz x 2, whereas the remaining three MNOs having operations only in the 1800 MHz band (“Single-Band Operators”) are assigned with a bandwidth of 11.6 MHz x 2<sup>2</sup>.

6. Compared with the Single-Band Operators, the Dual-Band Operators

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<sup>1</sup> In the assessment, the performance of the MNOs in the utilization of the assigned spectrum is assessed on the basis of the following performance factors:-

- Frequency re-use factor;
- Size of subscriber base; and
- Achieved spectral efficiency.

These are the same factors that the TA has taken into account in a previous exercise of additional spectrum assignment conducted in 2002.

<sup>2</sup> The existing Dual-Band Operators are Hong Kong CSL Limited, Hutchison Telephone Company Limited and SmarTone Mobile Communications Limited. The existing Single-Band Operators are China Resources Peoples Company Limited, Mandarin Communications Limited and New World PCS Limited.

have a much larger network capacity as they are assigned with a larger amount of spectrum. As the Single-Band Operators are also serving a comparably large customer base and providing similar mobile services with comparable grade of service as that of the Dual-Band Operators, the Single-Band Operators are utilizing their relatively smaller amount of assigned spectrum to a much fuller extent. Given this fact, while the TA is of the view that all MNOs have operational needs for extra spectrum, he sees it necessary to give due considerations to the difficulties faced by the Single-Band Operators in dimensioning their networks to meet future growth.

7. Having meticulously considered the existing market situation and the relative efficiency of the MNOs in utilizing their assigned spectrum, the TA proposed in the Consultation Paper that it would be in the best public interest to treat all the six MNOs equally in the assignment of the available spectrum. The TA therefore proposed to divide the available spectrum in the 800 MHz and 1800 MHz bands into six 1.6 MHz x 2 blocks for assignment to the six MNOs, with the blocks in the 800 MHz band assigned to the Dual-Band Operators and the blocks in the 1800 MHz band assigned to the Single-Band Operators. This would enable the Single-Band Operators whose operations are solely in the 1800 MHz band to expand their network capacity with less lead-time required for upgrades, and hence help address their difficulties in dimensioning their networks for future growth. If these Single-Band Operators are to be assigned frequency blocks in 800 MHz band, they may need to revamp their frequency planning and procure additional hardware/software in order that their radio networks can be upgraded to cater for dual-band operation. On the other hand, the Dual-Band Operators have already set up their networks for operation in the 900 MHz band and they would require a relatively smaller scale of revamping to operate in the 800 MHz band.

8. As regards the choice of frequency blocks, the TA has no objection if the MNOs can coordinate and reach mutual agreement among themselves. Otherwise, the TA will have to formulate a transparent and fair assignment method.

### **Payment of Spectrum Utilization Fee (SUF)**

9. The Government has already promulgated the legislation to require the

2G MNOs to pay SUF for the spectrum assigned when they are granted the new Mobile Carrier Licences after the expiry of their existing licences. The TA recommends that the additional spectrum to be assigned to the MNOs pursuant to this assignment exercise should also be subject to the same level of SUF (see Annex for details). While the TA proposed to assign the additional spectrum to the 2G MNOs through amendment to their existing 2G licences so that they can make use of the additional spectrum at an early date, he was of the view that the SUF should be chargeable only when the incumbent MNOs take up the new Mobile Carrier Licences upon expiry of their existing licences<sup>3</sup>.

10. The TA notes that the proposed assignment to the MNOs is only an incremental addition to their existing assigned spectrum. The additional amount of spectrum to be assigned is expected to serve for expansion of MNOs' network capacity and improvement of the quality of their existing mobile services and their future, new and innovative services. In view of the fact that the additionally assigned spectrum will be used to provide the same set of services at the same prices, we consider it fair and appropriate to apply SUF at the same level as that for the existing assigned 2G spectrum as stipulated in the Telecommunications (Level of Spectrum Utilization Fees) (Second Generation Mobile Services) Regulation.

### **Submissions Received in Response to the Consultation**

11. The consultation closed on 29 March 2005. The Office of the Telecommunications Authority ("OFTA") received submissions from the six MNOs, as well as other interested parties. All the submissions can be downloaded from OFTA's home page at "[www.ofta.gov.hk](http://www.ofta.gov.hk)". The gist of the submissions is given as follows:-

- All of the six incumbent MNOs basically welcome the assignment of additional spectrum for expanding their existing network capacity and further improving their mobile services.
- Four MNOs have indicated their support to the proposed assignment

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<sup>3</sup> MNOs will only be required to pay SUF for the use of their existing 2G spectrum when they are granted the new Mobile Carrier Licences upon expiry of their existing licences.

method.

- The other two MNOs, who are Dual-Band Operators, disagree with the proposal and allege that they will need extra investment if they are assigned with frequency blocks in the 800 MHz band instead of the 1800 MHz band. They also contend that each Dual-Band Operator is holding two licences for the 2G mobile services and therefore each of its licences should be entitled for the assignment of a frequency block.
- Four MNOs disagree to the TA's proposal to remove the restriction on the provision of 3G services using the additional spectrum assigned to the MNOs in 2002<sup>4</sup> and not to impose this restriction on the additional spectrum to be assigned pursuant to this exercise. They consider that the proposal will raise concerns among the 3G licensees and there is no urgency to remove the restriction prior to the expiry of the existing 2G licences.
- One respondent submits that the available spectrum should be assigned through an open auction where all parties should be eligible to bid for the spectrum, instead of a direct assignment to the existing MNOs.
- Another respondent considers that the available spectrum should be reserved for future growth of the mobile market and should not be assigned prior to the completion of the spectrum policy review and the review on fixed mobile convergence.

12. At present, the Government is studying the views and comments of the respondents and will make recommendations on the way forward in due course.

### **Advice Sought**

13. Members are invited to take note of the progress of the consultation and

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<sup>4</sup> In the last spectrum assignment exercise conducted in March 2002, the TA imposed as a condition of assignment that the additional spectrum to be assigned at that time should not be used to provide 3G services. As the TA considers that this restriction is no longer relevant in the present market environment, the TA proposed that when extra spectrum is to be assigned to the MNOs in the current exercise, the TA would take the opportunity to amend the relevant licences to remove the restriction in respect of the spectrum assigned in 2002. In any case, such a condition of assignment would lapse upon the expiry of existing GSM and PCS licences as the new Mobile Carrier Licences to be granted will not contain this condition.

to give views and comments in relation to the assignment of the available spectrum in the 800 MHz and 1800 MHz bands.

**Communications and Technology Branch  
Commerce, Industry and Technology Bureau  
May 2005**

**Recommended Level of SUF  
for the Assignment of the Available Spectrum  
in the 800 MHz and 1800 MHz Bands to the Existing MNOs**

In the Consultation Paper, the TA proposed that the level of SUF for the additional spectrum assigned to the MNOs pursuant to this assignment exercise should be the same as that applicable to the existing spectrum assigned to the MNOs, as stipulated in the Telecommunications (Level of Spectrum Utilization Fees) (Second Generation Mobile Services) Regulation. That is,

- a) for the 1st to 5th licence year, the licensee should pay an SUF of \$145,000 per year per MHz of radio frequency assigned to the licensee. This is a nominal level at 10% of the minimum SUF from the 6th licence year onwards; and
- b) for the 6th licence year onwards, the licensee should pay an SUF of the higher of –
  - i) 5% of “network turnover” of the licensee; or
  - ii) \$1.45 million per year per MHz of radio frequency assigned to the licensee.