

Coverage of Network and Service for CDMA2000 Service

Statement of the Telecommunications Authority

17 November 2010

Introduction

In his Statement “Licensing of Spectrum in the 850 MHz Band to Enable the Provision of CDMA2000 Service” issued on 27 April 2007¹, the Telecommunications Authority (“TA”) decided to make available to the market through auction spectrum in the 850 MHz band (“850 MHz Band”) which would enable the successful bidder to provide a CDMA2000 mobile service. He made the decision based on the following considerations:-

- (a) as a world city, Hong Kong should provide visitors from all over the world with first-class mobile services;
- (b) CDMA2000 is one of the major international mobile communications standards adopted in many parts of the world, including the Mainland China. To strengthen Hong Kong’s strategic position as the gateway between the Mainland of China and the world, roaming service in Hong Kong should continue to be made available to visitors using CDMA handsets; and
- (c) the availability of mobile platforms using all the major cellular standards of the world, including the CDMA2000 standard, would enable the industry to acquire experience in operating the services and in the development of new applications and content for all these platforms.

These considerations are in line with the Government’s spectrum

¹ The TA Statement can be downloaded at <http://www.ofta.gov.hk/en/tas/mobile/ta20070427.pdf>.

management policy objectives as set out in the Spectrum Policy Framework which the Government promulgated in April 2007². The successful bidder for the spectrum was required to use the spectrum to provide public mobile service based on CDMA2000 standard.

2. When the information memorandum (“IM”) was issued on 31 August 2007³ for the auction of the 850 MHz Band, the TA had already allowed for flexibilities in respect of the successful bidder’s compliance with some of the network and service rollout obligations as he foresaw that commercial negotiations between the licensee and the landowners of some of the strategic locations in respect of land access might take time.⁴ Specifically, compliance would only be checked against the availability of necessary site and ancillary facilities of the concerned strategic locations and, under the licence, the licensee would only be required to provide and maintain network and service coverage to these strategic locations within 12 months from the date when the necessary sites and ancillary facilities are made available by the relevant authorities or entities, or on or before 20 November 2010, whichever is earlier.

3. PCCW-HKT Telephone Limited/Hong Kong Telecommunications (HKT) Limited (collectively referred to as “HKT”) successfully bid for the 850 MHz Band in November 2007 and was subsequently issued a licence to provide CDMA2000 service (“Licence”) in November 2008.

4. Under the Licence, HKT is required to complete two milestones guaranteed by a bonded sum of \$75 million each (see Annex 1 for details). HKT fulfilled the first milestone by providing CDMA2000 service in the Golden Bowl Area, which primarily includes the Kowloon Peninsula and the northern part of the Hong Kong Island, by the deadline of November 2008. The second milestone requires HKT to provide service in a number of strategic locations, including road tunnels, Mass Transit Railway stations, the airport and border control points by 20 November 2010.

² The policy framework can be downloaded at <http://www.cedb.gov.hk/ctb/eng/legco/pdf/spectrum.pdf>.

³ The IM can be downloaded at http://www.ofta.gov.hk/en/3g-licensing/CDMA2000_im_20070831.pdf.

⁴ See section C4.3 of the IM.

Application from HKT

5. In April 2010, HKT made a submission to the TA, advising the TA that although it has already provided service to a number of the locations specified in the second milestone, namely Hong Kong International Airport Passenger Terminals together with most of the government tunnels and border control points, it has encountered difficulties to provide coverage in the following locations -

- (a) All Mass Transit Railway stations and adjoining tunnels, all former Kowloon Canton Railway stations and adjoining tunnels and all Airport Express Railway stations and adjoining tunnels (collectively referred to as “MTR stations” in this Statement); and
- (b) Eastern Harbour Crossing Tunnel, Tai Lam Tunnel, Tate’s Cairn Tunnel and Western Harbour Tunnel (collectively referred to as the “four private tunnels”).

6. HKT claimed in its submission that it had made genuine efforts in meeting the second milestone and that the delay in service provision in the MTR stations and the four private tunnels was caused by circumstances beyond its control. It attributed the relatively slow progress of the provision of service at these locations to the disagreement on, *inter alia*, fees level between HKT and the respective landowners.

7. Since the gaps over the fees level between the respective parties was too big, HKT considered that the chance that it could reach commercial agreements with the Mass Transit Railway Corporation (“MTRC”) and the tunnel operators and hence able to provide coverage to the concerned areas before 20 November 2010 was slim.

8. In its submission, HKT applied for the TA’s approval a proposed alternative arrangement set out below to compensate those areas which it fails to provide coverage -

- (a) to replace the rollout and service requirement in the MTR stations and the four private tunnels with seven alternative

locations (“seven alternative locations”), namely North Lantau Highway, Sheung Shui, Shatin, Yuen Long/Tin Shui Wai, Victoria Peak, Lamma Island (Yung Shue Wan) and Buddha/Po Lin Monastery; and

- (b) to provide network and service coverage in the MTR stations and the four private tunnels at a later stage, based on a set of objective criteria which will be discussed below.

9. According to HKT’s proposal, the estimated demand of CDMA roaming service in the seven alternative locations is almost twice the estimated demand in the MTR stations and the four private tunnels combined. HKT submitted that it would establish 66 base stations for providing coverage in the seven alternative locations by 20 November 2011.

TA’s Considerations and Decision

10. In considering HKT’s application, the TA has taken the following matters and factors into consideration -

- (a) HKT’s CDMA2000 service has been launched for about two years since November 2008. Such service provision is in line with the Government policy objective of strengthening Hong Kong’s strategic position as a world city and the gateway between the Mainland China and the world,
- (b) The objective of imposing HKT with the network and service coverage obligation guaranteed with the performance bond is to prevent any spectrum hoarding and to ensure timely rollout of the service. As discussed in paragraph 4 above, HKT has already fulfilled the first milestone by providing the CDMA2000 service in the Golden Bowl Area by November 2008. The company has also launched the service in a number of locations as specified under the second milestone, including the six government road tunnels, the Hong Kong International Airport Passenger Terminals

and the 10 border control points. Though service provision in MTR stations and the four private tunnels remains outstanding, the TA is of the view that HKT should not be held entirely responsible for its failure to meet these outstanding requirements (see the discussion below). The TA considers that the rollout of service by HKT thus far is, if anything, sufficient evidence of HKT not intending or seeking to hoard the spectrum assigned to it under the Licence.

- (c) To gain a better understanding on HKT's failure in meeting the coverage obligations in the MTR stations and the four private tunnels as set out in the second milestone, OFTA had approached the concerned parties after receiving HKT's assertion of difficulty in reaching agreement with MTRC and the private tunnel operators. Based on the information available to OFTA, the TA observed that the disputes are mainly in financial matters. Each party refused to accept the financial terms and other fundamental conditions offered by the other as the offers were based on different considerations. The gaps over the fees level between the respective parties were too big and it would not be likely that they could reach agreement for the provision of network and service coverage to the concerned locations by the deadline of the second milestone i.e. 20 November 2010.

11. Having taken into account the above, the TA accepts that HKT's failure to fulfil the second milestone does not amount to a breach of the licence condition.

12. To take HKT's application to the next stage, the TA then considered HKT's revised proposal of replacing the original rollout and service requirement in the MTR stations and the four private tunnels with the seven alternative locations and continuing agreement to provide (on conditions) network and service coverage in the MTR stations and the four private tunnels. According to the information provided by HKT, the estimated demand in the seven alternative locations is about twice the estimated demand in the MTR stations and the four private tunnels.

13. The TA has examined the relevant demand figure and is satisfied with PCCW's estimation. The coverage of the alternative locations would enable more users to enjoy the CMDA2000 service using the same frequency spectrum and provide better coverage to the inbound roamers. HKT's proposal if fulfilled would be in line with the Government's spectrum policies of facilitating the most economically and socially efficient use of spectrum with a view to attaining maximum benefit to the community as well as strengthening Hong Kong's position as the gateway to the Mainland China. The TA concludes that it would be in the public interest for him to accept HKT's proposal and revise the Licence such that HKT may proceed to implement the proposal expeditiously.

Revised Network and Service Coverage Obligations

14. With the above, the TA has dealt with the HKT's network and service obligations as imposed in the Licence in the following manner -

- (a) the network and service rollout obligation for the six government tunnels, the Hong Kong International Airport Passenger Terminals and the 10 control points by 20 November 2010 remains unchanged;
- (b) HKT is required to roll out to the alternative seven locations as set out in paragraph 8(a) by 20 November 2011; and
- (c) the network and service rollout obligation in respect of the MTR stations and the four private tunnels by 20 November 2010 is lifted until further direction of the TA. Where directed by the TA, HKT shall provide coverage in the MTR stations and the four private tunnels within such period as specified by the TA.

15. In exercising the power to direct HKT to provide coverage in the MTR stations and the four private tunnels, the TA will take into account relevant matters including, without limitation to, the estimate of traffic demand at the location(s) concerned, the remaining period of validity of

the Licence and the existence of alternative service providers.

16. When estimating the traffic demand, the TA will adopt and apply the following criteria -

- (a) Since there is no CDMA2000 coverage in the MTR stations and the four private tunnels, the best estimate of traffic distribution for CDMA2000 inbound roaming service will be based on the actual 2G/3G inbound roaming traffic of HKT⁵;
- (b) Where the actual 2G/3G inbound roaming traffic at a specific MTR line⁶ has reached 3% of the total 2G/3G inbound roaming traffic for a continuous period of six months, the TA may direct HKT to provide coverage of its CDMA2000 network and service to that MTR line within two years; and
- (c) Where the actual 2G/3G inbound roaming traffic at a specific private tunnel⁷ has reached 1% of the total 2G/3G inbound roaming traffic for a continuous period of six months, the TA may direct HKT to provide coverage of its CDMA2000 network and service to that private tunnel within two years.

17. In order that the TA may monitor the situation in an effective manner, HKT is required to submit to the TA the monthly estimated traffic distribution for inbound roaming traffic in the MTR stations and the four private tunnels for the period specified by the TA so that the traffic demand for each location can be estimated.

18. In exercising his power as described in paragraph 14 (c) above, the TA will also take into account the remainder term of the Licence and

⁵ HKT is holding two carrier licences, i.e. (1) the Mobile Carrier Licence (No. 099) for the provision of CDMA2000 service and (2) the Unified Carrier Licence (No. 003) for the provision of other 2G/3G services. The actual 2G/3G inbound roaming traffic refers to the inbound roaming traffic carried by the network under Unified Carrier Licence (No. 003).

⁶ At present, there are 10 MTR lines, namely Kwun Tong Line, Tsuen Wan Line, Island Line, Tseung Kwan O Line, Tung Chung Line, Airport Express, Disneyland Resort Line, East Rail Line, West Rail Line, Ma On Shan Line.

⁷ This may be one of the four private tunnels of Eastern Harbour Crossing Tunnel, Tai Lam Tunnel, Tate's Cairn Tunnel and Western Harbour Tunnel.

the existence of alternative service providers. Specifically, the TA has agreed that he will not exercise his power to issue such a direction after 20 November 2016. The reason is, as the Licence will expire in November 2023, the TA agrees that HKT is not likely to be able to recoup the investment associated with the relevant rollout requirements within the remainder term of the Licence if a direction is issued after that date. However, the TA reserves the right to impose any condition in relation to rollout requirements and network investment after November 2016 and during the term of the Licence in case the Licence is to be renewed upon its expiry.

Way Forward

19. To give effect to the above decision, the Licence will be amended as detailed in Annex 2. HKT shall arrange for an amendment of the performance bond on or before the due date for compliance of the second milestone, i.e. 20 November 2010. The company is also required to submit to the TA the estimated demand for the CDMA2000 service in the MTR stations and the four private tunnels and audited monthly traffic distribution for 2G/3G inbound roaming traffic as an ongoing requirement.

Office of the Telecommunications Authority
17 November 2010

Original Milestone for CDMA2000 service

List	Milestones	Deadlines for Compliance	Bonded Sum
1. The Golden Bowl Area	Coverage of the network and the service shall be provided by the Licensee to the areas with Hong Kong Grid co-ordinates: Northing from 815 000m to 822 850m and Easting from 830 400m to 843 300m using the CDMA2000 family of standards with CDMA2000 1xEV-DO Release 0 adopted by the 3rd Generation Partnership Project 2 (3GPP2) or other standard as approved by the Authority	On or before 20 November 2008	For breach of the milestone \$ 75 Million
2. Other Locations	<p>Coverage of the network and the service shall be provided by the Licensee to the following locations using the CDMA2000 family of standards with CDMA2000 1xEV-DO Release 0 adopted by the 3rd Generation Partnership Project 2 (3GPP2) or other standard as approved by the Authority:</p> <p>(a) All Mass Transit Railway (MTR) stations and adjoining tunnels</p> <p>(b) All Kowloon Canton Railway (KCR) stations and adjoining tunnels</p> <p>(c) All Airport Express Railway stations and adjoining tunnels</p> <p>(d) 10 road tunnels, namely:</p>	For each tunnel / station / location (as the case may be), 12 months from the date when the necessary sites and ancillary facilities are made available by the relevant authorities or entities, or on or before 20 November 2010, whichever is earlier	<p>For breach of any one or all of (a), (b) or (c) \$ 30 Million</p> <p>For breach of any one or all of (d), (e) or (f) \$ 45 Million</p>

	<ul style="list-style-type: none"> - Aberdeen Tunnel - Cross Harbour Tunnel - Eastern Harbour Crossing Tunnel - Kai Tak Tunnel - Lion Rock Tunnel - Shing Mun Tunnel - Tai Lam Tunnel - Tate's Cairn Tunnel - Tseung Kwan O Tunnel - Western Harbour Tunnel <p>(e) The Hong Kong International Airport Passenger Terminals</p> <p>(f) The control points at:</p> <ul style="list-style-type: none"> - Hung Hom - Lo Wu - Lok Ma Chau - Man Kam To - Sha Tau Kok - China Ferry Terminal - Macau Ferry Terminal - Tuen Mun Ferry Terminal - Shenzhen Bay - Lok Ma Chau Station 		
		Total	\$ 150 Million

Amendments to the Licence

Amendment to Special Condition 1 (as marked)

1. AVAILABILITY OF NETWORK AND SERVICE

- 1.1 The licensee shall install, maintain and use equipment for the purposes of the network and the service such that:
- (a) coverage of the network and the service shall be provided by the licensee to such areas using such technical standards as specified in List 1 of Schedule 4 starting from 20 November 2008 and maintained after that date; ~~and~~
 - (b) coverage of the network and the service shall be provided by the licensee to such locations using such technical standards as specified in List 2 of Schedule 4 within 12 months from the date when the necessary sites and ancillary facilities are made available by the relevant authorities or entities, or on or before 20 November 2010, whichever is earlier and maintained after that date;
 - (c) coverage of the network and the service shall be provided by the licensee to such locations with such minimum number of base stations using such technical standards as specified in List 3 of Schedule 4 within 12 months from the date when the necessary sites and ancillary facilities are made available by the relevant authorities or entities, or on or before 20 November 2011, whichever is earlier and maintained after that date; and
 - (d) coverage of the network and the service shall be provided by the licensee to such locations using such technical standards as specified in List 4 of Schedule 4 within such period as the Authority may direct.
- 1.2 The licensee shall provide such information in such manner and at such times as the Authority may require to demonstrate its compliance with Special Condition 1.1.
- 1.3 In exercising the power to direct the licensee to provide coverage under Special Condition 1.1(d), the Authority shall take into account relevant matters including, without limitation to, the estimate of traffic demand at the location(s) concerned, the remaining period of validity of this licence and the

existence of alternative suppliers.

1.4 For the purpose of estimating the traffic demand at the locations concerned mentioned in Special Condition 1.3, the Licensee shall submit to the Authority:

(a) on an annual basis, starting from a date specified by the Authority, the actual 2G/3G inbound roaming traffic at each of the locations specified in List 4 of Schedule 4 ; and

(b) upon request, information that is necessary to enable the Authority to estimate the traffic demand at the locations concerned mentioned in Special Condition 1.3.

1.5 For the purpose of Special Condition 1.4,

(a) “2G/3G” means a public mobile radiocommunications service provided by Hong Kong Telecommunications (HKT) Limited under the Unified Carrier Licence (No.003) issued by the Authority and dated 30 September 2008; and

(b) “inbound roaming traffic” means the roaming traffic that Hong Kong Telecommunications (HKT) Limited handles on its network under the Unified Carrier Licence (No. 003) issued by the Authority and dated 30 September 2008 for mobile customers of other mobile network operators.

**SCHEDULE 4
COVERAGE OF NETWORK AND SERVICE**

Coverage of network and service shall be provided by the licensee to

LIST 1

Area	Technical Standard
The Golden Bowl Area The areas with Hong Kong Grid co-ordinates: Northing from 815 000m to 822 850m and Easting from 830 400m to 843 300m.	The CDMA2000 family of standards with CDMA2000 1xEV-DO Release 0 adopted by the 3rd Generation Partnership Project 2 (3GPP2) or other standard as approved by the Authority

LIST 2

Locations	Technical Standard
(a) All Mass Transit Railway (MTR) stations and adjoining tunnels	The CDMA2000 family of standards with CDMA2000 1xEV-DO Release 0 adopted by the 3rd Generation Partnership Project 2(3GPP2) or other standard as approved by the Authority
(b) All Kowloon-Canton Railway (KCR) stations and adjoining tunnels	
(c) All Airport Express Railway stations and adjoining tunnels	
(a) six (d) 10-road tunnels, namely: - Aberdeen Tunnel - Cross Harbour Tunnel - Eastern Harbour Crossing Tunnel - Kai Tak Tunnel - Lion Rock Tunnel - Shing Mun Tunnel - Tai Lam Tunnel - Tate's Cairn Tunnel - Tseung Kwan O Tunnel - Western Harbour Tunnel	The CDMA2000 family of standards with CDMA2000 1xEV-DO Release 0 adopted by the 3rd Generation Partnership Project 2(3GPP2) or other standard as approved by the Authority

Locations	Technical Standard
(b) (e) -The Hong Kong International Airport Passenger Terminals	
(c) (f) -The control points at : - Hung Hom - Lo Wu - Lok Ma Chau - Man Kam To - Sha Tau Kok - China Ferry Terminal - Macau Ferry Terminal - Tuen Mun Ferry Terminal - Shenzhen Bay - Lok Ma Chau Station	

LIST 3

Locations	Number of Base Stations	Technical Standard
<u>(a) North Lantau Highway</u>	A total of at least 66 base stations shall be installed	The CDMA2000 family of standards with CDMA2000 1xEV-DO Release 0 adopted by the 3rd Generation Partnership Project 2(3GPP2) or other standard as approved by the Authority
<u>(b) Sheung Shui</u>		
<u>(c) Shatin</u>		
<u>(d) Yuen Long / Tin Shui Wai</u>		
<u>(e) Victoria Peak</u>		
<u>(f) Lamma Island (Yung Shue Wan)</u>		
<u>(g) Buddha / Po Lin Monastery</u>		

LIST 4

<u>Locations</u>	<u>Technical Standard</u>
<u>(a) All Mass Transit Railway (MTR) stations and adjoining tunnels, including the former Kowloon Canton Railway (KCR) stations and adjoining tunnels</u>	<u>The CDMA2000 family of standards with CDMA2000 1xEV-DO Release 0 adopted by the 3rd Generation Partnership Project 2(3GPP2) or other standard as approved by the Authority</u>
<u>(b) All Airport Express Railway stations and adjoining tunnels</u>	
<u>(c) four road tunnels, namely:</u> <u>- Eastern Harbour Crossing Tunnel</u> <u>- Tai Lam Tunnel</u> <u>- Tate's Cairn Tunnel</u> <u>- Western Harbour Tunnel</u>	

Amendment to Annexe to Schedule 5 (as marked)

Annexe

List	Milestones	Deadlines for Compliance	Bonded Sum
1. The Golden Bowl Area	Coverage of the network and the service shall be provided by the Licensee to the areas with Hong Kong Grid co-ordinates: Northing from 815 000m to 822 850m and Easting from 830 400m to 843 300m using the CDMA2000 family of standards with CDMA2000 1xEV-DO Release 0 adopted by the 3rd Generation Partnership Project 2 (3GPP2) or other standard as approved by the Authority	On or before 20 November 2008	For breach of the milestone \$75 Million
2. Other Locations	Coverage of the network and the service shall be provided by the Licensee to the following locations using the CDMA2000 family of standards with CDMA2000 1xEV-DO Release 0 adopted by the 3rd Generation Partnership Project 2 (3GPP2) or other standard as approved by the Authority: (a) All Mass Transit Railway (MTR) stations and adjoining tunnels	For each tunnel / station / location of (a) to (c) (as the case may be) , 12 months from the date when the necessary sites and ancillary facilities are made available by the relevant	For breach of any one or all of (a), (b) or (c), \$45 Million For breach of (d), \$30 Million For breach of any one or all of (a), (b) or (c) \$ 30 Million For breach of

List	Milestones	Deadlines for Compliance	Bonded Sum
	<p>(b) All Kowloon Canton Railway (KCR) stations and adjoining tunnels</p> <p>(c) All Airport Express Railway stations and adjoining tunnels</p> <p>(a) six (d) 10-road tunnels, namely:</p> <ul style="list-style-type: none"> - Aberdeen Tunnel - Cross Harbour Tunnel - Eastern Harbour Crossing Tunnel - Kai Tak Tunnel - Lion Rock Tunnel - Shing Mun Tunnel - Tai Lam Tunnel - Tate's Cairn Tunnel - Tseung Kwan O Tunnel - Western Harbour Tunnel <p>(b) (e) The Hong Kong International Airport Passenger Terminals</p> <p>(c) (f) The control points at:</p> <ul style="list-style-type: none"> - Hung Hom - Lo Wu - Lok Ma Chau - Man Kam To - Sha Tau Kok - China Ferry Terminal - Macau Ferry Terminal - Tuen Mun Ferry Terminal 	<p>authorities or entities, or on or before 20 November 2010, whichever is earlier.</p> <p><u>For each location of (d), 12 months from the date when the necessary sites and ancillary facilities are made available by the relevant authorities or entities, or on or before 20 November 2011, whichever is earlier.</u></p>	<p>any one or all of (d), (e) or (f)</p> <p>\$ 45 Million</p>

List	Milestones	Deadlines for Compliance	Bonded Sum
	<ul style="list-style-type: none"> - Shenzhen Bay - Lok Ma Chau Station <u>(d) Seven locations (with installation of at least 66 base stations) at:</u> - <u>North Lantau Highway</u> - <u>Sheung Shui</u> - <u>Shatin</u> - <u>Yuen Long / Tin Shui Wai</u> - <u>Victoria Peak</u> - <u>Lamma Island (Yung Shue Wan)</u> - <u>Buddha / Po Lin Monastery</u> 		
		Total	\$150 Million