



**NEW WORLD TELECOMMUNICATIONS LIMITED**

**SUBMISSION TO CONSULTATION PAPER**

**Providing Radio Spectrum for Broadband Wireless Access Services –  
Third Consultation Paper**

18 July 2007

## Submission on BWA Spectrum

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### **1. Introduction**

- 1.1 New World Telecommunications Limited (“NWT”) welcomes the opportunity to respond to the consultation paper on **Providing Radio Spectrum for Broadband Wireless Access Services – Third Consultation Paper**.
- 1.2 The consultation paper represents a long overdue resumption of the discussion on allocation of broadband wireless access (BWA) spectrum since the previous round of submissions concluded in November 2005.
- 1.3 NWT provides the following comments on the consultation paper.

### **2. Licensing of BWA**

- 2.1 The Government is proposing to issue BWA spectrum licences which will allow both fixed and mobile services.
- 2.2 We propose that the Government should set up at least one BWA spectrum licence for fixed line service use only, for the purpose of reducing the cost of acquisition of a licence.
- 2.3 NWT holds a Fixed Telecommunications Network Services (FTNS) licence. We are interested in BWA but we only want to use spectrum for fixed point services only. Our telecom licence is for fixed network services and we have established and developed our business in fixed network services. We have installed our fibre optic cable network throughout the territory connecting to thousands of buildings and customers. We have no interest in providing mobile services.
- 2.4 We are concerned that if the Government issues BWA licences which allow both fixed and mobile services, the price of the licence will be higher.
- 2.5 For a dedicated fixed line licensee, it would be unfair for us to be forced to pay for a licence that includes mobile services that we do not wish to provide. Also, it would be unfair to the consumer which only wants to enjoy fixed line service, as the cost burden of the non-essential mobile licence will pass down to the consumer.

#### Maximising public interest

- 2.6 The allocation of BWA spectrum should not be focused on generating the most revenue from spectrum auctions. The public interest is served by setting up a regulatory framework that fosters innovation, choice, quality and low prices for the Hong Kong public.

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- 2.7 The telecom market in Hong Kong is highly competitive. There are 6 major fixed network and 6 mobile network operators who are providing a wide selection of affordable and quality telecom services to consumers. There is no need for entry of new carriers.
- 2.8 We consider that the Government's priority should be centred on opening up opportunities for existing network operators to provide innovative and higher value services.
- 2.9 NWT as a fixed network operator should be allowed the opportunity to maximise its fixed network reach with BWA connections to business offices and private homes. We hope to serve the public interest by providing customers in a timely manner with new choices for higher speed wireless broadband telephone and internet services.
- 2.10 With BWA, NWT would concentrate on maximising the spectrum bandwidth utilisation for fixed point services only. Fixed only use of spectrum may in many respects be more efficient than mobile use of spectrum. With a channel of identical frequency spectrum bandwidth, fixed WiMAX (IEEE 802.16-2004) can provide up to 2.5 times faster data speeds and larger cell radius coverage than mobile WiMAX (IEEE 802.16e-2005).
- 2.11 BWA technology will avoid the time, costs and inconvenience of road digging and accelerate the growth and reach of our self-built network. This will be important to NWT in an era of no mandatory Type II interconnection whereby the Government has forced licensees towards alternative customer access network solutions.

### NWT's proposal

- 2.12 We believe that Government policy should be positive toward promoting fixed network services without imposing any unnecessary burdens on industry or consumers. Spectrum should be made available at a reasonable price to the benefit of all in Hong Kong.
- 2.13 NWT recommends that the Government should set up at least one BWA spectrum licence for fixed line service use only.
- 2.14 NWT looks forward to the release of BWA spectrum in early 2008.

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**3. Response to OFTA questions**

- 3.1 NWT provides in the **Annex** its specific response to the questions raised by OFTA in the consultation paper.

New World Telecommunications Limited  
18 July 2007

## Annex – Specific response to OFTA’s questions

### A. SPECTRUM AVAILABILITY

#### Frequency Bands

*Question (1): Do you agree that the 2.3 GHz band be allocated for BWA services? If agreed, when the spectrum should be made available?*

- A.1 Agree. The 2.3 GHz band should be allocated for BWA services and should be made available as soon as possible, which should be feasible within the first half of 2008.
- A.2 NWT welcomes the availability of the 2.3 GHz band as it is a superior offering than the 3.5 GHz band previously considered. The 2.3 GHz band would have excellent propagation properties and be able to provide indoor coverage, which would have been doubtful and patchy with the 3.5 GHz band.
- A.3 Allocation of the 2.3 GHz band should be possible and is recommended because:
- (a) Vacant: The 2.3 GHz band is vacant.
  - (b) Compliant with international allocations: In region 3 of the ITU, the 2.3 GHz band is allocated for co-primary use for fixed and mobile services which would include BWA services.
  - (c) Band fits within the profile for BWA: The 2.3 GHz band can work with BWA technologies including WiMAX equipment based on the IEEE 802.16-2004 and IEEE 802.16e-2005 standards.
  - (d) Market demand: The local Hong Kong market for the past few years has expressed strong interest in BWA spectrum. The 2.3 GHz band falls within the UHF spectrum sweet spot, offering optimal propagation and bandwidth characteristics which are highly desired by carriers. Overseas experience corroborates general demand for BWA.
  - (e) Overseas developments: Regulators in many countries have already assigned 2.3 GHz spectrum for BWA, including Australia, Malaysia, New Zealand, Singapore and South Korea.
  - (f) Consistent with Hong Kong spectrum policy: Release of spectrum for BWA services may fulfil some of the aims of the Government’s Radio Spectrum Policy Framework, including:
    - facilitate the most economically and socially efficient use of spectrum with a view to attaining maximum benefit for the community; and
    - achieve technically efficient use of spectrum to facilitate the introduction of advanced and innovative communications services and strengthen Hong Kong’s position as a telecommunications and broadcasting hub.

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- A.4 We would reject any thoughts that may come from mobile network operators to restrict new competition in higher bandwidth mobile services. The mobile network operators’ decision in 2001 to acquire 3G spectrum came with no guarantees against new market entry or new technological developments. Over the past decade, new technology has developed including WiMAX and other BWA technologies which have mobile capability. In any case, since 2001 the mobile network operators have likewise benefited from the evolution of technology for 3G spectrum, from the original 384 kbps specification of UMTS-WCDMA to higher speeds of HSPDA of 3.6 Mbps and beyond.

*Question (2): Do you agree that the opening up of the 2.5 GHz band for BWA should be considered at a later stage? If agreed, when and how much of the bandwidth should be made available to the market?*

- A.5 NWT considers that the discussion on opening up of 2.5 GHz band should be not be deferred, with a view to making the spectrum band available as soon as possible to the market.
- A.6 The release of the 2.5 GHz band (190 MHz) is of crucial importance to BWA deployment, owing to the limited spectrum in the proposed 2.3 GHz band and lack of other candidate bands.

### Availability

- A.7 The 2.5 GHz band (190 MHz) is basically vacant and therefore available for opening up.

### Current Hong Kong allocation

- A.8 Allocation of 2.5 GHz band for BWA services would be consistent with current Hong Kong frequency allocation.
- A.9 Under the current Hong Kong Table of Frequency Allocations, the 2.5 GHz band is allocated for fixed services at 2500-2655 MHz and for mobile services at 2500-2690 MHz.<sup>1</sup>

### International considerations

- A.10 It is permissible within international allocations to use the 2.5 GHz band for BWA services.
- A.11 In region 3 of the ITU which is relevant to Hong Kong, the 2.5 GHz band has the following international allocations:
- (a) co-primary allocation to the fixed and mobile (except aeronautical mobile) services at 2500-2690 MHz;

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<sup>1</sup> OFTA, ‘Hong Kong Table of Frequency Allocations’, August 2005, pp. 132-5.

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- (b) co-primary allocation to the fixed-satellite service at 2500-2535 MHz and at 2655-2690 MHz;
- (c) co-primary allocation to the mobile-satellite service at 2500-2520 MHz and at 2670-2690 MHz;
- (d) co-primary allocation to the broadcasting satellite service at 2520-2670 MHz; and
- (e) secondary allocations to the earth exploration satellite (passive), radio astronomy and space research (passive) services at 2655-2690 MHz.

A.12 BWA services, which may have both fixed and mobile characteristics, would fall within the international allocations of the ITU.

### IMT-2000 and WRC-2000

A.13 The 2.5 GHz band is not exclusively reserved to IMT-2000 under international allocations.

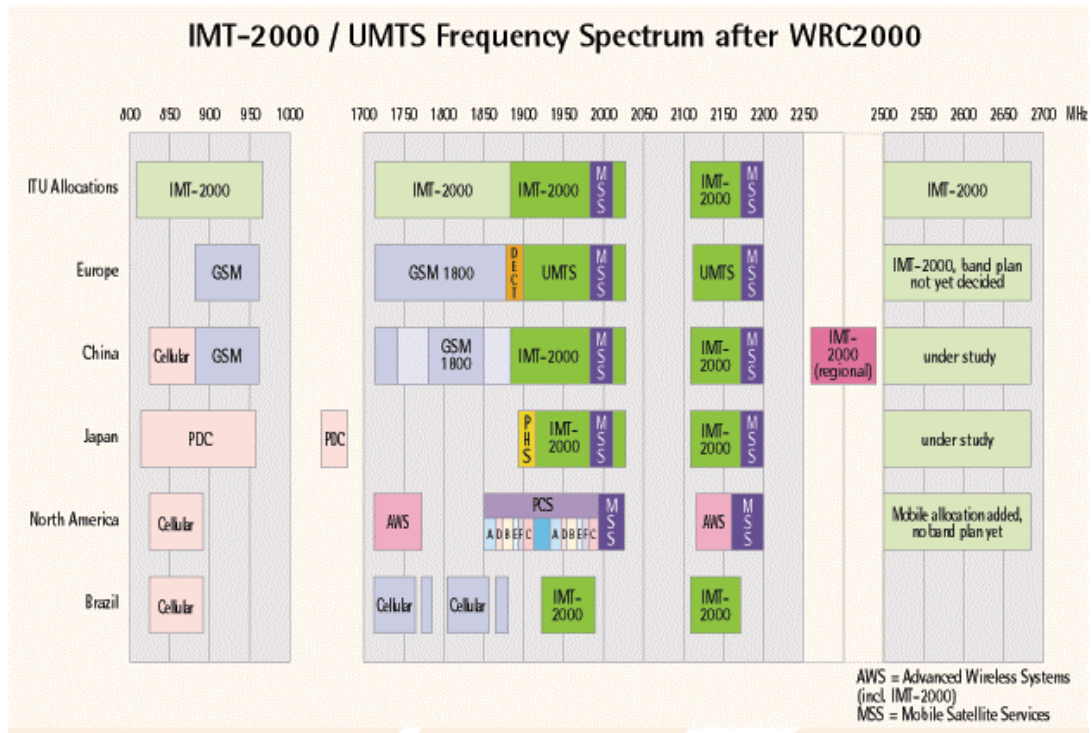
A.14 As we have argued in our prior submission, ITU does not mandate the 2.5 GHz as extension band for 3G / IMT-2000. Rather, it is optional to national regulatory authorities. MNOs have other 3G extension spectrum profiles available, including expansion into existing 2G spectrum holdings, as explained below:

- (a) MNOs have existing mobile spectrum holdings

	<b>3G</b> (1.9 – 2.1 GHz)	<b>2G</b> (GSM 900) (825-960 MHz)	<b>2G</b> (PCS 1800) (1710-1880 MHz)	<b>Extra allocation</b> (800 MHz & 1800 MHz bands)
<b>HTHK</b>	2 x 14.8 MHz + 1 x 5 MHz	2 x 8.3 MHz	2 x 11.6 MHz	2 x 1.6 MHz
<b>CSL</b>	2 x 14.8 MHz + 1 x 5 MHz	2 x 8.3 MHz	2 x 11.6 MHz	2 x 1.6 MHz
<b>SmarTone</b>	2 x 14.8 MHz + 1 x 5 MHz	2 x 8.3 MHz	2 x 11.6 MHz	2 x 1.6 MHz
<b>NWPCS</b>	–	–	2 x 11.6 MHz	2 x 1.6 MHz
<b>Peoples</b>	–	–	2 x 11.6 MHz	2 x 1.6 MHz
<b>PCCW</b>	2 x 14.8 MHz + 1 x 5 MHz	–	2 x 11.6 MHz	2 x 1.6 MHz

- (b) The 3G profile includes MNOs’ existing “2G” spectrum” which can be used for expansion of 3G

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*"Harmonised" radio spectrum is already available in many world regions, ensuring that 3G end users can roam freely using the same terminal device*

- (c) ITU has decided that 2.5 GHz band is **not** exclusively mandated for 3G.

The ITU’s World Radiocommunication Conference 2000<sup>2</sup>:

- (i) identified the bands including 2500 - 2690 MHz for IMT-2000; and
- (ii) decided that the bands, or portions of the bands including 2500 - 2690 MHz are identified for use by administrations wishing to implement International Mobile Telecommunications-2000 (IMT-2000)

This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations.

A.15 Incidentally, it has been reported that mobile WiMAX, the leading candidate BWA technology, is likely to become classified as part of the IMT-2000 family.<sup>3</sup> If that should become the case, WiMAX should be put on the same footing as 3G mobile when it comes to the allocation of expansion IMT-2000 bands.

### WRC-2007 and concern over broadcasting satellite services interference

<sup>2</sup> ITU, World Radiocommunication Conference (Istanbul, 2000), Resolution [COM5/24], Additional frequency bands identified for IMT-2000.

<sup>3</sup> WiMAX day, ‘Cameroon meeting puts WiMAX on the fast track for IMT-2000’, 2 February 2007.



## Annex – Specific response to OFTA’s questions

- A.16 NWT notes OFTA’s concern over the ITU’s World Radiocommunication Conference 2007 (WRC-2007) pending decisions for the 2.5 GHz band. In WRC-2007, agenda item 1.9 relates to sharing arrangements between space services and terrestrial services in the 2.5 GHz band. The operation of broadcasting satellite services may cause interference to terrestrial services in the band, and apparently sharing may not be feasible over the same geographic area. It is hoped and expected that WRC-2007 will resolve international allocations. For this reason, OFTA intends to defer consideration of 2.5 GHz band until the conclusion of WRC-2007.
- A.17 Notwithstanding agenda item 1.9 and the unresolved sharing arrangements between space services and terrestrial services in the 2.5 GHz band, NWT notes that overseas countries are showing a clear and present willingness to allocate the 2.5 GHz band for BWA.
- A.18 In UK, Ofcom has launched a consultation in December 2006 with respect to the allocation of spectrum in the 2.5 to 2.69 GHz range, with auction proposed for end 2007.<sup>4</sup> Ofcom noted that WRC-2007 is to be held in late 2007 to discuss agenda item 1.9, but did not regard it as basis for delaying discussion and decision.
- A.19 Likewise, other region 3 countries have been prepared to allocate 2.5 GHz band to the market for terrestrial BWA usage:

Territory	2.5 GHz Band spectrum	Status
Singapore	<ul style="list-style-type: none"> <li>• 2.516-2.528 GHz</li> <li>• 2.540-2.552 GHz</li> <li>• 2.564-2.600 GHz</li> <li>• 2.636-2.648 GHz</li> <li>• 2.660-2.678 GHz</li> </ul> (90 MHz <sup>5</sup> bandwidth)	Auctioned in May 2005 <sup>6</sup> (6 territory-wide licences)
Taiwan	2.5-2.69 GHz	To be auctioned in June / July 2007 <sup>7</sup> (6 licences in two regions)

- A.20 For WRC-2007, NWT considers the key issue is that future terrestrial services are adequately protected from space services in the 2.5 GHz band. Therefore, NWT would favour the imposition of specific power flux density limits on space services in the 2.5 GHz band that ensure the long term protection of

<sup>4</sup> Ofcom, ‘Award of available spectrum: 2500-2690 MHz, 2010-2025 MHz and 2290-2300 MHz’, consultation paper, 11 December 2006.

<sup>5</sup> In Singapore, the amount of available spectrum was limited due to co-ordination with neighbouring Malaysia and Brunei, which provided for non-overlapping allocations of 2.5 GHz spectrum among the 3 countries.

<sup>6</sup> IDA, ‘IDA Issues Six Wireless Broadband Access Spectrum Rights’, press release, 24 May 2005.

<sup>7</sup> DigiTimes, ‘Taiwan market: Six regional WiMAX licences to be issued at end of June’, 14 February 2007.

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terrestrial services and avoid the need for co-ordination between space services and terrestrial services in the frequency band.

### Summary

A.21 Accordingly, NWT would urge OFTA to discuss and consider making the whole of the 2.5 GHz band commercially available as soon as practicable to any interested parties including for BWA services or any other services.

*Question (3): Do you have any preferred frequency bands for BWA services? How much spectrum do you need initially and for future expansion (number of blocks, spectrum width of each block, in which bands) and when the spectrum should be made available to the market?*

A.22 For NWT, the preferred frequency bands for BWA services would be:

- (a) 2.3 GHz; and
- (b) 2.5 GHz,

because of:

- propagation characteristics;
- data transmission speed and capacity;
- compatibility with WiMAX, the leading BWA technology.

A.23 A block size of 5 MHz is recommended, in order to provide flexibility to acquirers.

A.24 The spectrum requirements for full-service territory-wide deployment would be around 30 MHz as contiguous block for TDD mode (which is preferred due for flexibility and efficiency).

### **Potential Supply of Spectrum**

*Question (4): Do you agree with the proposed frequency allocation plan given in Annex 1? If not, what is your proposal?*

A.25 Agree. NWT considers that 5 MHz block size is suitable, as it provides flexibility to investors to choose the amount of spectrum discretely.

A.26 NWT also supports frequency planning on a technology neutral basis, whether utilising Frequency Division Duplex (FDD) (i.e. paired) or Time Division Duplex (TDD) (i.e. unpaired) modes.

*Question (5): Do you agree that a BWA licensee should be assigned no more than six 5 MHz blocks of the BWA spectrum?*

A.27 If the supply of BWA spectrum were to be limited to the 2.3 GHz band with just 85 MHz, it is sensible to impose a cap on the amount of spectrum allowed to each licensee.

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- A.28 However, as suggested earlier, NWT considers that OFTA may be artificially restricting or delaying the supply of suitable 2.5 GHz spectrum. If the 2.5 GHz spectrum band were added (which potentially offers 190 MHz), NWT would favour no limitation and prefer to leave it to the market to decide the amount of spectrum to be acquired by each investor.
- A.29 If there is to be substantial supply scarcity, it is appropriate for OFTA to regulate the maximum amount of supply to each investor, rather than rely on the competition provisions in the *Telecommunications Ordinance* that prohibit anti-competitive conduct to prevent hoarding. NWT would be uncertain of the effectiveness or efficiency of *ex post* regulation which might entail time-consuming debate and the lack of adequate remedy (for example, the question of whether OFTA has any divesture power) even if it is determined that a contravention has occurred.
- A.30 If a cap is to be applied, NWT considers that proposed maximum of 30 MHz per investor should be ample for territory wide coverage. NWT notes that in Singapore, a cap of 6 lots (each lot of 5 or 6 MHz) was applied in its BWA action in 2005.<sup>8</sup> In Taiwan’s upcoming auction, a 30 MHz cap will be applied.<sup>9</sup>

*Question (6): If the result of the coordination with the Mainland authorities confirms that 85 MHz bandwidth in the 2.3 GHz band can be made available, do you agree that the TA should make available all the 85 MHz bandwidth for BWA service? If not, what is your proposal with reasons?*

- A.31 Agree. All bandwidth should be made available, as market demand should not be hindered by unneeded regulation.

*Question (7): Do you have any views on the frequency allocation plan for the 2.5 GHz band?*

- A.32 The 2.5 GHz band should be packaged for technology neutral use, to meet competing demands from 3G, WiMAX and Mobile TV.
- A.33 As mentioned in the technical issues section of the consultation paper, Ofcom has studied the matter of spectrum packaging in great detail with respect to the 2.5 GHz band. Ofcom has proposed the following ideas for allocation for 2.5 GHz band:<sup>10</sup>
- (a) 5 GHz blocks;
  - (b) Flexibility between paired and unpaired usage for both FDD and TDD modes. The spectrum should be configured in such a way, by having

<sup>8</sup> IDA, ‘Explanatory Memorandum Regarding The Wireless Broadband Spectrum Allocation Framework’, 25 February 2005.

<sup>9</sup> DigiTimes, *op.cit.*

<sup>10</sup> Ofcom, *op.cit.*

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an offset, that applicants could purchase lots comprising natural “pairs” if they so desired-

- FDD (for 3G use) may optimally require 120 MHz duplex spacing.
  - To maximise utilisation of spectrum, the spectrum block could be segregated into three contiguous segments. In such arrangement, FDD could take the low / high ends (to achieve necessary block offset) and TDD could take the middle.
- (c) Block edge emission masks can be employed to resolve mutual interference between adjacent block owners by restricting power density levels for out-of-block emissions, instead of guard bands within the subject band which would be sub-optimal use of spectrum.

### B. LICENSING ISSUES

#### Unified Carrier Licence (UCL)

B.1 NWT notes the proposal to license BWA services under the UCL.

B.2 NWT has the following comments and queries on the UCL:

- (a) *Will the UCL carrier licence and the spectrum licence be separate licences?*

NWT considers that it is desirable that there should be a dichotomy between carrier licence and spectrum licence. The Ovum report to the Spectrum Policy Review recommended that in order to future proof the spectrum management regime in Hong Kong that the government should create generic radio frequency licences separate from the service / network licences.<sup>11</sup> It is expected that in the longer term, spectrum liberalisation and trading would be facilitated by separation of spectrum licensing.

- (b) *What will be the licence fee for the UCL?*

- *Is there scope for consolidating an existing licence with the UCL in order to minimize fees?*

#### Term of Licence

B.3 Agree.

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<sup>11</sup> Ovum, ‘Spectrum Policy Review: Final Report to CITB – Public Version’, 18 June 2006, Recommendation 4.11, pp. 83-4.

## Annex – Specific response to OFTA’s questions

### Scope of Permitted BWA Services

*Question (8): Do you have any comment on the TA’s preliminary view that no restrictions should be imposed on the types of applications and services that may be provided using the BWA spectrum?*

B.4 Agree. Efficient use of spectrum should be encouraged which maximises innovation and service choices to the consumer.

### Standard Issues

*Question (9): Do you have any further comments on the preliminary view of the TA that he should not prescribe any particular standard or technology for the BWA deployment?*

B.5 Agree.

B.6 Nonetheless, NWT notes that OFTA seems to be sending mixed messages regarding technology neutrality.

(a) On one hand, BWA has been described by OFTA in the 1<sup>st</sup> consultation paper as:

- WiMAX (IEEE 802.16)
- ETSI HiperMAN
- UMTS TDD (TD-CDMA)

Also, NWT notes that OFTA proposes 2.3 GHz spectrum to be allocated for ‘BWA services’.

(b) On the other hand, allocation of spectrum for ‘BWA services’ seems inconsistent with a technology neutral approach. There are other potential uses for spectrum which do not necessarily fall within OFTA’s concept of BWA, for example:

- mobile telephony services using 3G technologies and their evolutions which are optimised for a mix of voice and data traffic.

□ IMT-2000

- IMT-MC: CDMA2000 ⇒ 1x ⇒ EV-DO
- IMT-DS: W-CDMA ⇒ HSPA

- mobile multimedia services optimised for audio/video traffic

□ S-DMB

## Annex – Specific response to OFTA’s questions

### Territory-wide Assignment

*Question (10): Do you have any further comments on the TA’s preliminary view that assignment of the frequency blocks for BWA services should be made on a territory-wide basis?*

B.7 Agree. It would not be technically or economically efficient to sub-divide spectrum licences into geographical regions. Hong Kong is a small territory, and licensees and consumers will benefit if the licensee can provide universal coverage and establish economies of scale.

### Roll-out Obligation

*Question (11): Do you have any further comments on the TA’s preliminary view that BWA licensees will be required, under the licence, to roll out the services within 24 months from the date when the licence is issued and that performance bond will also be required?*

B.8 Agree. In the circumstances, it is sensible to impose a rollout obligation on each licensee to safeguard against the risk of hoarding.

B.9 In the ordinary case where there is no supply scarcity, NWT would favour no rollout obligation and prefer to leave it to the market to decide the scope and timing of network rollout by each investor. However, given the substantial supply scarcity in this case where the available spectrum may only be 85MHz, it is appropriate for OFTA to regulate the efficient use of spectrum supplied to each investor.

B.10 As mentioned earlier in paragraph A.29, NWT notes that there are competition provisions in the *Telecommunications Ordinance* which prohibit anti-competitive conduct and which could be a means to prevent hoarding. But NWT is uncertain of the effectiveness or efficiency of *ex post* regulation which might entail time-consuming debate and the lack of adequate remedy even if it is determined that a contravention has occurred.

B.11 NWT considers the proposed rollout obligation is reasonable and will not deter genuine investors.

### Spectrum Utilization Fee for BWA Services

B.12 Agree.

B.13 We would reject any arguments that may come from mobile network operators that the SUF should be commensurate with the royalties paid by mobile network operators for 3G spectrum (1.9-2.1 GHz).

B.14 While it is possible that the cost of 2.3 GHz spectrum may be lower relative to the prices which MNOs have paid in the 3G auction, this has yet to be determined. We will have to wait and see as to the actual prices reached for 2.3 GHz band.

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- B.15 The 3G spectrum auction admittedly occurred when the market sentiment in the telecommunications sector was just off its peak in 2001. However, as commented by Ofcom, the prices paid in an open, transparent and non-discriminatory award process will reflect the market conditions and expectations prevailing at the time of the awards. Any change in the prevailing market conditions over time is not a source of discrimination or unfairness.<sup>12</sup>

### Spectrum Assignment Method

*Question (12): Do you agree with the proposed frequency assignment method as stated above?*

- B.16 Agree in principle, subject to the actual details on the auction process.
- B.17 We note that auction process is not addressed in the consultation paper, but was discussed earlier in the 2<sup>nd</sup> round consultation paper. In principle, NWT would favour an auction process with:
- (a) Open bidding;
  - (b) Simultaneous multiple round ascending bids; and
  - (c) Reserve price (to cover administrative costs only).
- B.18 NWT is supportive of the hybrid scheme with pre-qualification. Such measures will help to filter out bidders are not genuinely interested in bidding. NWT believes that a deposit is required that is sufficiently high so as to ensure genuine bidding, and deter and penalise “dummy” bids designed solely to raise prices for other bidders. The deposit should be ratcheted to the amount of bid.

### SUF Payment Method

*Question (13): Do you have any further comments on the TA’s preliminary view that that an up-front lump sum payment basis should be adopted for SUF, the amount of which will be determined through an open auction?*

- B.19 Agree.

### Interconnection Terms and Conditions

- B.20 Noted that existing terms and conditions on interconnection between fixed and mobile services will apply.

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<sup>12</sup> Ofcom, *op.cit.*, paragraph 6.124. p. 80.

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### Open Network Access

*Question (14): Do you agree that BWA licensees should not be subject to an ex ante ONA requirement?*

B.21 Agree. In light of the availability of multiple fixed line and mobile network suppliers and technologies, there should not be any open access requirement for BWA.

### Assignment of Telecommunications Numbers

*Question (15): Do you consider that FMC services should be allocated with new number ranges?*

B.22 No. The existing numbering regime can serve the requirements of BWA services.

*Question (16): Do you agree that numbers with prefixes “2” and “3” should be allocated to fixed/“limited mobility” BWA services while numbers with prefixes “6” and “9” should be allocated to “full mobility” BWA services?*

B.23 Agree. The existing numbering regime can serve the requirements of BWA services.

### Number Portability

*Question (17): Do you agree that BWA licensees should be subject to the requirement of facilitating both ONP and MNP, including the FMNP to be introduced in the future?*

### Authorisation under Section 14

B.24 Noted that existing laws and policy on building access will apply.

### Denial of Service to Suspected Stolen Apparatus

*Question (18): Do you agree that BWA licensees should be subject to the requirement of denial of service to suspected stolen apparatus?*

B.25 No objection.



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### C. TECHNICAL ISSUES

#### Block Edge Emission Mask in 2.3 GHz Band

*Question (19): Do you agree with the proposed approach as stated in paragraph 58 to resolve adjacent channel interference issues?*

C.1 Agree.

#### Guard Bands and Available Bandwidth for BWA Service in 2.3 GHz Band

*Question (20): Do you agree with the proposed guard bands for the 2.3 GHz band? Do you agree with the arrangement for the spectrum holder at the lower edge of 2.3 GHz band to use the spectrum 2.300 – 2.305 GHz as stated in paragraph 60?*

C.2 Agree.