



Hong Kong CSL Limited's submission

**in response to the Consultation Paper issued by the Office of the
Telecommunications Authority entitled "Licensing Framework
For Deployment of Broadband Wireless Access"**

20 March 2005

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1 Introduction

- 1.1 Hong Kong CSL Limited (“**CSL**”) is pleased to provide its comments in response to the consultation paper entitled ‘Licensing Framework For Deployment of Broadband Wireless Access’ (“**Consultation Paper**”) which was issued by the Office of the Telecommunications Authority (“**OFTA**”) on 20 December 2004. CSL looks forward to further discussion and consultation on the important matters set out in the Consultation Paper, particularly as it understands the Telecommunications Authority (“**TA**”) has not “formed any opinion of decision”¹ on the issues concerning the introduction of broadband wireless access (“**BWA**”) services.

¹ Consultation Paper, paragraph 5.

2 Summary

- 2.1 A summary of CSL's views with respect to the Consultation Paper is set out below.
- 2.2 The telecommunications industry is at a crossroads. BWA is the point where the distinction between mobile and fixed services has begun to blur. As a result, the TA needs to carefully manage and co-ordinate the current issues which are being faced by the industry as a result of the convergence. From CSL's perspective it is premature for the TA to be creating a licensing framework for BWA deployment as later it may be found to be inconsistent with other policies. To merely focus on BWA in isolation will fail to recognise that convergence is a reality of the telecommunications environment and that BWA, as both a fixed and mobile technology, will need to be considered when the TA commences the long-outstanding fixed-mobile interconnection regime review, the consultation on the convergence of fixed and mobile services, the examination of a unified licensing scheme and the conduct of a spectrum policy review. OFTA needs to handle all these issues in a strategic manner to ensure they are reviewed in the correct order and with regard to related issues and that decisions are not made which will later need to be unwound. From CSL's perspective a unified licensing scheme is both necessary and overdue.
- 2.3 The TA should not seek to pigeon-hole BWA technologies as fixed technologies. Given the uncertainty as to what qualifies as BWA, it can be shown that there are existing BWA technologies which have been commercially deployed in other locations which have full mobility. BWA is as much a mobile technology as it is a fixed technology and should be treated as such from a licensing, auctioning, spectrum policy, convergence and interconnection perspective.
- 2.4 The TA needs to create a level playing field for all potential BWA licensees and allow all interested parties to bid for BWA spectrum rather than limiting the activity to only a small sub-set of the industry, ie. holders of fixed carrier licences. To do otherwise will shut out the mobile sector from potentially getting access to, or having the option of supplementing their existing spectrum with, BWA spectrum. In addition, if the spectrum is licensed under a fixed carrier licence it will create a massive imbalance between BWA licensees and mobile network operators (potentially similar licensees in terms of the types of services which they

will be able to provide), given the greater benefits and rights provided to fixed carriers (eg. site access rights, ability to levy interconnection charges). The TA should be taking a proactive role to spectrum management and allow 3G mobile carrier licensees to use their existing unpaired spectrum for BWA purposes, should they wish to do so.

- 2.5 When licensing BWA spectrum, OFTA needs to ensure it has a fair, technology neutral, bidder neutral and transparent licensing regime in place which fulfils Government policy, benefits the public and is consistent with the 3G licensing regime (in terms of process and valuation of spectrum).
- 2.6 In a Federal Communications Commission (“FCC”) Task Force Report on wireless broadband², the Task Force recommended that the FCC needed to be “vigilant and proactive in identifying and understanding emerging technologies and in ensuring that existing regulatory policies do not get in the way of these advances. Innovative technologies call for innovative regulatory policies. And the American public benefits most when regulatory policies enable consumers and businesses to fully tap the benefits of emerging wireless technologies”³.
- 2.7 The same could be said for the situation in Hong Kong. There is a need for the regulator to be innovative, dynamic, energetic and knowledgeable. The current view that BWA is a fixed technology and fixed operators should only have access to it is short-sighted. The industry finds itself operating in an environment where competing and next generation technologies, and convergence of technologies are now, more than ever, a reality. The regulator must ensure that any changes made to the existing regime are done in an even-handed, non-discriminatory and comprehensive manner.

² Federal Communications Commission, “Connected On the Go, Broadband Goes Wireless: Overview of the Wireless Broadband Access Task Force Report”, February 2005, page 11 (“FCC Task Force Report”).

³ Ibid, page 11.

3 Broadband wireless access: technologies and standards

Not just a fixed service

- 3.1 It appears from reading the Consultation Paper that the TA has decided BWA is merely a ‘fixed’ service or fixed-line service replacement with little or no mobile applicability or use now and for the foreseeable future. In particular, the TA seems determined to manoeuvre BWA into the fixed side of the telecommunications industry thereby requiring potential bidders of BWA spectrum to acquire a fixed carrier licence. Before providing specific comments about some of the proposals made by the TA, CSL would like to correct some misapprehensions about the nature of the existing and future technologies.
- 3.2 Statements in the Consultation Paper such as “there is a need to start discussions...for the release of spectrum for fixed services”⁴, “deployment of BWA for full mobile service at this moment in time is considered not necessary”⁵, “fixed access is likely to be the major commercial application of BWA in the near future”⁶ and “BWA spectrum should be reserved for carriers with an intention to establish fixed networks”⁷ are unnecessarily narrow and non-innovative. To aid the discussion, it may be helpful to identify some of the differences between fixed and mobile services and compare these to the capabilities of BWA technologies.

Comparison between fixed and mobile/wireless services

- 3.3 A fixed telecommunication network service has been defined as:

“All internal and external telecommunication services between fixed points capable of being provided utilising the network, other than telecommunication services the subject of an exclusive licence issued under the Ordinance, a deemed licence, a PMRS licence, a radio paging system licence, a service subject to licensing under any other Ordinance, or a satellite broadcasting service under a satellite television uplink and downlink licence.”⁸

⁴ Consultation Paper, paragraph 35.

⁵ Ibid.

⁶ Consultation Paper, paragraph 36.

⁷ Consultation Paper, paragraph 37.

⁸ PCCW-HKT Telephone Limited Fixed Carrier Licence (Licence No. 50), Schedule 1, clause 1.

For the purposes of this definition, a ‘fixed point’ means a fixed network termination point.

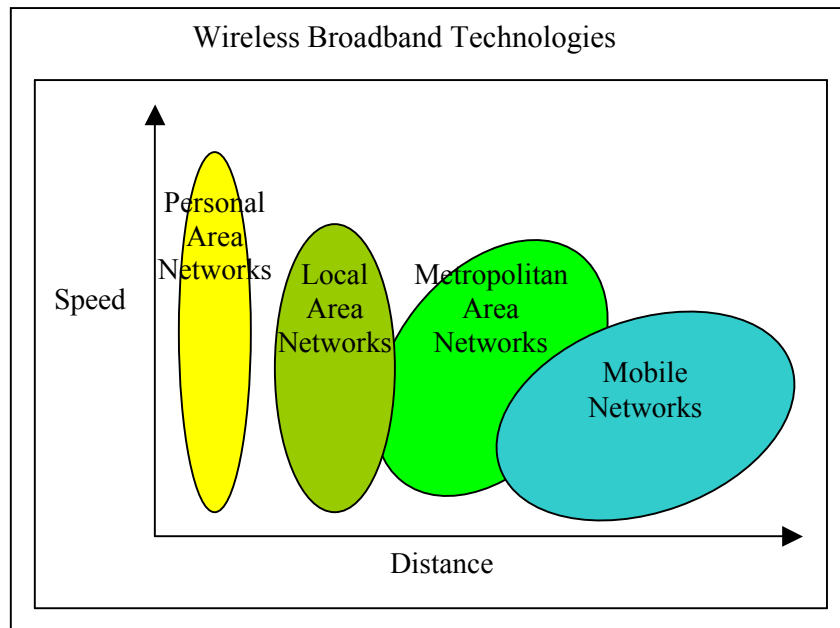
- 3.4 This may be compared with the features of wireless communication which include:
- availability of communication whilst on the move in certain areas (ie. communication is not fixed to one location);
 - handover of communications between cells (if required);
 - availability of roaming between and on different networks; and
 - handset user controls the point of termination rather than the provider of the service.
- 3.5 BWA technologies can or will be used in the provision of:
- fixed wireless access;
 - limited mobility access by providing an end user with the flexibility to access services in different locations without handover; and
 - full mobility access including handover of communications between cells (if required).
- 3.6 BWA technologies do not just provide fixed services because as seen in the second and third variant of the technology, the service is under the control of the end user. The licensee or operator does not determine the termination point but it is controlled by the end user – in other words, it is a non-fixed or moveable point of termination.
- 3.7 BWA technologies such as the Institute of Electrical and Electronics Engineers’ (“IEEE”) 802.16 standard (also known as Worldwide Interoperability for Microwave Access or WiMAX) (current and/or future standards), iBurst, UMTS TDD from IPWireless and EV-DO from Qualcomm are capable of performing these wireless functions. As set out below, there are a number of groups developing and/or commercially deploying standards-based mobile BWA solutions (there is no universal definition as to what qualifies as a BWA technology) which have mobility capability:

BWA standards groups

	UMTS TDD	1 x EV-DO	WiMax 802.16a and 16e	MobileFi 802.20
Status	<ul style="list-style-type: none"> Published in 1999, with subsequent revisions 4 and 5 also completed Commercially launched 	<ul style="list-style-type: none"> Standards published in 1998, with revisions to EV-DV in 2000 	<ul style="list-style-type: none"> Standard incomplete Initial fixed systems Q2/2005 Commercial rollouts of fixed WiMAX expected during 2006 	<ul style="list-style-type: none"> Standard incomplete
Technology	CDMA	CDMA	OFDM and CDMA	OFDM & FDMA/TDMA
Spectrum	<ul style="list-style-type: none"> IMT-2000 (3G) TDD bands 1.9, 2.0, 2.5 and 3.4 GHz licensed bands 	<ul style="list-style-type: none"> 450, 800. 1800 and 1900 MHZ FDD bands 	<ul style="list-style-type: none"> 2-11, 10-66 GHz (main focus; 2.5 and 3.4 GHz licensed bands and unlicensed 5 GHz band) 	<ul style="list-style-type: none"> 400 MHz-3.5 GHz
Available customer devices	<ul style="list-style-type: none"> UMTS TDD CPE is available in portable battery-powered form-factors, PCMCIA card promised VoiP handset expected Q1 2005 	<ul style="list-style-type: none"> Variety of handsets available with regular arrival of new models PCMCIA card available 	<ul style="list-style-type: none"> Mainly fixed equipment expected to be available in 2005/2006 Limited mobility (802.16e) likely mid-2006 	<ul style="list-style-type: none"> Standardised products not expected before 2006
Mobility	Full mobility up to 120 km/hr	Full mobility, more than 150 km/hr	Fixed (802.16a) or limited mobility (802.16e) up to 100 km/hr	Full mobility up to 250 km/hr
Primary supporters	IPWireless	Qualcomm	Intel, Siemens, Alcatel, Airspan, Navini, etc.	Flarion, Cisco, Lucent, ArrayComm and Motorola

Source: Arthur D. Little, Mobile Broadband Wireless Report 2004, November 2004, Figure 5.

3.8 The above table shows that some BWA standards have achieved full mobility (eg. UMTS TDD which supports cell handoff capability under the specification developed by the 3GPP) whilst others are moving towards full mobility (eg. WiMAX 802.16e). The WiMAX 802.16e standard is expected to be published in July 2005⁹ and will “allow high-speed wireless Internet connection while moving or travelling at high speeds”¹⁰ as part of a metropolitan area network. As can be seen in the below diagram, it is expected that metropolitan area networks can or will overlap with mobile networks¹¹.



Product roadmaps

3.9 It is clear from the BWA product roadmap as articulated by device manufacturers and standards organisations that BWA technologies will provide portable or mobile services to end users. For instance, the President of the WiMAX Forum has indicated that in 2006 WiMAX will be incorporated into end-user devices such as notebooks and PDAs along with Wi-Fi and Bluetooth so as to enable the delivery of wireless broadband directly to end users, wherever they may be. In 2007, the WiMAX Forum expects to see WiMAX integrated into 3G phones along with Wi-Fi, providing a simplified network connection for voice and data¹².

⁹ IEEE802.16 Task Group e, "IEEE P802.16e Draft Development Schedule", February 2005, <http://www.ieee802.org/16/tge.schedule.html> (Accessed on 11 March 2005).

¹⁰ Above n2, page 6.

¹¹ Ibid, page 5.

¹² Resnick, R., "The WiMAX bridge to broadband", *Telephony's Complete Guide to WiMAX*, May 2004.

3.10 According to Intel Corporation (“**Intel**”) by 2006, technology based on the IEEE 802.16e standard will be integrated into portable computers to support movement between WiMAX service areas and afterwards WiMAX capabilities will be integrated into mobile handsets¹³. Intel with Alcatel announced at the 3G World Congress in Cannes in February 2005 that they have agreed to work together on nomadic and mobile WiMAX solutions based on the IEEE 802.16e standard, with the goal of doing field trials in early 2006 and bringing products to market a few months later¹⁴.

3.11 Recently Alvarion Ltd announced that it had developed a mobile WiMAX solution based on the 802.16e standard with the first demonstration systems expected within one year. The target launch in 2006 is intended to coincide with the availability of WiMAX-enabled devices such as laptops and PDAs¹⁵.

3.12 In terms of the device product roadmap for other standards, vendors are offering the following devices for the years 2004-2006:



Source: Arthur D. Little, Mobile Broadband Wireless Report 2004, November 2004, Figure 12.

¹³ Richardson, S., “Emerging Broadband Networks: The Case for WiMAX”, *Intel Technology Journal*, 2004, Volume 8, Issue 3, August.

¹⁴ Goldman, Jeff., “Intel & Alcatel conspire on mobile WiMAX”, 17 February 2005, <http://www.internetnews.com/wireless/print.php/3484001> (Accessed 12 March 2005)

¹⁵ Alvarion Limited, “Alvarion Accelerates it’s Push into WiMAX Broadband Mobility Market” (press release), 6 January 2005.

- 3.13 It is clear from this brief examination of the developments in the product market that BWA technologies are now and will continue to be portable, nomadic and mobile in nature and not limited to fixed services. In terms of the size of the market, Cisco has estimated that the BWA mobile network equipment and handset markets will be worth some US\$135 billion per year¹⁶. It is also apparent that the devices being or about to be released will support a market which is already addressed by providers of mobile services. As such, the BWA technologies should be defined and regulated in the same way as mobile technologies.
- 3.14 The preference to characterise BWA technologies as ‘fixed’ in nature also fails to consider the question ‘what is the end service’? When focussing on this question, it is easy to characterise BWA as another wireless/mobile service which may be provided to the public and which requires particular terminal equipment. The end services may include voice, IDD over IP, data, and mobile internet access.

Readiness of technology

- 3.15 The TA, in his presentation to the WiMAX Forum 2005¹⁷, claimed that his proposal to limit broadband wireless access to ‘fixed’ services (albeit with a ‘nomadic’ element) will not be a deviation from a technology neutral principle as the proposal “reflects technological readiness (if market decides to adopt WiMAX, this technology would not be ready for “full mobility” commercial operation in initial years)”¹⁸.
- 3.16 With respect, there are a few problems with this position. First, the TA has assumed that the market will adopt the WiMAX standard as the prevailing BWA standard. This ignores the fact that there are a number of other BWA standards in the market, some of which already support full mobility. Further, as identified above, full mobility is expected to be achieved within the next few years with the WiMAX 802.16e standard, and considering the protracted time it takes for the TA to licence spectrum, it will be a few years before the telecommunications industry

¹⁶ Cisco, “The Cisco Position on WiMAX and Related Technologies for Mobile Operators”, 2004, http://www.cisco.com/en/US/netsol/ns341/ns396/ns177/networking_solutions_white_paper0900aecd801a_a448.shtml (Accessed on 24 January 2005).

¹⁷ AU, MH., “Facilitating the Development of an Untethered Society”, speech to the WiMAX Forum 2005, organised by the Hong Kong Productivity Council and the Wireless Technology Industry Association, 17 February 2005.

¹⁸ Ibid at slide 9.

and public can expect the licensing process to be complete even if the process could commence relatively soon.

Technology neutral approach

- 3.17 CSL believes that the TA should take a technology neutral approach to BWA services, however he should be indicating which standards are eligible to be considered as BWA technologies (given that there is no single definition). CSL assume this issue is of importance to the TA as he will want to ensure that there are sufficient choices available to end users when they purchase BWA devices.
- 3.18 Although not specifically mentioned, this seems to be part of the concern (other than the competition aspect) of the TA's comments in paragraph 32 of the Consultation Paper when he seeks comments about the possibility of only a few manufacturers of BWA systems and devices. Whilst the TA should not be unnecessarily curtailing the type and number of BWA technologies which may be made available in Hong Kong, the TA could articulate the standards which may be eligible to fall within BWA parameters. In relation to the competition aspect of the concern, if it turns out that there are only a few manufacturers of BWA equipment, will the TA be able to influence the number or activities of such manufacturers given that such entities may not even be telecommunications licensees under the Telecommunications Ordinance ("**Ordinance**") and therefore outside of the control of the TA ?
- 3.19 Whilst the TA should be taking a technology neutral approach, he nevertheless must ensure there is no interference between different technologies. In Singapore, the Info-Communications Development Authority of Singapore ("**IDA**") has stated that as there are different BWA technologies it is infeasible for the IDA to impose one specific set of service rules or technical specifications to govern different BWA technologies, however it will provide flexibility, in particular, to 3G operators to deploy whatever BWA technologies they consider suitable subject to the condition that they do not cause interference to any other telecommunications systems and networks in their own bands or other bands¹⁹.

¹⁹ Info-Communications Development Authority of Singapore, "Explanatory Memorandum regarding the Wireless Broadband Spectrum Allocation Framework", 25 February 2005, paragraph 23.

3.20 The TA should take a similar light-handed, technology neutral approach, particularly as there are various proprietary or open BWA standards which have or are being developed. By taking a truly technology neutral stance, the TA must refrain from dictating the functions of a particular technology and should not seek to artificially manipulate BWA technologies, seek to limit BWA capabilities to fixed features or bar the mobility functions of BWA technologies. If the TA does want BWA to conform to a particular standard or there are other issues about the types of standards which may be suitable for BWA purposes, then these issues should be considered, discussed and settled during the spectrum policy review which the Government intends to commence in 2005²⁰.

Spectrum policy review

- 3.21 The Government believes that due to “the rapid pace of advancement in technology development and deployment, we consider that a fundamental review of the policy for allocation and assignment of radio spectrum is warranted. The objective of the review is to formulate a responsive, transparent and market-led spectrum policy to enable the community to reap the maximum benefit from the deployment of this scarce public resource as technology advances”²¹.
- 3.22 CSL agrees with these sentiments, particularly as the industry finds itself at a cross-roads, where technologies are rapidly changing or being developed. BWA is widely viewed as the technology which creates a nexus between fixed and mobile services and may represent one of the most significant advancements for the foreseeable future. Accordingly it would be inappropriate to bypass the spectrum policy review and omit potential BWA spectrum from this process, not only due to the significance of the intended service aspects but further still the substantial quantity of spectrum under consideration. As a result the Government needs to make comprehensive changes to its spectrum policy on a comprehensive rather than ad-hoc basis in order to give certainty to the industry and ensure the TA does not make any premature decisions with respect to BWA spectrum which may need to be subsequently changed or reversed.

²⁰ Commerce, Industry and Technology Bureau, Press release: “New Licences for Existing 2G Mobile Services to be Granted”, http://www.ofta.gov.hk/press_rel/2004/nov_2004.html#2, 29 November 2004. (Accessed 15 March 2005).

²¹ Ibid.

- 3.23 CSL believes it is clearly time to conduct a review of the existing policy, particularly as the policy was developed some 30 years ago. Activities which are common place in other jurisdictions (for example, spectrum trading) are missing from the Hong Kong telecommunications environment. From CSL's perspective, it is more appropriate to undertake the spectrum policy review before licensing BWA spectrum so as to ensure that any decisions which the TA makes with respect to BWA licensing are not later inconsistent with Government policy or disadvantageous to potential licensees or the public.
- 3.24 The TA may consider that it is inappropriate to wait until the end of the spectrum policy review to licence the BWA spectrum as it has been suggested that it may take two to three years to conduct the review. If this is the case, then CSL questions what aspects are expected to take such a particularly long time to conduct in the review.
- 3.25 It would be sensible to conduct the spectrum policy review prior to, or possibly in tandem with, the allocation of BWA spectrum, particularly as the TA would not want any decision made with respect to the BWA spectrum to be subsequently changed or reversed.

Use of existing spectrum for BWA purposes

- 3.26 In particular, it will be of interest to understand the Government's position on trading of spectrum and using spectrum for purposes other than initially planned. For instance, theoretically the 5 MHz of unpaired 3G spectrum which CSL holds under its 3G mobile carrier licence (1904.9 MHz to 1909.9 MHz) could be used for BWA purposes by utilising a technology such as UMTS TDD (as recognised by the International Telecommunications Union ("ITU")) or other technologies like iBurst which are already available in the market. However, OFTA has indicated that 3G licensees must use an IMT-2000 standard that has been adopted by the ITU²².
- 3.27 In other jurisdictions, such as Singapore, this restriction has been expressly removed by the regulator. The IDA last month took the proactive step of allowing existing 3G licensees the "flexibility to deploy any technology that is non-IMT-

²² Office of the Telecommunications Authority, "Hong Kong Third Generation Mobile Services Licensing; Information Memorandum", July 2001, section 2.1.1.

2000 in the 3G bands they were awarded under the 3G auction as long as they satisfy their 3G obligations on nation-wide rollout of systems and services”²³. Showing its industry-friendly approach, the IDA recognised that this “will give greater flexibility to existing 3G operators to optimise usage of the auctioned spectrum and to introduce innovations using new BWA technologies”²⁴ and be consistent with its technology neutral stance.

- 3.28 The IDA will allow 3G operators the commercial flexibility to decide whether to deploy BWA technologies using then allocated 3G spectrum or to use the spectrum solely for 3G expansion purposes. The IDA assesses this flexibility to be more of a benefit than a disadvantage for licensees and consumers²⁵. This same flexibility should be shown by the TA in Hong Kong and 3G mobile carrier licensees permitted to use their unpaired spectrum for BWA purposes to the benefit of both the carriers and consumers (provided licensees comply with their roll-out obligations) and CSL strongly urges the TA to consider this option.

Global harmonisation of spectrum bands

- 3.29 In 2004, the WiMAX Forum established a ‘Regulatory Working Group’ (“**RWG**”) with the aim of ensuring the availability and global harmonisation of ‘WiMAX friendly’ spectrum worldwide. The RWG intends to lobby for uniform adoption of specific frequency bands for BWA and work with regulators to develop flexible and technology neutral regulatory frameworks to as to allow usage models to evolve as the BWA market matures and to enable service providers to deploy the most appropriate solutions for their markets²⁶.
- 3.30 The WiMAX Forum believes global harmonisation for BWA can be achieved in a number of bands including as licensed spectrum in the 3.5 GHz band. The WiMAX Forum’s focus in these bands will be to “minimize unnecessary technical and regulatory requirements that might constrain BWA usage models and overall market development”²⁷. As OFTA is currently considering the use of these bands for use with BWA technologies, CSL strongly urges it to take note of the views of

²³ Above n19 at paragraph 19.

²⁴ Ibid.

²⁵ Ibid at paragraph 21.

²⁶ WiMAX Forum, “WiMAX Forum™ Establishes Working Group to Address Worldwide Regulatory Issues”, Press Release, 2 June 2004.

²⁷ Ibid.

the WiMAX Forum and not impose needless and onerous regulation and artificially restrict the development of the technologies in Hong Kong, particularly as it seeks to commence its spectrum policy review.

Limited mobility

- 3.31 Even though CSL disagrees with the characterisation of BWA technologies as fixed in nature, it is necessary to address the notion of ‘limited mobility’ as favoured by the TA. The concept of ‘limited mobility’, ie. prohibition on cell handoff, does not recognise the capabilities of BWA technologies available on the market today and the practical difficulties of enforcing such a condition and policing whether a BWA licensee has complied with such a condition. For instance, it is technically possible to allow handover to be controlled by a client device. As such, the whole handover process could be outside of the control of a BWA licensee.
- 3.32 As an example, in the United Kingdom, consumers using the UMTS TDD standard control the physical access point (eg. through the use of a modem). In such circumstances, the operator does not control the access point (ie. it does not control the battery or mains) and the end user can decide whether the access point/service should be used or acquired in different places. WiMAX has or will have similar capabilities to UMTS TDD.
- 3.33 In addition, the chosen radio planning of a BWA licensee could result in the provision of a service which has full mobility but without the need for handover capability. These practical matters may make it difficult for OFTA to police the use of BWA spectrum to ensure that handover restrictions are in place, or that cell coverage areas are not being exploited.

4 Licence Framework

Overhaul of the existing licence framework

- 4.1 OFTA's claim that an auction for BWA spectrum would allow the market to decide who will be assigned BWA spectrum²⁸ is obviously flawed. By insisting that all potential bidders hold a fixed carrier licence, the TA will be precluding many organisations or consortia from bidding for BWA spectrum.
- 4.2 This proposal represents the first time there has been the need for an entity to hold a licence before it is eligible to take part in the licensing of another service. To CSL's knowledge, this has never happened before and is a divergence from previous approaches (eg. licensing of 3G spectrum). If the TA wants to introduce a new method of pre-qualifying for eligibility to participate in spectrum auctions, then perhaps this is more correctly addressed during the spectrum policy review.
- 4.3 As any auctioned spectrum cannot be limited for use in 'fixed' applications, it is inappropriate to be licensing the spectrum under a fixed carrier licence. BWA is a technology which is at the cross-roads of convergence. It is where the legacy distinction between mobile service carriers and fixed carriers becomes blurred to the extent that it is not sustainable and substantial structural changes will need to be made before the situation becomes aggravated.
- 4.4 This includes the need to overhaul the entire licence framework, particularly as different categories of carriers currently do not have the same status or the same rights, and can not compete on an equivalent basis. In addition, the rights and responsibilities of non-carrier service providers need to be clearly identified and policed effectively (eg. the TA needs to announce whether he still intends to create a new licence for resellers and a clear delineation needs to be made between the different types of mobile virtual network operators which are currently recognised by OFTA).
- 4.5 With respect to the growing convergence between fixed and mobile services the TA needs to investigate and consider how the technologies and regulatory structures will be affected by such a convergence. It seems only sensible to be

²⁸ Consultation Paper, paragraph 42.

including BWA technologies as part of this convergence consultation given that it has both fixed and mobile elements. This is also consistent with the TA's discussion about the convergence of fixed and mobile technologies/services in his media briefing in January 2005 when he said it "is expected the existing regulatory framework, which apply differential regulatory treatments to the fixed and mobile networks and services, will not be sustainable sooner or later"²⁹. He made similar comments around the same time when he stated that BWA technology will be:

"capable of providing full mobility services like the existing 3G services. It would then be meaningless to distinguish between fixed/mobile networks when a single access network is connected to both fixed and mobile users....[and OFTA will] consider if it is necessary to modify the existing regulatory approach to keep abreast with industry development"³⁰.

- 4.6 Finally, at the same media briefing, the TA indicated that he would "consult on the need to create a new carrier licence which will allow a licensee to offer flexibly various mobile, fixed or nomadic network services, and the need to overhaul the legislation to meet this challenge"³¹. As this 'major review exercise' is slated to commence in 2005, it seems premature to be auctioning BWA spectrum and creating a new licence (or making additions to existing fixed/mobile licences) when a unified licensing scheme is clearly envisaged to be created in the near future.

The need to licence BWA in the same way as 3G services

- 4.7 From CSL's perspective, BWA spectrum should be licensed, dealt with and be subject to the same rules and regulations as other wireless technologies and in particular, 3G spectrum, particularly as BWA spectrum will be used to provide services which are substantially similar to the 3G services. Alternatively, if the Government introduces a unified licensing scheme, then BWA and mobile services should fall under the same regime.

²⁹ Au, M.H., "Introduction by Mr. MH Au, Director-General of Telecommunications at the Media Briefing on Review of 2004", 25 January 2005, page 3.

³⁰ Au, MH, "Blurring Boundary between Fixed and Mobile Services", http://www.ofta.gov.hk/dg_article/au_articles/20050123.html, 23 January 2005. (Accessed on 24 January 2005)

³¹ Above n29, page 3.

4.8 Under the first option, BWA services should be licensed in a way which are the same as, or substantially similar to, mobile licenses. Similar licence conditions and fees should apply including a 15 year licence term, mandatory open network access, payment of spectrum utilisation fees with a reserve price at the same rate as the 3G mobile carrier licensees (ie. HK\$1.45 million per MHz for the initial five years of the licence and then rising each year to a minimum of HK\$4.37 million per MHz in the last year of the licence), compliance with mandatory codes of practice and, potentially, the facilitation of full number portability and other relevant interconnection arrangements.

4.9 Alternatively, if the TA decides to create a unified licence, then he should change the existing 3G mobile carrier license and proposed 2G mobile carrier license so the same standardised regime applies to all licensees and the majority of licence conditions apply to all carriers. If there is a need to create conditions which are particular to a relevant licence, then these can be imposed as required. Whichever approach is chosen by the TA, there should be maximum flexibility under the licence to allow for innovations.

Exclusion of mobile operators

4.10 CSL is particularly concerned as it seems the TA has decided that:

“there is a need to start discussions with the industry and the public for the release of spectrum for fixed services. However, deployment of BWA for full mobile service at this moment in time is considered not necessary and could be reviewed later having regard to the spectrum policy review”³²,

because, presumably, by the time the spectrum policy review is completed all BWA spectrum lots will be allocated and there will be no spectrum left for allocation to the mobile network operators (“MNOs”) (assuming the TA does not deviate from his view that eligible BWA spectrum bidders must hold fixed carrier licences).

4.11 CSL disagrees that the TA should wait before considering the deployment of full mobile services as part of the BWA licence, particularly as full mobility is or will

³² Consultation Paper, paragraph 35.

be available in a relatively short period of time and it usually takes the TA a long time to licence spectrum.

- 4.12 To provide an example of how long it takes for the TA to licence spectrum, CSL cites the renewal of licences for second generation mobile spectrum (and in this case, spectrum was already held by the licensees and a mere renewal of the licences was being contemplated) (“**2G Licence**”). The 2G Licence process commenced in August 2003 and as at mid-March 2005, the 2G mobile network operators are still waiting to receive their new mobile carrier licence offers. It has taken some 13 months (and counting) for the TA to provide his views following receipt by OFTA of submissions from the public/industry (ie. first and second consultation papers, draft licence terms) and the entire consultation period is now running at some 20 months in length. If the same timeframe is applied for the BWA licence process, devices supporting full mobility using the WiMAX standard will be available possibly before the licensing process is complete.

‘Interim’ arrangement

- 4.13 Further in the Consultation Paper, the TA states that he considers that “the licensing framework for BWA as a fixed service initially may serve as a transitional arrangement...with possibility of future migration to mobile services”³³. This concept of an ‘interim status’ is another new approach taken by the TA and seems inappropriate given that full mobility using the WiMAX standard should be available fairly shortly (and full mobility is available with UMTS TDD and iBurst now), relative to how long it has taken for the 2G licences to be renewed (nearly two years) and the Government has not been troubled by technology status issues in the past.
- 4.14 As a further example, with respect to the issuing of the 3G licences, the initial consultation commenced in March 2000 and the licences were issued in October 2001. Interestingly, the status of the technology to be deployed was not a concern at the time even though it was clear it was going to be a minimum of two years before 3G services could be launched (and in fact it was more than two years before the first of the 3G licensees launched their services) because the technology was unavailable.

³³ Consultation Paper, paragraph 36.

- 4.15 In those circumstances the Government was comfortable with issuing the licences to the licensees and requiring the licensees to pay licence fees (including royalties) even though there was no opportunity for them to immediately launch services or generate revenues to offset the licence fees. As such, it is curious that the TA has suddenly taken the view in the Consultation Paper that there will be a potential two-step process and of particular concern that it will be relatively easy for a BWA ‘fixed’ licensee to convert its licence into a full mobile licence³⁴.
- 4.16 This will not only lead to more competition in, by anyone’s standards, an excessively competitive wireless market, but it will also create an unlevel playing field between fixed and mobile operators as MNOs could potentially be excluded from the bidding process and all spectrum allocated prior to the commencement of any spectrum policy review, if the TA insists on potential bidders acquiring a fixed carrier licence before they are eligible to bid.

Type II interconnection and last mile services

- 4.17 The TA has indicated that BWA technologies may be used as extensions of existing fixed service substitutes for Type II interconnection. Unfortunately, the forgotten question is whether a substitute is really necessary if this form of regulation is being rolled back ? In announcing the withdrawal of Type II interconnection, the Secretary for Commerce, Industry and Technology, Mr John Tsang, indicated that since liberalisation of the fixed telecommunications network market in 1995, competitors to PCCW-HKT had together built networks that covered about 53% of households in Hong Kong. The Secretary believed this was a good time to encourage “further rollout of advanced telecommunications networks to take the development of telecommunications industry to new heights”³⁵.
- 4.18 Obviously existing fixed telecommunications network service providers and fixed carriers (“FTNS”) have coped without access to BWA technology for 10 years and extended their networks to more than half of the households in Hong Kong. Further, the encouragement by the Secretary relates to “further rollout of advanced telecommunications networks”, so presumably he means further use of the existing

³⁴ Consultation Paper, paragraph 55.

³⁵ Commerce, Industry and Technology Bureau, “Type II Interconnection to be Withdrawn”, Press Release, 6 July 2004.

infrastructure/solutions. CSL also notes that all that was withdrawn under the decision was Type II interconnection at telephone exchanges. Type II interconnection to distribution points between an exchange and a building remains, as does in-building interconnection at the MDF. Also, a transitional period of two years has been put in place and for those premises where it is technically infeasible or not economically viable to roll out customer access network equipment, all forms of Type II interconnection will remain.

- 4.19 If a substitute for Type II interconnection is required, it would be relevant to recall that local fixed wireless access licenses are still being used and presumably are available to FTNS operators. These licenses could be used by FTNS as a viable solution for ‘last mile’ access, particularly as fixed wireless access terminates to a fixed point at the building (as opposed to BWA which may not terminate to a fixed point).
- 4.20 The TA has indicated there is “a practical need to provide spectrum for “last mile” access before withdrawal of mandatory Type II interconnection for fixed networks by 30 June 2008”³⁶. However, no explanation is given for why there is such a rush to create a new substitute for Type II interconnection when more than three years remain before it is phased out and there are other technologies/solutions available which are currently available to FTNS operators. CSL disagrees with the TA’s characterisation of BWA as merely a ‘last mile’ service. As described in this paper, BWA technologies have the ability and potential to provide far more than ‘last mile’ interconnection.

³⁶ Above n21 at slide 10.

5 Section 14(1)/14(1A) issues and social and environmental impacts

Section 14(1)/14(1A)

- 5.1 Despite MNOs being (or becoming) carriers, mobile operators still do not have the same status as fixed line operators. For example, MNOs and FTNS should have the same rights of access to land and be afforded equal status, however currently MNOs have no rights of access unlike FTNS.
- 5.2 In the near future, if BWA is only allocated to FTNS, FTNS and MNOs may operate similar BWA technology equipment (e.g. WiMAX or UMTS TDD) to provide similar services in different frequency bands (eg. FTNS in 3.5 GHz and MNOs in 2 GHz) but will be regulated under different licence conditions (e.g. section 14(1) (FTNS) and 14(1A) (MNOs) of the Ordinance). If this is the case and if the present conditions remain, FTNS will enjoy a far more favourable operating environment (including unrestricted third party site access, receipt of interconnection fees, ability to impose dipping and port charges) than MNOs. This will create a further imbalance between FTNS and MNOs.
- 5.3 In the situation where an entity wishes to lay cable or fibre and it does not have a FTNS licence, then access will be limited to the terms of section 14(1A) of the Ordinance which is a time-consuming process and requires the preparation of voluminous documentation. If the entity has a FTNS licence and the access is considered integral to the operation of the fixed licence, then section 14(1) regulated access should be available.
- 5.4 Currently, to provide coverage in a ‘confined area’ (like an indoor environment), operators using 800/1800 MHz bands need to build indoor systems to provide coverage. Likewise, BWA operators with higher frequency bands of 3.5 GHz will have to implement similar indoor systems to provide the ‘vertical part’ from the MDF in the building to the access point within the building. In such a situation FTNS are protected under Section 14(1) and possess access right to buildings without charges being imposed, whilst MNOs must operate under Section 14(1A) and 14(1B), where access to buildings requires technical justification and payment must be made to landlords, again a potentially uneven situation.

5.5 As such, it may be the case that although the services are essentially the same (ie. mobile services), BWA licensees may be able to obtain additional rights and benefits than mobile licensees if OFTA continues to characterise BWA services as ‘fixed’ services and require BWA licensees to hold fixed carrier licences. To not exacerbate an already uneven situation, CSL suggests that the TA review the whole fixed-mobile interconnection regime as soon as possible and not proceed with the licensing of BWA spectrum until this has been concluded.

Environmental and social impacts

- 5.6 OFTA intends to offer BWA as “a wireless extension of conventional wireline based fixed network service”³⁷ which means using radio resources unnecessarily to replace wireline services. This will further exacerbate the ‘radio pollution’ problem in Hong Kong and the public’s concerns about radio hazards (irrespective of the scientific research).
- 5.7 It is expected that the existing 15 mobile networks will collectively have ample spare capacity to cater for demand for many years in the future. The potential allocation of seven BWA licenses will result in an over-supply of base stations (both in terms of capacity and actual number) in Hong Kong. To Hong Kong society as a whole, this may be viewed as a waste of valuable resources and further discussion and questions about the aesthetics of allowing so many structures to be placed on buildings throughout the territory raised.
- 5.8 If mobile carriers were permitted to use their existing 3G licences and infrastructure (including base stations) to provide BWA solutions (as this should be technically possible), then this may help to reduce visual pollution and reduce the public’s concern about the proximity to homes of wireless infrastructure. Another alternative may be to allow greater sharing of sites and networks between licensees. The concept of network sharing is not foreign in other jurisdictions (eg. sharing of 3G networks in Australia).

³⁷ Consultation Paper, paragraph 37.

6 Confidentiality

- 6.1 CSL does not consider these comments to be confidential and does not object to them being disclosed to third parties.

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