



NEW WORLD TELECOMMUNICATIONS LIMITED

SUBMISSION TO CONSULTATION PAPER

**Licensing Framework for Deployment of Broadband Wireless Access
Analysis of Comments Received,
Preliminary Conclusions and Further Consultation**

21 November 2005

Submission on Licensing Framework for Deployment of
Broadband Wireless Access (2nd round consultation)

0. Executive Summary

- 0.1 NWT agrees with OFTA that the offer of BWA spectrum for deployment by the industry should be facilitated as soon as possible by 2006.
- 0.2 BWA is urgently required. Due to the withdrawal of mandatory Type II interconnection at Point A in mid-2008, NWT sees a pressing need to develop alternative access for the ‘last mile’ so that fixed carriers may continue to serve existing customers and expand telecommunications services to the public. BWA will provide such an alternative.
- 0.3 NWT concurs with OFTA that matters such as the spectrum policy and fixed mobile convergence reviews should not be permitted to delay the timely deployment of BWA in advance of the Type II interconnection sunset date.
- 0.4 NWT believes that there is no excuse for delay:
 - (a) trials of BWA in Hong Kong have been successful; and
 - (b) overseas jurisdictions are actively deploying BWA.
- 0.5 NWT believes that BWA can be licensed under the existing fixed carrier and / or mobile carrier licence, without any need for a new Unified Carrier licence.
- 0.6 NWT does not object to assignment of BWA spectrum by auction, provided that the process of enacting the enabling legislation should not in any way delay the assignment of BWA spectrum.
- 0.7 If the legislative process should cause substantial delay, OFTA should assign BWA spectrum to existing FTNS licensees on an interim basis for use in replacing Type II interconnection at Point A.

1. Introduction

- 1.1 New World Telecommunications Limited (“NWT”) welcomes the opportunity to respond to the consultation paper on **Licensing Framework for Deployment of Broadband Wireless Access – Analysis of Comments Received, Preliminary Conclusions and Further Consultation** (“Second Consultation Paper”).
- 1.2 NWT’s comments on the Second Consultation Paper are as follows.

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2. Deployment of BWA

The TA is of the view that the offer of BWA spectrum for deployment by the industry should be facilitated as soon as possible, with a view to assignment of the relevant spectrum to successful bidders in 2006

2.1 Agree. BWA is urgently required.

Phase out of Type II interconnection

2.2 In light of the phase out of Type II Interconnection regime at telephone exchanges (Point A), there is immediate demand for alternative customer access network solutions.

2.3 We point out that since OFTA's publication of the first Type II building list in September 2004, NWT's commercial negotiations with PCCW on post-sunset terms and conditions for Type II interconnection have achieved no meaningful progress to date.

2.4 BWA provides a potential broadband solution for fixed carriers, because it may be deployed to serve a wide area within a relatively short time, overcoming traditional physical and economic barriers.

2.5 NWT concurs with OFTA that it is undesirable and unnecessary to delay deployment of BWA pending the outcome of fixed mobile convergence and spectrum policy reviews. It is critical that BWA is deployed in a timely manner in advance of the Type II interconnection sunset date. At the same time, we would support expediting the spectrum policy review in the interests of ensuring policy coherence and certainty.

2.6 NWT believes that there is no excuse for delay:

- (a) trials of BWA in Hong Kong have been successful; and
- (b) overseas jurisdictions are actively deploying BWA.

Successful BWA trials in Hong Kong

2.7 Technical trials conducted in Hong Kong show that BWA is a technically feasible alternative to wireline local access.

2.8 Trials have been conducted by a number of operators as follows:

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Operator	NWT	PCCW	HKBN (1)	HKBN (2)	WT&T	CK Com	CM Tel	HGC
Technology	802.16a	TDD-CDMA	802.3	UMTS-TDD	802.11b	802.16a	802.16a	802.16a
Frequency (GHz)	3.4-3.5	--	3.4-3.5	3.4-3.5	2.4	3.4 - 3.5	3.4 - 3.6	3.4-3.8
Channel Size (MHz)	7	5	7	10	11	3.5, 7	--	14
Average Throughput (Mbps)	14	3	2	5.5	3.8	3, 7	8	17
Distance (m)	980	--	780	1650	600	4000	1500/11K	1700/2000
TDM Application	--	--	--	--	Applicable	Applicable	--	Applicable
VoIP Application	Applicable	--	--	Applicable	Applicable	--	--	--
IP Access Application	Applicable	Applicable	Applicable	Applicable	Applicable	Applicable	Applicable	--
LOS Connection	Applicable	Applicable	Applicable	Applicable	Applicable	Applicable	Applicable	Applicable
NLOS Connection	Applicable	--	--	--	--	--	Applicable	Applicable

2.9 The test summary from various operators shows that BWA, regardless of technologies, is capable of being deployed as an alternative access to the local loop in Hong Kong.

Overseas BWA developments

2.10 OFTA needs to assign BWA spectrum in order to allow the Hong Kong telecommunications industry to keep up with the trends and pace of broadband developments worldwide.

2.11 In recent times, BWA is being commercially deployed by service providers around the world, across Europe, Asia and the Americas.

2.12 The main BWA technologies are:

- (a) UMTS TDD (or TD-CDMA), based on mobile 3GPP standards which is currently commercially available, and
- (b) WiMAX, which is being deployed in pre-WiMAX certified equipment.

2.13 The following are examples of overseas deployments of BWA.

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UK

- 2.14 **UK Broadband**, a wholly owned subsidiary of PCCW, is offering BWA services based on UMTS TDD technology in the Thames Valley since 2004 and is planning expansion into London in 2005.
- 2.15 **Telabria** will launch Broadband Network in UK using pre-WiMAX equipment. Voice over IP and Symmetric Data Services will be provided to residents and businesses in South East England in October 2005. The service will reach more than 50% of Kent's 1.5 million residents and 60,000 businesses as an alternative to xDSL.

Australia

- 2.16 **Unwired Australia** is an independent operator which has completed a BWA pre-WiMAX deployment throughout the Sydney metropolitan area in 2005. It has plans to expand to other major metropolitan areas in Australia.

Korea

- 2.17 **KT** and **SK Telecom** will commercially deploy WiBro in April 2006 in the 2.3 GHz band. WiBro is a home-grown Korean standard that resembles the mobile WiMAX technology (IEEE 802.16e), which was developed by Korea's Electronics and Telecommunications Research Institute (ETRI) and industry players.

Taiwan

- 2.18 The Taiwan government is actively working with Intel to develop WiMAX by leading field testing, contributing funds and gathering local technology companies behind the plan. The Taiwan government hopes to have full WiMAX network coverage of the island by 2007.

Japan

- 2.19 **IPMobile** has been awarded 2 GHz spectrum, with plans to commence BWA services in Tokyo, Nagoya and Osaka in October 2006 followed by nationwide coverage by 2010. The company will offer data services, with no plans for voice services.
- 2.20 **Yozan** will launch wireless broadband service in 4Q05 using pre-WiMAX equipment. It is the first commercial deployment in Japan for WiMAX 802.16-2004 and to be upgraded to 802.16e in 2006. The initial network will be based on a rollout of 600 cells in central Tokyo, total CAPEX estimated to be around US\$12M.

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Malaysia

- 2.21 **TIME** is currently offering BWA services in the Klang Valley within Petaling Jaya, a satellite town of Kuala Lumpur.

France

- 2.22 **Altitude Telecom** is establishing a nationwide network which will cover 95% of the population within 18 months, using 3.5GHz band for pre-WiMAX standard equipment.

USA

- 2.23 **TowerStream** has already launched enterprise services based on pre-WiMAX equipment in Boston, New York, Rhode Island, Chicago, Los Angeles and San Francisco.
- 2.24 **Speakeasy** offers BWA services to Seattle business community using pre-WiMAX in May 2005. Initially it covers Seattle's central business district. The network will be expanded later this year to provide broadband services throughout the entire metropolitan area.

Other examples

- 2.25 Other examples of BWA deployments include:

Pre-WiMAX

Country	Operator	Spectrum	Deployment
Argentina	Entel		Current Deployment: Buenos Aires
Austria	WiMAX Telecom	3.5 GHz	Planned Deployment: Vienna in 2005
India	Dishnet Wireless		Planned Deployment: 38 cities by 2007
Mexico	Various operators (Ultrahnet2go, MVS, Ultravision)		Planned Deployment: Mexico City and other regions
Spain	Iberbanda	3.5 GHz	Planned Deployment
USA	Sprint / Nextel	2.5 GHz	Planned Deployment: nationwide
	Clearwire		Planned Deployment: suburban US

Source: "WiMAX Business & Technology Strategies" published by Trendsmedia
(<http://www.WiMAXtrends.com/articles/excerpt/e101005a.htm>)

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UMTS TDD

Country	Operator	Spectrum	Deployment
Australia	IQ Networks	1900 – 1920 MHz	Announced Date: January 2004 Announced Deployment: Townsville, Cairns
Czech Republic	T-Mobile	1900 – 1920 MHz	Announced Date – June 2005 Announced Deployment – Prague by end of 2005; nationwide in 2006
France	Orange	2500 – 2686 MHz	Announced Date – March 2005 Announced Deployment – Lille
Germany	Airdata	2500 – 2686 MHz	Announced Date – October 2003 Announced Deployment – Stuttgart
Lithuania	Atenit and Nelte	3400 – 3600 MHz	Announced Date – March 2005 Announced Deployment - nationwide
Kazakhstan	Aksoran	2500 – 2686 MHz	Announced Date – September 2004 Licensed in Astana, Almaty and Atyrau
Malaysia	Atlas One	2500 – 2686 MHz	Announced Date – January 2003 Announced Deployment – national coverage
	Maxis	1900 – 1920 MHz	Announced Date: June 2004 Announced Deployment: Subang Jaya, USJ, and Puchong
Mozambique	EmilNet	2053 – 2082 MHz	Announced Date - December 2004 Trial Deployment - Maputo
New Zealand	Woosh Wireless	2053 – 2082 MHz	Announced Date – January 2003 Announced Deployment – Auckland live - National Coverage in 2004 - 2005
Nigeria	Netcom Africa	2500 – 2686 MHz	Announced Date - November 2004 Announced Deployment - Lagos, Abuja, Port Harcourt, Kano
South Africa	Sentech	2500 – 2686 MHz	Announced Date: January 2004 Announced Deployment: Johannesburg, Midrand, Pretoria, Soweto, Durban, and Cape Town
Sweden	Atenit Wireless Access	3500 MHz	Announced Date: December 2004 Announced Deployment: Kalmar Region
Tanzania	Cats-Net	2500 – 2686 MHz	Announced Date: June 2004 Announced Deployment: Dar-es-Salaam

Source: UMTS TDD Alliance (<http://www.umtstd.org/deployments.html>)

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3. Standard Issues

The TA is prepared to allow the deployment of any technology which conforms to recognised open standards, for the delivery of BWA services

3.1 Agree.

4. Spectrum Issues

Suitability of 3.5 GHz Band for BWA Deployment

Nevertheless the TA is of view that if the market considers using licence-exempt bands is a viable alternative for BWA, consideration will be given to permitting such development under a class/individual licence

4.1 Agree.

Use of other bands for BWA

4.2 NWT considers that OFTA is artificially constraining the release of suitable BWA spectrum. Arguably the 2.5 GHz band (currently reserved for 3G expansion) is available. We note that 2.5 GHz band is to be used in Singapore, Taiwan and Japan, while 2.3 GHz band is to be used in Korea.

4.3 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:

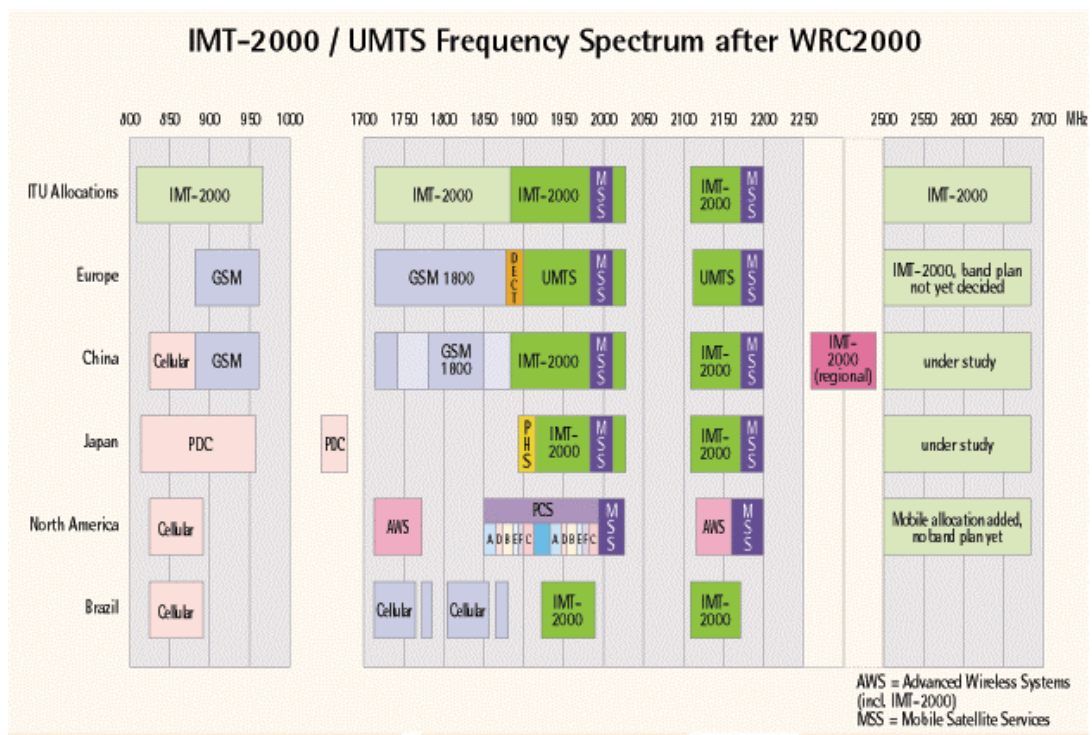
(a) MNOs have existing mobile spectrum holdings

	3G (1.9 – 2.1 GHz)	2G (GSM 900) (825-960 MHz)	2G (PCS 1800) (1710-1880 MHz)	Planned extra allocation (800 MHz & 1800 MHz bands)
3	2 x 14.8 MHz + 1 x 5 MHz	2 x 8.3 MHz	2 x 11.6 MHz	2 x 1.6 MHz
CSL	2 x 14.8 MHz + 1 x 5 MHz	2 x 8.3 MHz	2 x 11.6 MHz	2 x 1.6 MHz

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SmarTone	2 x 14.8 MHz + 1 x 5 MHz	2 x 8.3 MHz	2 x 11.6 MHz	2 x 1.6 MHz
NWPCS	–	–	2 x 11.6 MHz	2 x 1.6 MHz
Peoples	–	–	2 x 11.6 MHz	2 x 1.6 MHz
Sunday	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



"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 Radiocommunications Conference 2000:

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

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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.***” (bold italics added)

- 4.4 Accordingly, NWT would urge OFTA to make the 2.5 GHz band commercially available as soon as practicable to any interested parties without restriction in scope to 3G extension only.

Designation of 3.5 GHz Band for BWA Deployment

The TA considers it reasonable and proportionate to allocate 3.4 – 3.6 GHz band to be used for BWA services on a primary basis while allowing the frequencies to be used for FSS on a secondary basis

- 4.5 Agree.

Spectrum Sharing between FDD and TDD

The TA is of the view that a band plan without specification of FDD or TDD mode will best meet market needs. Frequency blocks may be used for either TDD or FDD operation, subject to the operator’s own commercial and technical considerations.

- 4.6 Agree.

Supply of Spectrum Resources

The TA is prepared to allocate 180 MHz spectrum in the 3.5 GHz band for BWA on a primary basis in the forthcoming spectrum allocation exercise. In case the market does not take up all of the spectrum, the frequency blocks which have not been assigned will be put into reserve, and will not be offered again within a certain time frame, say before end 2008. The arrangement for the reserved frequency blocks, if any, would be reviewed in due course.

- 4.7 In the 3.4 to 3.6 GHz band plan, 200 MHz is usable. NWT queries whether the reservation of 2 x 10 MHz pair is efficient.

- 4.8 NWT agrees on embargo on unassigned spectrum.

5. Number of Frequency Blocks to be assigned

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The TA considers that assignment of spectrum in the form of a paired band would be appropriate.

5.1 No objection.

The TA is of the view that a territory-wide frequency assignment is more appropriate in the context of Hong Kong.

5.2 Agree.

The TA proposes that the band plan for the 3.4 – 3.6 GHz band for public telecommunications services in Hong Kong should be made up of six frequency blocks, each consisting of a 15 MHz x 2 paired band, spanning from 3410 MHz to 3500 MHz and from 3510 MHz to 3600 MHz.

5.3 See comments in paragraph 4.7 above.

6. Licensing Issues

Scope of Permitted Services

The TA proposes that the scope of permitted services of the future BWA licences should be restricted to fixed telecommunications services initially and be expanded to include full mobility services after 1 January 2008. Fixed telecommunications service will include the conventional fixed services and telecommunications service of “limited mobility” nature. “Limited mobility” means no cell handoff capability will be permitted before 1 January 2008.

6.1 No objection.

Unified Carrier Licence

It is therefore proposed that a new Unified Carrier Licence will be introduced. The validity period of this new licence will be fifteen (15) years, which is the same as that for the existing fixed/mobile carrier licences. Any interested party, including existing fixed/mobile carriers and new entrants, may bid for the BWA spectrum and, if successful, will be licensed under the Unified Carrier Licence which will permit the licensee to provide fixed telecommunications service using the BWA spectrum from the start of the licence and to provide both fixed and mobile telecommunications service starting from 1 January 2008.

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- 6.2 NWT recommends that BWA spectrum should be licensed under the existing licensing regime for fixed carrier and mobile carrier licences.
- 6.3 BWA can fit into the current licensing regime which does not need to be changed. Under the current carrier licensing regime:
- (a) there is no restriction on anyone having both a Fixed Carrier licence and a Mobile Carrier licence;
 - (b) there are no limits on the number of fixed carriers; and
 - (c) there are no limits on the number of mobile carriers but for the limitation by reason of spectrum availability (while MVNO option is available to non-MNOs and guaranteed through the open access requirements for mobile spectrum).
- 6.4 In any event, we consider that the finalisation of the Unified Carrier licence conditions should not be allowed to delay the assignment of BWA spectrum.

Assignment of Telecommunications Numbers and Interconnect Regime

The TA intends to allocate telephone numbers with prefixes of “2” and “3” for telecommunications services using the BWA spectrum, including fixed telecommunications services and telecommunications services of limited mobility.

- 6.5 Agree.
- 6.6 We expect that OFTA will conclude fixed-mobile convergence issues, including numbering plan matters, before the commencement of full mobility for BWA in 1 January 2008.

7. Spectrum Utilisation Fee and Assignment of Spectrum

The TA therefore considers that the 3.4 - 3.6 GHz band shall be subject to SUF where it is used for provision of primary services.

The TA remains of the view that BWA spectrum should be assigned by a hybrid selection method including elements of pre-qualification and spectrum auction.

The TA considers that an up-front lump sum payment basis should be adopted for the SUF for usage of spectrum for BWA.

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- 7.1 NWT does not object to assignment of BWA spectrum by auction, provided that the process of enacting the enabling legislation should not in any way delay the assignment of BWA spectrum.
- 7.2 Spectrum auction would require the enactment of new legislation to be passed by the Legislative Council (“LegCo”). Owing to the vested interest of the mobile carriers and incumbent fixed carriers, NWT worries that the ensuing public debate in the LegCo will prolong and delay the passage of the enabling legislation for an auction.
- 7.3 In the event that delay occurs in the implementation of auction in 2006, NWT would ask that OFTA considers direct assignment of BWA spectrum to affected FTNS licensees on an interim basis to enable customer network access in advance of the sunset to mandatory Type II interconnection.

Spectrum Usage Period

The TA proposes to grant a successful bidder of BWA spectrum a spectrum usage right of 15 years.

- 7.4 Agree.

8. Basic Auction Rules

Hybrid Auction Approach

The TA proposes a hybrid selection process including elements of pre-qualification and spectrum auction.

- 8.1 No objection.
- 8.2 In the pre-qualification process, applications should be made in accordance with OFTA’s “Guidelines for the submission of proposals applying for Fixed Carrier Licences” issued 11 January 2002 and revised 6 October 2005. The criteria for applications should include:
- (a) Financial capability;
 - (b) Previous relevant experience
 - (c) Business plan;
 - (d) Proposed services;
 - (e) Investment commitment;
 - (f) Rollout milestones; and
 - (g) Performance bond.

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- 8.3 NWT believes that the deposit must be 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.

Simultaneous Multiple Round Ascending Auction

It is also proposed that the auction for the six blocks of frequencies mentioned in paragraph 37 will take place through a simultaneous multiple round ascending (SMRA) auction.

- 8.4 No objection.

Bidders may wish to bid for a specific frequency block so to make adjustments for the technology used and other considerations they may have.

- 8.5 No objection.

The TA proposes an open auction rather than a dark room auction.

- 8.6 No objection. NWT considers open auction is more desirable than dark room auction.

Reserve Price

A reserve price will be set for each block. The Government will announce the reserve price when the TA invites applications for the BWA licences.

- 8.7 No objection.

- 8.8 NWT believes that the reserve price should cover administrative costs only. If there is an auction, the Government should rely on the market to set the price.

Maximum Number of Frequency Blocks per Bidder

It is proposed that a bidder will only be allowed to bid for one frequency block (15 MHz x 2) in any round of the auction and if successful, that bidder will be assigned only one frequency block at the end of the auction.

- 8.9 No objection.

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Related Applicants

- 8.10 No objection.
- 8.11 NWT agrees on restrictions on related applicants and weeding process before assignment takes place.

Joint Bidding

- 8.12 No objection.
- 8.13 NWT agrees on freedom for joint bidding.

9. Authorization under Section 14

If the installation concerned is not solely for serving the occupiers of the building concerned, the operators should negotiate commercially with the person having a lawful interest in the land for access to the land and the provision of section 14(1) will not be applicable.

- 9.1 Agree.

10. Roll-Out Obligations

The TA proposes that the successful bidders will be required, under one of the licence conditions, to start offering public services within 24 months after being awarded the BWA spectrum.

- 10.1 Agree, however NWT would propose a shorter rollout period of 18 months.
- 10.2 A roll-out obligation will help prevent hoarding by operators who have no genuine intention of rollout, but merely the purpose to deny others of use of spectrum.
- 10.3 NWT would recommend a roll-out deadline of 18 months, to ensure timely deployment in advance of the sunset of Type II interconnection at Point A.