

Spectrum Availability Trends

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Spectrum Availability...

NTCA 2009 Wireless Survey Report

Issued April 2010 (2011 Report not released yet)

- 55% of respondents cited the inability to obtain spectrum at auctions to be their greatest concern in whether they could implement a wireless service offering
- 46% of respondents are utilizing un-licensed spectrum for fixed broadband and backhaul, despite poor coverage and interference because of difficulties in getting licensed spectrum.



Overview

- Looking for spectrum?
 - What is available
 - NBP - FCC's plan to make 500 MHz available



-Viktor-

Photo by Vincent Laforet / The New York Times

Potentially Available Spectrum



- 700 MHz – Auction 92
 - In progress – limited markets – Auction 73 left over's
- Upper 700 MHz D-Block – Public Safety
- National Broadband Plan options
 - TV Broadcaster Incentive Auctions/White Spaces/Government un-used spectrum
- AWS 2 / AWS 3
- 3650MHz – Nationwide Licenses
- Secondary Market Purchases
- Other Options

National Broadband Plan – Feb. 2010
Plan and Timetable to Make Available 500 MHz of
Spectrum for Wireless Broadband – October 2010
US Dept. of Commerce

700MHz – D-Block Public Safety



- Public Safety Spectrum and Wireless Innovation Act – *Sen. J. Rockefeller (D-WV)*
 - Cleared committee 21-4 vote – June, 2011
 - Currently waiting for Senate vote
 - FCC would be directed to lease the Public Safety D-Block spectrum on secondary basis to PS
 - Bill also establishes incentive auctions – companies would be paid for relinquishing spectrum to gov't
 - Amendment to the bill being pushed would establish interoperability of all 700MHz band devices

National Broadband Plan



- Government agencies hold a major source of underutilized spectrum
 - 1755-1780 / 1780-1850 bands
 - 2200-2290 bands
 - 2700-2900 bands
 - Proposal to auction the unused spectrum
- 300MHz of spectrum to be freed up within next 4-5 years
- 500MHz of spectrum to be freed up within next decade
 - Proceeds of auctions used to offset national debt

TV White Space



- TV Broadcasters “Voluntary Incentive Auctions”
 - 54-72MHz / 76-88MHz – Low VHF bands
 - 174-216MHz - High VHF bands
 - 470-608MHz / 614-698MHz – UHF bands (Mobile)
- The amount varies dramatically depending on the location in US (low power short range not for BWA)
- 50 megahertz or more of white space spectrum possible, particularly in rural areas
- In general, some but very little available in major urban areas, particularly in the Northeast.
- However, are large metropolitan, suburban, and rural areas where white space spectrum exists
- Strong opposition from broadcasters



AWS-2 Spectrum

- Composed of
 - PCS “H” Block (1915-1920, 1995-2000 MHz)
 - PCS “J” Block (2020-2025, 2175-2180 MHz)
- Spectrum suitable/being proposed for 3G and 4G advanced wireless services
- Originally PCS guard bands with little or no operations (strong opposition from wireless carriers with interference claims)
- *Recommendation 5.8.3 of the NBP*

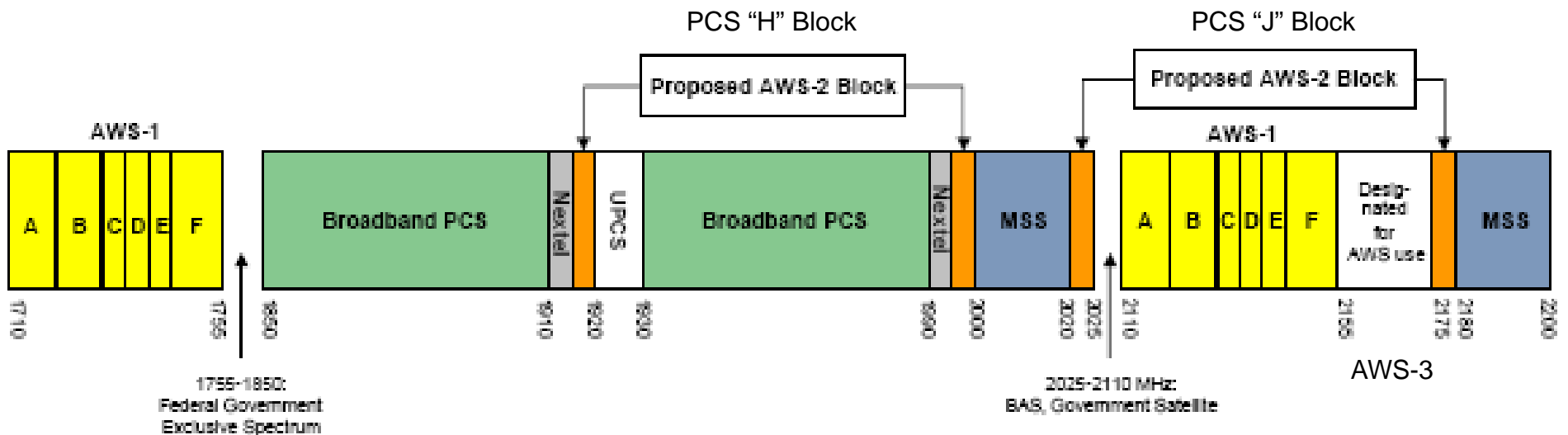


AWS-3 Spectrum

- Composed of
 - Unpaired 2155-2175 MHz
- Currently best suited for WiMAX and other TDD operations, but plenty of alternative FDD proposals
- Synergies exist with federally allocated 1.7GHz.
- NBP proposes to reallocate a portion of the 1755 – 1850 MHz band to be paired with the AWS-3 band
 - *If this does not occur, proposal is for the spectrum to be auctioned.*



Advanced Wireless Services (AWS) Band Plan





3650MHz

- 50MHz (3650-3700MHz)
- Equipment must use Contention-Based Protocol (CBP)
 - Unrestricted CBP or cognitive (listen before transmit) equipment can use all 50MHz
 - Restricted CBP (WiMAX) can use lower 25MHz
- Unlimited, non-exclusive, nationwide licensing
 - No advantage to being first – all licensees must coordinate and share spectrum in time
 - Fixed AP stations must be registered with FCC
 - Registration not required for mobiles (& low-power fixed CPE) so long as under control of registered AP station
- Fees - \$55 + \$5/yr (PMRS) or +\$.20/unit (CMRS)



Secondary Market

- Need to find a willing seller in your market
- Search 3rd party broker listings
- Conduct spectrum search for license holders
- Do “Due Diligence”
 - Build out requirements / deadlines
 - License history/issues
- May have to pay premium price
- AT&T leader in secondary market acquisitions
 - Qualcomm – pending
 - T-Mobile – pending
 - Windstream





Other Options

- Partner with a nationwide carrier
 - Verizon LTE in rural America
 - Rural “partners” to build VZW LTE network
 - Verizon will lease spectrum and 4G core services
 - Partnerships establish 4G roaming
 - Currently 9 publicly announced partners
 - Very limited opportunity where VZW has no service today
 - Do your Due Diligence!



Questions?



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