



Unleashing the Wireless Broadband Revolution - The President's Initiative to Repurpose 500 MHz

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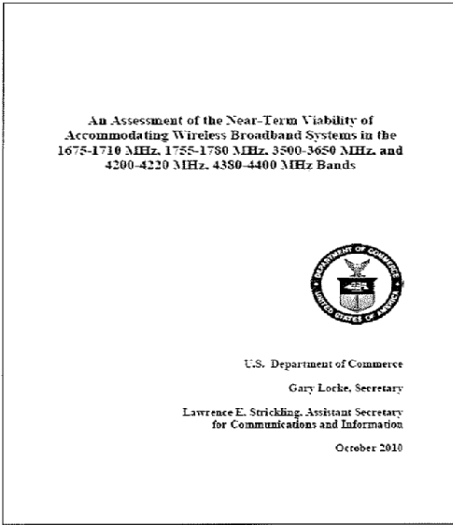
Presidential Memorandum – 28 June 2010

“This new era in global technology leadership will only happen if there is adequate spectrum available to support the forthcoming myriad of wireless devices, networks, and applications that can drive the new economy.” – President Barack Obama



- **Directed Secretary of Commerce, through the National Telecommunications and Information Administration (NTIA) to**
 - Collaborate with FCC to make 500 MHz available for wireless broadband on an exclusive or shared basis within ten years
 - Convene a senior level steering group
 - Facilitate research, development, experimentation, and testing to explore innovative spectrum-sharing technologies
- **Fast track study as a down payment**

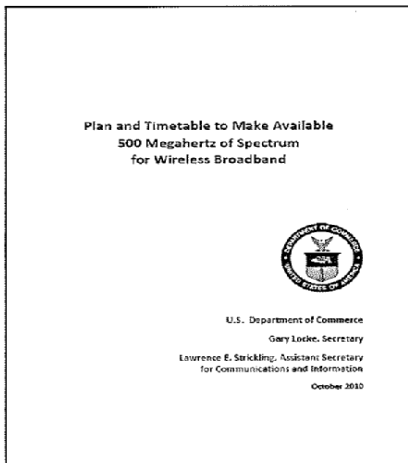
Fast Track Band Evaluation



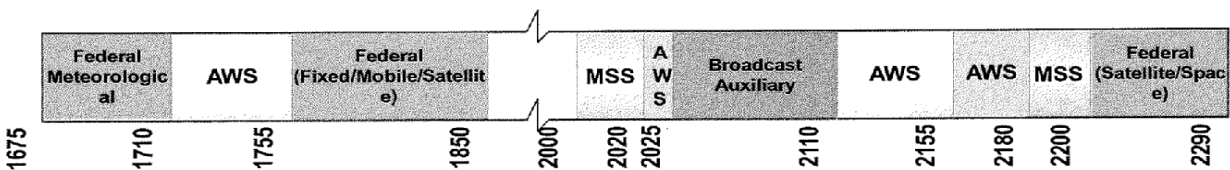
- To be made available within 5 years
 - Only geographical sharing considered
 - Some modification of Federal operations may be required
- Candidate Bands considered:
 - 1675 - 1710 MHz
 - 1755 - 1780 MHz
 - 3500 - 3650 MHz
 - 4200 - 4220 and 4380 - 4400 MHz
- Results: 115 MHz recommended for repurposing
 - 1695 - 1710 MHz (15 MHz)
 - 3550 - 3650 MHz (100 MHz)

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Plan and Timetable for 500 MHz "The 10-Year Plan"

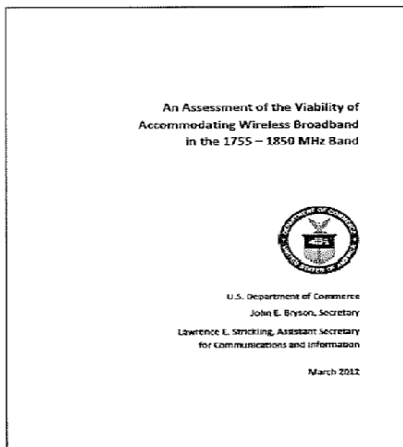


- Plan released 15 Nov 2010
- Identified over 2200 MHz below 4.4 GHz for consideration, including spectrum identified by FCC in Broadband Plan
- Spectrum repurposing focused primarily on exclusive use, but also considers shared and unlicensed use
- Bands offering possibilities will be prioritized for further evaluation
- Industry remains focused on the 1755 - 1780 MHz band



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Assessment of 1755 - 1850 MHz



- Identified comparable bands for the federal operations (over 3200 assignments)
- Determined a first order cost for relocation – \$18billion
- Determined some systems may remain in band, resulting **federal/industry sharing** *3550 - 3650*
- Established Commerce Spectrum Management Advisory Committee (CSMAC) Working groups to evaluate way forward

NTIA concluded that the entire 95 megahertz can be repurposed – several challenges to overcome

Bands Under Study

- **Bands recommended for re-purposing:**
 - 1755 - 1850 MHz
 - 1695 - 1710 MHz
 - 3550 - 3650 MHz
- **Opportunities for unlicensed use:**
 - 5350 - 5470 MHz
 - 5850 - 5925 MHz
- Commerce Spectrum Management Advisory Committee (CSMAC) groups assessing way forward in 1695-1710 MHz and 1755 - 1850 MHz bands
<http://ntia.doc.gov/category/csmac>
- NTIA is working with federal agencies and industry to assess the feasibility of expanding unlicensed use in the 5 GHz band

Spectrum Implications from the Middle Class Tax Relief and Job Creation Act of 2012

- Became public law 22 February 2012
- Clearing federal spectrum: 15 MHz of spectrum 1675 - 1710 MHz
 - NTIA: Submit a report within one year to the President
 - FCC: Start auction proceedings in not later than three years
- Reallocate and auction (FCC) the following:
 - 1915 - 1920 MHz; 1995 - 2000 MHz
 - 15 MHz of spectrum between 1675 - 1710 MHz
 - 2155 - 2180 MHz (Will need to pair with another band)
 - 15 megahertz of contiguous spectrum to be identified by the Commission
- Unlicensed use in the 5 GHz band
 - NTIA: Accomplish a study of the 5350 - 5470 MHz band in 8 months and 5850 - 5925 MHz band in 18 months, consulting with steering group
 - FCC: Initiate public rulemaking proceedings in not later than one year for the 5350 - 5470 MHz band

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Inventory of the Radio Spectrum Federal Spectrum Inventory Report

- NTIA's Office of Spectrum Management created inventory reports in response to the President's Memorandum: Unleashing the Wireless Broadband Revolution:
 - Federal agency spectrum use 225 MHz to 5 GHz
 - Available on closed Federal Agency Website as documents still in review process
 - Not releasable to the public.
- Reports correspond to U.S. Table of Allocations and include:
 - Band Introduction
 - Allocations
 - Federal Agency Use
 - Frequency Band Analysis by Application
 - Planned Use

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Inventory of the Radio Spectrum Federal Spectrum Inventory Report

Federal Spectrum Inventory Reports

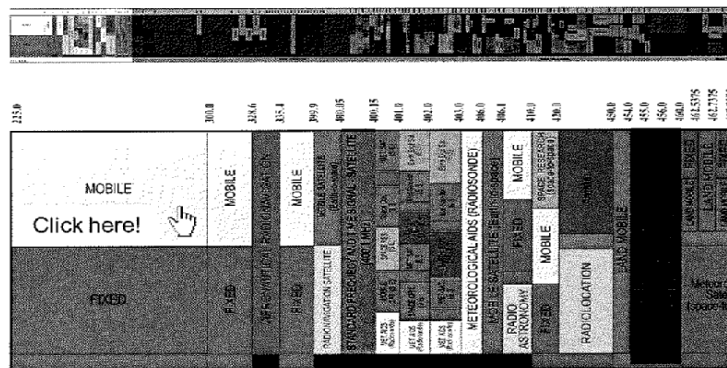
NTIA's Office of Spectrum Management created these inventory reports in response to **President Obama's Memorandum: Unleashing the Wireless Broadband Revolution**. These reports describe federal agency spectrum uses for frequency bands spanning the 225 megahertz to 2.5 gigahertz range. These documents are not for distribution outside the Federal Government; they are for internal use only. NTIA and OSM note that these reports will be updated periodically.

These reports correspond to the bands defined under the **U.S. Table of Allocations** and include the following sections:

- Band Introduction
- Allocation
- Federal Agency Use
- Frequency Plans (initiated by application)
- Planned Use

There are two ways to view or edit the data via a web-enabled way for federal agencies use spectrum to provide you with an:

- Select from a list of available **Spectrum Inventory Band Reports**
- Navigate with the small help below. Slide the highlighted section of the bar below to the corner of the spectrum chart you are interested in, then click on the larger graphed below to view a specific band report. You can also click and drag the large graph to get to a specific band.



Commerce Spectrum Management Advisory Committee (CSMAC)

- CSMAC advises the NTIA Assistant Secretary for Communications and Information on a broad range of spectrum policy issues.
- The members are spectrum policy experts, appointed as "Special Government Employees," from outside the Federal government.
- Members serve in a personal capacity and do not represent any organization or interest.
 - Current Membership: 26
 - Two-year terms, renewable
 - <http://www.ntia.doc.gov/category/csmac>



Scope of Work

- Provide advice and recommendations on a broad range of spectrum policy issues, e.g.
 - Spectrum management improvements
 - Unlicensed spectrum
 - Spectrum sharing
 - Interference and dynamic spectrum access

- 2011 focus is on executing the President's 500 MHz broadband initiative



Current Work

- CSMAC created 5 Working Groups (WG) to consider ways to facilitate the implementation of commercial wireless broadband in the 1695-1710 MHz and 1755-1850 MHz band
 - WG1 1695 – 1710 MHz Weather Satellite Receive Earth Stations
 - WG2 1755 - 1850 MHz Law Enforcement Surveillance and Other Short-range Fixed
 - WG3 1755 - 1850 MHz Satellite Control Links and Electronic Warfare
 - WG4 1755 - 1850 MHz Fixed Point-to-Point and Tactical Radio Relay
 - WG5 1755 - 1850 MHz Airborne Operations

- Next public meetings are January 17 and February 21, 2013.
 - January report out on WG 1/2
 - February report out on WG 3/4/5



Summary

- In less than two years, NTIA identified 210 MHz of spectrum that could be repurposed for wireless broadband, substantially contributing to the President's 500 MHz goal.
- Future challenges include:
 - Achieving comparable capability for federal systems
 - Supporting federal relocation costs – auction proceeds must exceed costs
 - Transition timeframe and sharing complexities
- NTIA is committed to finding ways to maximize the economic potential of this spectrum in a cost-effective manner, while maintaining essential Federal missions.
- All reports are available at <http://ntia.doc.gov/category/500-mhz-initiative>