

# Narrowbanding

With just a few added comments  
about

**Public Safety Broadband**

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# **VHF/UHF Narrowbanding Information for Public Safety Licensees**

December 2010

# Narrowbanding Basics

- Who is required to narrowband?
  - All Public Safety and Industrial/Business licensees in the 150-174 MHz (VHF) and 421-512 MHz (UHF) bands
- What is required?
  - By January 1, 2013, licensees must migrate their systems from 25 kHz (wideband) to 12.5 kHz (narrowband) channel bandwidth or a technology that achieves equivalent efficiency

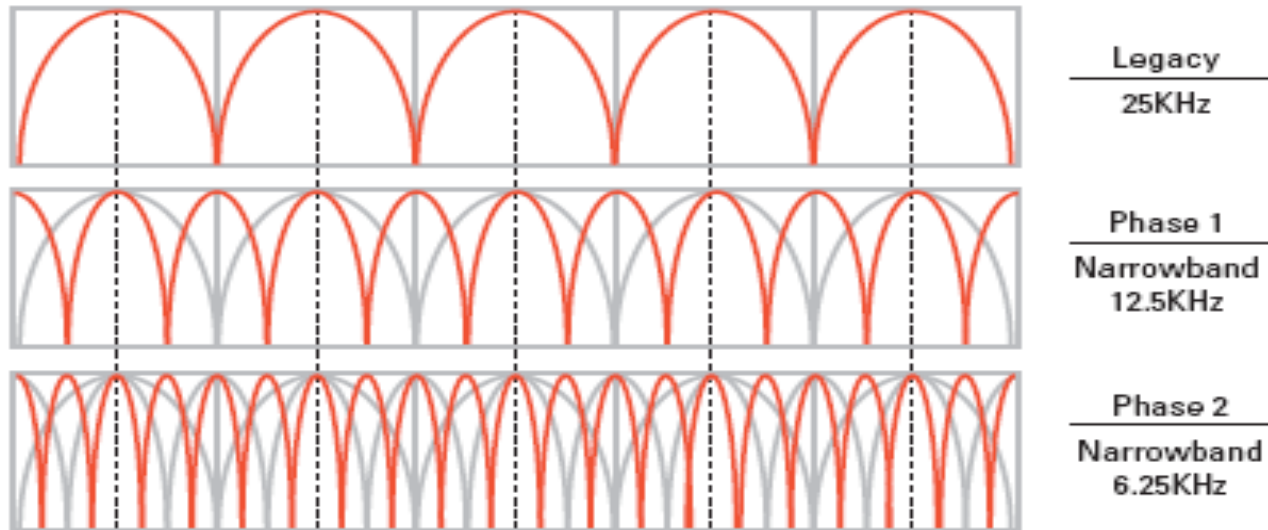
# Benefits of Narrowbanding

- Narrowbanding ensures more efficient use of the spectrum and greater spectrum access for public safety and non-public safety users
- Will relieve congestion in and result in increased channel availability for public safety VHF/UHF systems
- Narrowbanding has been consistently supported by the public safety community, including APCO, NPSTC, and other organizations

# Narrowbanding

- An FCC mandate to create more channels in the very crowded VHF and UHF bands

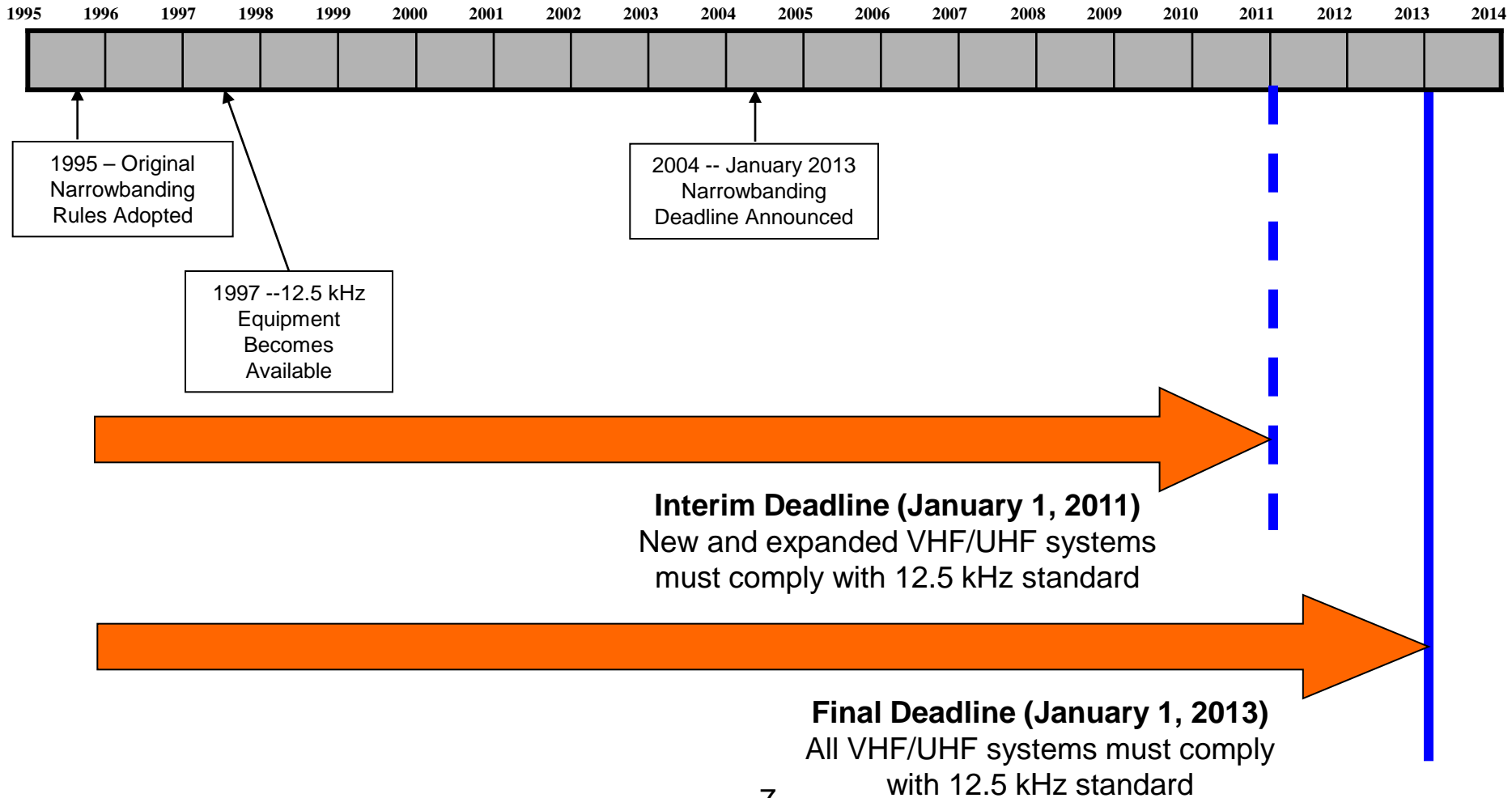
**Figure 1.** Narrowband channels allow additional channels to exist in the same spectrum.



# Narrowbanding Deadlines

- All licensees must complete narrowbanding to 12.5 kHz by January 1, 2013
  - FCC will also no longer allow manufacture or importation of equipment that includes a 25 kHz mode
- Some interim requirements take effect on January 1, 2011:
  - 12.5 kHz operation required for all new VHF/UHF systems or [expansion of existing systems](#)
  - FCC will not certify new equipment that includes a 25 KHz mode

# Narrowbanding Timeline



# Why Meeting the Deadline Is Important

- After January 1, 2013, FCC interference rules will not protect non-compliant wideband systems from harmful interference
- Systems that fail to narrowband by the deadline could create interference or interoperability problems for systems that have narrowbanded
- Wideband equipment will not be available after January 1, 2013

# The Deadline Will Not Be Extended

- The Commission has recently reaffirmed the January 1, 2013 deadline
- Licensees facing unique circumstances may request waivers, but waiver requests must meet a high standard and are not routinely granted
- Licensees concerned about meeting the deadline should focus on planning and preparation
- Informal contact with the Bureau is encouraged prior to any filing

# Future Narrowbanding to 6.25 kHz Technology

- Narrowbanding rules provide for eventual migration from 12.5 kHz to 6.25 kHz bandwidth
  - Intended to further increase efficiency and channel availability
- The FCC has not set a deadline for 6.25 kHz implementation
  - No deadline will be established without further notice and comment
- Licensees may narrowband to 6.25 kHz voluntarily
  - All 150-174 MHz and 421-512 MHz equipment certified after January 1, 2013 must include 6.25 kHz capability

# Preparing for Narrowbanding

- Prepare NOW – January 1, 2013 is approaching fast!
- Determine how narrowbanding will affect your system
  - Will existing equipment need replacement/retuning?
  - Will additional sites be needed to maintain coverage?
  - Is coordination with neighboring systems required?
- Develop a compliance plan
  - Timeline
  - Funding requirements
- Contact the Public Safety and Homeland Security Bureau with questions/concerns

# Availability of Narrowband Equipment

- All VHF/UHF equipment certified since 1997 has 12.5 kHz capability
  - Many systems have equipment with dual 25 kHz/12.5 kHz capability, making the narrowbanding transition easier
- Check with your vendor to determine whether your existing system equipment is narrowband-capable or needs modification/replacement

# Funding Considerations

- Cost of narrowbanding will vary depending on the nature of each licensee's existing system
  - Narrowbanding generally does not require a system upgrade, though licensees may combine narrowbanding with other scheduled upgrades or modifications
  - Narrowbanding costs may be more substantial for older systems that require replacement of existing equipment
- Funding to support narrowbanding may be available through federal grant programs

# Licensing Modifications

- Licensees should modify their licenses to add a narrowband emission designator prior to commencing narrowband operations
  - Licensees may maintain both narrowband and wideband designators on their licenses while they are transitioning their systems
- Once the narrowband transition is complete, licensees should modify their licenses by removing the wideband emission designator
- These actions can be completed online using ULS

# Frequency Coordination

- Frequency coordination is not required for addition of narrowband emissions designator or removal of wideband emissions designator, provided no other changes are being made
  - For licensees **north of Line A** or west of Line C, reduction in bandwidth **does not require Canadian coordination**
- Frequency coordination is required when narrowbanding is combined with other modifications that alter a station's footprint
  - E.g., changes in location, antenna height, ERP, as well as when switching from analog to digital emissions

# PSHSB Website

<http://www.fcc.gov/pshs/public-safety-spectrum/narrowbanding.html>

Questions about narrowbanding????

# The Future

- One word.....**Broadband**
  - Terrestrial based systems
  - Satellite based systems appear to have a useful, but limited role
  - Local projects under construction in 21 major cities across the nation (none in Michigan, but a grant for a pilot is being considered)
  - Plan is for an interoperable, nationwide system
  - **And, at a cost you'll like!**

# Future of Broadband

- Broadband systems won't likely replace our current voice systems for several years, **but...**
  - As little as a year ago, it was thought that broadband systems would not be capable of carrying “mission critical voice” for many years.
    - On March 3, Harris Corp and Nokia Siemens announced that they had conducted the first demonstration of push to talk communications over a working, existing LTE broadband network, connected to an existing multi-site P25 voice network.
    - Both high bandwidth data and voice were carried over the LTE network simultaneously.

# Broadband

- Think “smart phone”
  - I-Phone, Blackberry, etc
    - But faster download speeds!
    - “4G” is planned using LTE
- What information could it carry?
  - Imaging studies from an ambulance
    - Trauma patient destination decisions
  - Continuous 12-Lead monitoring
    - Real Time Firefighter Bio-Metric monitoring
  - Blood chemistry and advanced vital sign telemetry
    - Military “Battlefield” technology already exists
  - Live video from a scene or of a patient
  - With proper EMR systems, patient record data could be transferred from the patient to the ED while still enroute

# NIST Activity

- Standards are being developed
  - Old standards are being updated
  - What level of clarity is needed for public safety video applications?
  - What does public safety need to make two way voice work in a broadband environment?
  - How do we accommodate “unit to unit” or “talk-around” communications in an LTE system?

# Broadband

- Technology is already here
  - We lack the spectrum
- Public Safety needs spectrum
  - Big amounts set aside during digital TV transition, most for cellular phone systems
  - 700 MHz band
    - Best coverage of any broadband segment now available
    - “D Block”
      - Set for auction to commercial users....but.....

**National Governors Association  
National Conference of State Legislatures  
The Council of State Governments  
National Association of Counties  
National League of Cities  
The U.S. Conference of Mayors  
International City/County Management Association**

April 14, 2010

The Honorable Henry Waxman  
Chairman  
Committee on Energy and Commerce  
U.S. House of Representatives  
Washington, D.C. 20515

The Honorable Joe Barton  
Ranking Member  
Committee on Energy and Commerce  
U.S. House of Representatives  
Washington, D.C. 20515

The Honorable Rick Boucher  
Chairman  
Subcommittee on Communications,  
Technology, and the Internet  
Committee on Energy and Commerce  
U.S. House of Representatives  
Washington, D.C. 20515

The Honorable Cliff Stearns  
Ranking Member  
Subcommittee on Communications,  
Technology, and the Internet  
Committee on Energy and Commerce  
U.S. House of Representatives  
Washington, D.C. 20515

Dear Chairman Waxman, Chairman Boucher, Ranking Member Barton and Ranking Member Stearns:

As national organizations representing state and local government officials, we request that you oppose a commercial auction of the 700 MHz D block and support legislation to reallocate the D block of spectrum to public safety. The utilization of broadband technology is crucial to the future of public safety and will enhance the ability to save lives by quickly sharing information with first responders, public institutions and private citizens. Allocating the D block directly to public safety is the only way to ensure a robust, modern and reliable nationwide interoperable network.

For years, state and local first responders have sought to build a national interoperable communications network that allows real-time information sharing through high speed video and data. This requires an appropriate, dedicated band of spectrum that can accommodate the everyday needs of firefighters, police officers and emergency medical personnel, as well as provide excess capacity during times of emergency. The 700 MHz D block finally provides this opportunity. While the Federal Communications Commission's National Broadband Plan proposes to provide public safety roaming and priority access on other commercial 700 MHz networks for a fee, this proposal relies on untested technologies and new regulations that cannot ensure reliable and resilient communications capabilities to meet stringent public safety needs.

We urge you to support reallocation of the D block to ensure this one time opportunity to develop a nationwide interoperable network for public safety is not lost.

**FOR IMMEDIATE RELEASE:**

February 03, 2011

Email: [robert.kenny@fcc.gov](mailto:robert.kenny@fcc.gov)

**NEWS MEDIA CONTACT**

Robert Kenny: (202) 418-2668

**FEDERAL COMMUNICATIONS COMMISSION ANNOUNCES INTEROPERABILITY FORUM TO  
GARNER INPUT ON TECHNICAL FRAMEWORK FOR THE NATIONWIDE INTEROPERABLE PUBLIC  
SAFETY MOBILE BROADBAND NETWORK**

Washington, DC--The Federal Communications Commission's (FCC's), Public Safety Homeland Security Bureau's (PSHSB) Emergency Response Interoperability Center (ERIC) will host an Interoperability Forum on Friday, March 4, 2011, from 9:00 a.m. to 3:30 p.m. The forum will be held in the Commission Meeting Room at FCC Headquarters, located at 445 12<sup>th</sup> Street, SW, Room TW-C305, Washington, DC 20554.

The forum will garner input on the technical framework for the nationwide public safety mobile broadband network to ensure nationwide interoperability. This network must be technically compatible and fully interoperable from the first day of network deployment in order to serve as the nationwide broadband network envisioned for America's first responders.

# Presidential Support

- President Obama, speaking in Marquette, MI in February, 2011
  - Outlined a plan to give the “D” Block to public safety, and provide startup funding of \$7.5 billion
  - Plan calls for a single nationwide architecture, not a “network of networks”
  - Part of an overall national strategy to provide commercial broadband even to rural areas

# Congressional Support

- Senate Committee on Commerce, Science and Technology, Feb. 16, 2011
  - A US Senator asked if public safety would be willing to migrate off our narrowband voice spectrum in exchange for the “D” Block.
  - Committee chairman called dedicating the “D” Block to public safety his “highest legislative priority for the committee”.

# Will it happen?

- Two bills in the current Congress
  - One has a funding provision (HR 607)
  - Calls for “give back” of UHF voice spectrum in future years.
- Commercial Broadband is moving at light speed.
  - Verizon plans to update it’s current 3G coverage to 4G by mid-2012.

# Broadband

- 20 MHz of spectrum if public safety is allocated the “D Block”
  - More bandwidth means higher data rates
  - Dedicated public safety system
  - Nationwide access and roaming
  - Lowcost, hardened, “public safety grade” devices
- Stay tuned!

# Questions

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