

# FCC Narrowbanding Mandate

## Frequently Asked Questions

### What is Narrowbanding?

In an effort to promote more efficient use of spectrum, the FCC mandated all VHF and UHF Public Safety and Industrial /Business licensees using 25 kHz land mobile radio (LMR) systems migrate to narrowband 12.5 kHz efficiency technology by January 1, 2013.

### What is spectrum efficiency?

Currently the UHF and VHF frequency bands are congested and often there is not enough spectrum available for licensees to expand their existing systems or implement new systems. This mandate requires licensees to operate more efficiently, either on narrower channel bandwidths or increased voice paths on existing channels. This will allow creation of additional channels within the same spectrum, thereby supporting more users.

### What does Equivalent Efficiency mean?

The FCC does not mandate channel width, it mandates spectrum efficiency. FCC rules require 12.5 kHz or equivalent efficiency. Any of the following meet the 12.5 kHz equivalent efficiency requirement:

- One voice path in a 12.5 kHz channel
- Two voice paths in a 25 kHz channel
- Data rates of 4.8 kbps per 6.25 kHz channel, such as 9.6 kbps per 12.5 kHz and 19.2 kbps per 25 kHz channel

### What do I need to do before January 1, 2011 versus January 1, 2013?

After January 1, 2011, users who apply for a new license or modify their existing license must specify 12.5 kHz efficiency. If you need to expand your service area for your existing 25 kHz efficiency system, you will need to submit an application before January 1, 2011. Manufacturers can no longer certify equipment capable of operating at 25 kHz efficiency after January 1, 2011. However, per the FCC Order, released June 30, 2010, manufacturers can now manufacture, import, and market equipment capable of operating at 25 kHz efficiency until January 1, 2013. This will allow you to purchase additional or replacement radios until you migrate to 12.5 kHz efficiency by that date, as mandated by the FCC.

By January 1, 2013 all licensees must convert to and operate in at least 12.5 kHz efficiency.

By that date, you must ensure that the 25 kHz mode is disabled via software on your dual mode 25/12.5 kHz radios. And you must replace all radios only capable of operating at 25 kHz efficiency.

### What will happen if I fail to comply with the FCC Narrowbanding mandate? Can I continue to operate at 25 kHz efficiency on a secondary status after January 1, 2013?

No. The FCC will prohibit licensees from operating 25 kHz efficiency equipment on a secondary basis. Non-compliance will be considered a violation subject to FCC Enforcement Bureau action, which may include admonishment, monetary fines and loss of license.

### How can I tell if my Motorola equipment is 12.5 kHz capable?

All Motorola radio equipment certified by the FCC since February 14, 1997 is 12.5 kHz efficiency capable. To review the list of Motorola 12.5 kHz capable products please visit [www.motorola.com/narrowbanding](http://www.motorola.com/narrowbanding).

**How do I upgrade my existing 12.5 kHz capable equipment?**

In most cases, the Motorola Customer Programming Software (CPS) can be used to reprogram the subscriber and base station radios to operate at 12.5 kHz. Typically, infrastructure site equipment (duplexers, multicoupler, window filter) does not require any changes. Contact your Motorola representative if technical assistance is required.

**If I need to upgrade equipment, do I need to implement digital equipment?**

No. Licensees can operate in either analog or digital formats as long as you operate at 12.5 kHz efficiency. Motorola 12.5 kHz efficiency equipment is available in both analog and digital formats.

**Does Narrowbanding require me to change frequencies or obtain new channels?**

No. Narrowbanding does not require moving to another frequency band or different channels. Licensees stay on the same channel center(s), but reduce the bandwidth of the channel(s) currently used, from 25 kHz to 12.5 kHz and change the emission designator on the license. Alternatively, licensees stay on the same 25 kHz channel but implement a 12.5 kHz equivalent technology on that channel.

**If I currently have a license for a 25 kHz channel, will I automatically be entitled to license two 12.5 kHz channels?**

No. Your 12.5 kHz channel will remain on the same 25 kHz channel center. Your current 25 kHz channel will not be split into two 12.5 kHz channels. You will need to justify and apply for any additional 12.5 kHz channels to the FCC through a certified frequency coordinator.

**Will migration to 12.5 kHz change my system coverage area?**

Maybe. Conduct tests during conversion to ensure your system continues to provide similar coverage. Contact your Motorola representative to help you determine if transmitter site changes or additions will be required to compensate for possible coverage change.

**How can I determine if I have a valid FCC license?**

Contact your preferred certified frequency coordinator or Motorola representative. Refer to the FCC website for listing of frequency coordinators at: FCC Wireless Telecommunications Bureau [http://wireless.fcc.gov/services/index.htm?job=service\\_home&id=industrial\\_business](http://wireless.fcc.gov/services/index.htm?job=service_home&id=industrial_business) and <http://www.fcc.gov/pshs/public-safety-spectrum/coord.html>

**Has the FCC established a schedule for mandatory migration to 6.25 kHz efficiency?**

No. The FCC has not set any date by which licensees must operate in 6.25 kHz efficiency. The current mandate only requires users to migrate to 12.5 kHz efficiency by January 1, 2013. Based on the 12.5 kHz migration time line, we believe that any potential future FCC decision to require users to migrate to 6.25 kHz efficiency will take a considerable number of years.

**Does Motorola offer 6.25 kHz efficient products?**

For those licensees who want to voluntarily move to 6.25 kHz efficiency, Motorola is currently shipping two complete product families that already meet a 6.25 kHz equivalent efficiency mode. ASTRO® 25 product line for Mission Critical Subscribers and MOTOTRBO™ product line for Commerce and Enterprise markets. Both operate at two voice paths in a 12.5 kHz channel, using a Time Division Multiple Access (TDMA) protocol. This technology allows you to double the capacity of your existing 12.5 kHz or 25 kHz channel.

### How is Narrowbanding being managed in Canada? If I operate an LMR system in VHF or UHF in Canada do I follow the FCC requirements?

Licensees operating in Canada are not subject to the FCC rules, but instead are regulated by Industry Canada, which also set Narrowbanding requirements for all VHF and UHF land mobile radio equipment. While the intent is similar, the rules and deadlines vary. Similar to the U.S., since February 1997, all radios certified after that date were required to include 12.5 kHz efficiency. Industry Canada licensee dates are generally more aggressive than the FCC dates, requiring that as of February 1997, all new license applications must be in 12.5 kHz efficiency in the urban spectrum congested areas, and that as of January 1, 2004, all existing 25 kHz efficiency systems are considered "non-standard" in those spectrum congested areas. Industry Canada however, excluded the less populated areas from required Narrowbanding, and has not been consistent in enforcing these rules in the urban areas. While it also defined rules for meeting 6.25 kHz efficiency, it has placed a moratorium on those rules, which it will likely not lift before the FCC makes any future decisions. Licensees should contact their Regional Industry Canada office for Narrowbanding requirements in their area.

### Where can I get additional help?

For more information on Narrowbanding, please contact your Motorola representative or visit [www.motorola.com/narrowbanding](http://www.motorola.com/narrowbanding).

For FCC licensing assistance, please contact your preferred frequency coordinator at:

FCC Wireless Telecommunications Bureau

[http://wireless.fcc.gov/services/index.htm?job=service\\_home&id=industrial\\_business](http://wireless.fcc.gov/services/index.htm?job=service_home&id=industrial_business)

and

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

