

VHF/UHF Narrowbanding Information

On January 1, 2013, all public safety and business industrial land mobile radio systems operating in the 150-512 MHz radio bands must cease operating using 25 kHz efficiency technology, and begin operating using at least 12.5 kHz efficiency technology. This deadline is the result of an FCC effort that began almost two decades ago to ensure more efficient use of the spectrum and greater spectrum access for public safety and non-public safety users. Migration to 12.5 kHz efficiency technology (once referred to as Refarming, but now referred to as Narrowbanding) will allow the creation of additional channel capacity within the same radio spectrum, and support more users.

After January 1, 2013, licensees not operating at 12.5 KHz efficiency will be in violation of the Commission's rules and could be subject to FCC enforcement action, which may include admonishment, monetary fines, or loss of license.

What is Narrowbanding?

Narrowbanding is an effort to ensure more efficient use of the VHF and UHF spectrum by requiring all VHF and UHF Public Safety and Industrial/Business land mobile radio (LMR) systems to migrate to at least 12.5 kHz efficiency technology by January 1, 2013.

More specifically, all existing Part 90 radio systems operating in the 150-174 MHz and 421-512 MHz bands have until January 1, 2013 to convert those systems either to a maximum bandwidth of 12.5 kHz or to a technology that provides at least one voice path per 12.5 kHz of bandwidth or equivalent efficiency.

What does Equivalent Efficiency mean?

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 operations on channels greater than 12.5 KHz must employ data rates greater than 4.8 kbps per 6.25 kHz channel, such as 19.2 kbps per 25 kHz channel

What is the purpose of Narrowbanding?

Currently, the majority of UHF and VHF LMR licensees operate using 25 kHz efficiency technology. However, the UHF and VHF frequency bands are congested with limited spectrum available for system expansion or implementation of new systems. The migration to 12.5 kHz efficiency technology will require 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 frequency bands are subject to the Narrowbanding mandate?

The 150-174 MHz and 421-512 MHz bands are subject to the Narrowbanding mandate.

Are paging-only channels exempt from Narrowbanding?

Yes, however, there are only 14 paging-only channels.

- 152.0075 and 157.4500 MHz in the Public Safety Pool

- 152.480, 157.740, 158.460, 462.750, 462.775, 462.800, 462.825, 462.850, 462.875, 462.900, 462.925, and 465.000 MHz in the Business Industrial Pool.

Note that Med Channels 163.250, 150.775 and 150.790 MHz are not exempt, as these channels are shared with Federal Government users who must Narrowband as part of the Federal Government Narrowbanding effort.

Puerto Rico and the U.S. Virgin Islands have the following five additional paging only frequencies in the Business Industrial Pool: 150.83, 150.92, 151.07, 151.19 and 151.31.

What is the difference between the January 1, 2011 interim deadline and the January 1, 2013 final deadline?

After January 1, 2011, the Commission will only accept applications for new licenses or modification applications that expand an existing service area for systems that operate using 12.5 kHz efficiency.

After January 1, 2011, the Commission will not certify VHF/UHF equipment that has a 25 kHz mode. Providers may still sell equipment with a 25 kHz mode after that date, if it was manufactured/imported prior to January 1, 2013.

After January 1, 2013, all licensees must operate in at least 12.5 kHz efficiency.

After January 1, 2013, the Commission no longer allows manufacturing or importation of equipment that includes a 25 kHz mode.

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. Licensees are prohibited from operating 25 kHz efficiency equipment after January 1, 2013. Non-compliance will be considered a violation that could lead to FCC enforcement action, which may include admonishment, monetary fines, or loss of license.

If I need to Narrowband, do I need to implement digital technology?

No. Licensees can operate in either analog or digital formats as long as they operate at 12.5 kHz efficiency.

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 may 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 after I Narrowband?

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 additional 12.5 kHz channels through a certified frequency coordinator.

Will I lose coverage area when I Narrowband?

It has been estimated that Narrowband compliance can result in a 3 dB loss in signal strength. However, this rule of thumb is based upon a "plain vanilla" Narrowbanding scenario where a 25 kHz analog system converts to a 12.5 kHz analog system. Consult with a manufacturer and/or consulting engineer for a better estimate of how Narrowbanding will affect your particular system.

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

No. The Commission 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.

Are governmental entities other than traditional public safety entities subject to the Narrowbanding mandate?

Yes. Below is a partial list of the types of governmental entities that could be subject to the Narrowbanding mandate.

- Public Utilities – both traditional voice and Supervisory Control and Data Acquisition (SCADA) systems
- Schools (including school buses)
- Transportation Departments
- Mass Transit Agencies
- Community Watches

In addition, licensees should remember to include the following types of radios in their Narrowbanding efforts.

- Cache Radios – Transportable Systems
- Command Post/Communications Vehicles
- Mutual Aid Gateways

The PN (DA 11-1189) said that coordination and fees aren't required for an application replacing a wideband emission designator with a narrowband emission designator, or deleting the wideband emission designator from a license that already had both wideband and narrowband emission designators. Would the FCC require a filing fee and frequency coordination for an application adding a narrowband emission designator to a license that currently has only a wideband emission designator?

The FCC will not require coordination and fees also for an application adding a narrowband emission designator to a license that currently has only a wideband emission designator. However, the new narrowband emission must be the same emission type as the current wideband emission on the license (for example, 20k0F3E to 11k0F3E but not 20k0F3E to 11k0F1E).