EventTone Wireless
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# FCC Narrowbanding Mandate

Effective immediately, 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.

**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.

**What will happen if I fail to comply with the FCC Narrowbanding mandate? Can I continue to operate**
No. Licensees are prohibited from operating 25 kHz efficiency equipment. 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.

**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.