MOTOROLA

FCC Narrowbanding Compliance

What You Need To Know

Motorola Subscriber Radios and Stations Capable of Migrating to 12.5 kHz Efficiency

Model
Portables:
APX 7000
BPR40
CLP 1010
CLP 1040
CLS 1110
CLS 1410
CP110
CP185
CP200
CP200•XLS
EX500
EX560•XLS
EX600•XLS
HT1250
HT1250•LS+
HT750
MT 1500
PR1500
PR400
PR860
RDU2020
RDV2020
RDU2080d
RDV2080d
RDU4100
RDV5100
RDU4160d
VL50
XPR 6350
XPR 6550
XTS 1500
XTS 2500
XTS 4000
XTS 5000

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Are your radio system and subscribers ready for Narrowbanding?

The Federal Communications Commission (FCC) is mandating all public safety and industrial/business licensees convert existing 25 kHz radio systems to minimum narrowband 12.5 kHz efficiency technology by January 1, 2013. The purpose of the narrowband mandate is to promote more efficient use of the VHF and UHF land mobile frequency bands.

Who is affected?

All land mobile Part 90, 25 kHz efficiency systems operating on VHF (150-174 MHz) and UHF (421-512 MHz) frequency bands.

Key dates

The FCC has set the following deadlines for licensees and manufacturers, requiring migration to minimum 12.5 kHz efficiency systems.

RADIO USERS (LICENSEES)

January 1, 2011	Applications for new licenses or for license modifications to expand existing service areas must specify at least 12.5 kHz efficiency. The FCC will no longer accept applications for systems operating at 25 kHz efficiency.
January 1, 2013	All licensees must convert to and operate in at least 12.5 kHz efficiency. Existing dual mode (25/12.5 kHz) equipment must have the 25 kHz efficiency mode disabled via software. Equipment capable of operating only at 25 kHz efficiency must be replaced.

Note: The FCC has NOT set any date by which licensees must operate in 6.25 kHz efficiency in these bands.

EQUIPMENT PROVIDERS/MANUFACTURERS

January 1, 2011	Can no longer certify, manufacture or import equipment that is capable of operating at 25 kHz efficiency.
January 1, 2011	Radio equipment submitted for certification must include a 6.25 kHz efficiency mode. Radios can be dual mode 12.5/6.25 kHz efficiency.

What is Spectrum Efficiency?

Today, VHF and UHF frequency bands are extremely congested making it difficult for licensees to expand their existing systems or implement new systems. Requiring licensees to convert their existing radio systems to operate more efficiently, either on narrower channel bandwidths or increased voice paths on existing channels, will allow creation of additional channels within the same spectrum.

What does Equivalent Efficiency mean?

The FCC rule requires 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

Motorola Subscriber Radios and Stations Capable of Migrating to 12.5 kHz Efficiency

Model
Mobiles:
APX 7500
CDM1250
CDM1550
CDM1550•LS+
CDM750
CM200
CM300
PM1500
PM400
XPR 4350
XPR 4550
XTL 1500
XTL 2500
XTL 5000
XTL 5000 Consolette
Stations:
Quantar
GTR 8000
MTR2000
MTR3000
XPR 8300
RPU 2160
Pagers:
Advisor II
MINITOR V

Motorola products meet Narrowbanding Compliance

12.5 kHz Efficiency

All Motorola radios certified by the FCC after February 14, 1997 meet the 12.5 kHz capability requirement. Newer Motorola radios enable modes of operation primarily through software, rather than firmware or hardware. The FCC will consider licensees to be in compliance if the 25 kHz efficiency mode of a dual mode 25/12.5 kHz radio is disabled via software and the radio user cannot subsequently reactivate the 25 kHz efficiency mode.

6.25 kHz Efficiency

For those licensees who want to voluntarily move to even greater efficiency than the 12.5 kHz efficiency required by the FCC, Motorola is currently shipping two complete product families that already meet any FUTURE FCC decision for licensees to operate in a 6.25 kHz equivalent efficiency mode.

- ASTRO 25 product line for mission critical public safety markets
- 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 licensees to double the capacity of their existing 12.5 kHz channel. In addition, they meet the current FCC requirement for licensees to operate in a 12.5 kHz efficiency mode by January 1, 2013.

Preparing to meet the mandate

With deadlines approaching rapidly, licensees who have not started their narrowband migration should considering the following steps today:

- Take an inventory of your radios to assess what equipment is capable of operating in 12.5 kHz and what will need to be replaced. The FCC has required all radios certified since 1997 to include a 12.5 kHz efficiency mode, most new equipment likely is dual mode 25/12.5 kHz that can be simple converted via software.
- Develop budget requirements and explore funding options.
- Establish a conversion and implementation schedule.
- Coordinate your conversion with neighboring agencies to facilitate continued interoperability among your agencies
- Conduct tests during conversion to ensure your system continues to provide similar coverage.
- Contact your preferred frequency coordinator for any needed license modifications

Frequently Asked Questions

Does Narrowbanding require me to implement digital equipment?
No. Licensees can operate in either analog or digital formats as long as you operate at 12.5 kHz efficiency.

Does Narrowbanding require me to change frequencies or obtain new channels?
No. Licensees migrating from 25 kHz channels to 12.5 kHz channels stay on the same channel centers. You only reduce the bandwidth of your current channel and change the emission designator on your license.

Will I receive two 12.5 kHz channels when I change from my currently licensed 25 kHz channel?
No. As noted above, you remain on the same 25 kHz channel center, not splitting the channel into two 12.5 kHz channels. If you need additional capacity, you will need to apply for additional 12.5 kHz channels to the FCC through your frequency coordinator.

Can I operate on a secondary basis if I don't narrowband my equipment by January 1, 2013?
No. The FCC will consider any radio equipment that does not meet the 12.5 kHz efficiency requirement by January 1, 2013 to be operating in violation of the FCC rules. All violations are subject to FCC enforcement action, which may include FCC admonishment, monetary fines, and loss of license.

Where can I get additional help?
For more information on Narrowbanding, please contact your Motorola Representative or visit *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

and

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

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