

# Warren County Sheriff's Office

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In 1992 the FCC adopted the forthcoming narrowbanding requirements known as "refarming". The basic purpose of this action was to enhance spectrum efficiency in the VHF and UHF land mobile bands.

Narrowbanding will allow the spectrum a better use of the frequencies already in place by reducing the existing 25 KHz channels to 12.5 KHz splits. That process is just around the corner and the following information will outline the upcoming process and hopefully allow you to make the necessary plans for the future in terms of licensing and timing of new product purchases.

## What is Narrowbanding?

Currently most radio systems operate on wideband channels of 25 KHz. Licensees in the private land mobile VHF and UHF bands must modify their FCC licenses and convert their radio equipment to operate on channel bandwidths of 12.5 KHz or less. Any equipment that is not capable of operating on channels of 12.5 KHz or less will need to be replaced.

## What does Narrowbanding mean?

If you use the analogy of three radio channels being like a three lane expressway, it would be like adding two more traffic lanes in between the existing lanes without adding any width to the highway. In other words, the old highway had three lanes in 30', and the new one has five lanes in the same 30' width.

If someone adds a new narrowband channel next to an existing wideband channel, there is a possibility for interference, because the new channels overlap part of the wideband channel. There is very little room for error. Converting to narrowband early minimizes the possibility of this issue.

## Key Dates:

January 1<sup>st</sup>, 2011 - The FCC will no longer accept applications for new VHF or UHF systems that operate on wideband channels (25 KHz or more).

January 1<sup>st</sup>, 2011 - The FCC will no longer accept applications for modification of VHF or UHF systems that operate on wideband channels (25 KHz).

January 1<sup>st</sup>, 2013 - All existing licenses must operate on channels with a bandwidth of 12.5 KHz or less (narrowband). Failure to comply with the January 1, 2013 deadline results in cancellation of license.

Radio equipment manufacturers have been aware of the pending narrowband mandate since 1997 and most of the equipment purchased in the last five years will be capable of changing to narrowband operation simply by reprogramming. The following list of Motorola radios that may still be in service are NOT narrowband capable.

<u>Portables</u>	<u>Mobile</u>	<u>Bases &amp; Repeaters</u>	<u>Pagers</u>
P100	GM300	MSF5000	Minitor
SP50	M120	Flexar	Minitor II
P110	M100	Micor	Minitor III
GP300	M206	Motrac	Minitor IV
GP350	M214	Mocom 70	Keynote
HT600	M216		
MT1000	Maxtrac		
HT50	Maratrac		
P200	SM50		
P50+	SM120		
P50	Spectra Conventional		
CP100	Mostar		

Older versions of HT1000 and Visar portable radios are programmable for narrowband only on existing channels. They may not be compatible if new narrowband frequencies are added.

Implementing the migration to narrowband requires re-licensing all existing radio channels to modify the technical parameters of the license to narrowband emission designators. The existing radio frequencies licensed will remain the same. There are no new frequencies allocated because of a switch to narrowband.

The actual migration process requires reprogramming every RF link, base, mobile and portable radio as well as any pagers at the time chosen for the change-over. During the process, it is possible that some radios will still be operating wideband while others are operating on narrowband. During this change-over, wideband radios talking to narrowband radios will sound distorted because they will transmit twice as much information as the narrowband radios are prepared to receive. Narrowband radios talking to wideband radios will sound clear but only about ½ volume because they are transmitting only ½ of the information a wideband radio is prepared to receive. Because of this unavoidable scenario, it is desirable to modify all radios in as short a time frame as possible.

Once the equipment is converted, there may still be issues with communications to radios in other departments or adjacent counties that decide to do their changeover on a different schedule. Radios can be programmed channel by channel with some channels operating wideband and others on narrowband. Some radios may end up being reprogrammed multiple times as various departments switch to narrowband on different schedules.

Should you have any further questions, contact Brian LaFlure at 361-0132, Larry Jeffords at 743-2504 or your preferred radio vendor.