Federal Communications Commission
Office of Engineering and Technology
Laboratory Division

Questions and Answers on Re-farming Part 90 frequencies

Directory of Questions:

Question 1: If a licensee uses a narrowbanding modification kit from a third-party manufacturer, do the kits need to be type accepted by the FCC? The referenced article above describes the modification kits: We have a lot of GE MASTR II repeaters and voted receivers, which aren't narrowband capable. Communications Specialists, a company in California, makes numerous modification kits for various makes and models of base radios. The kit for the MASTR IIs includes new crystal filters and a capacitor, which converts it to narrowband. In bench tests before and after the modification installation, we gained 1 to 1.5 dB of quieting on the SINAD.
Answer: Based on this description, the kits would not need FCC approval because they consist of a set of passive components. However, using these kits to modify the radio entails a hardware modification in the operator's repair shop, which requires a new equipment certification and a new FCC ID (See 2.1043(a)).

Question 2: Can a licensee, using commercial, off-the-shelf test equipment bring a transmitter into acceptable limits of the emission mask for 11K2F3E by realigning the deviation from the current 5 kilohertz down to the new 2.5 kilohertz? For example, a licensee has new, narrowband-capable radios that he has switched to narrowband to use as a reference. After realigning a transmitter to produce only a 2.5-kilohertz deviation, the spectrum and modulation signals looked the same on his test equipment. As long as the licensees are transmitting within the new specs, will they be in compliance?
Answer: No. To be compliant with the commission's rules, the radio must be specifically certificated for narrowband use under Part 90.

Question 3: Will tightening the frequency stability to below 2.5 parts per million (PPM) make a system compliant?
Answer: No. To be compliant with the FCC's rules, the radio must be specifically certificated for narrowband use under Part 90.

Question 4: How will new applications and permissive change applications are handled for wideband and narrowband equipment in the Part 90 refarming bands?
Answer: The Commission published guidance in the FCC Knowledge Database (KDB) on how it would handle applications and permissive change applications as it relates to Part 90 refarming. The KDB page is available at http://www.fcc.gov/labhelp, select the Advanced KDB Search link on the left and enter Publication Number **579009**. If this list of questions was obtained directly from the Publication attachment you can simply close the attachment and return to the main body of the publication to review the guidance.

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Question 5: I'm the coordinator for my hospital (WNJH888). We have 163.250 MHz as our in-house pager system. Is 163.250 going narrowband? I've seen opinions both ways and somewhat confusing-sounding report and orders (R&Os).
Answer: While in general, the paging-only channels are not subject to narrowbanding requirements and may remain at 25 kilohertz (*See* 19 FCC Rcd 24045, 25058-60, paragraphs 31-34 (2004)), a few paging-only channels fall on spectrum allocated for federal primary use. Subject to rule changes adopted by the National Telecommunications and Information Administration (NTIA) and implemented by the FCC in Docket No. ET 04-243 (Report and Order available at: http://fjallfoss.fcc.gov/edocs_public/attachmatch/FCC-05-69A1.pdf and erratum at: http://fjallfoss.fcc.gov/edocs_public/attachmatch/DOC-258950A1.pdf), paging-only channels that are on federal primary spectrum must reduce bandwidth to 12.5-kilohertz channels (See 47 CFR 90.265(e)). The channels subject to this requirement are 163.250 MHz, 150.775 MHz and 150.790 MHz. On these frequencies, all new stations must operate on 12.5-kilohertz channels, and all existing systems must reduce bandwidth to 12.5-kilohertz channels by Jan. 1, 2013.

Question 6: Has the FCC issued an FCC ID for a 450 Master II modified with the Communication Specialists CF-MST II narrowband conversion kit?
Answer: Not to our knowledge. However, when a previously certified device is modified and submitted for a new certification, it's certified on its own merits. It wouldn't be certified as a 450 Master II modified by a CF-MST II kit. The recertified radio would get a new FCC ID.

Question 7: I'm making an assumption that once this conversion kit is installed and has been certified on one Master II, the FCC ID issued would apply to all Master IIs modified with this kit.
Answer: The assumption isn't valid. If a radio is modified and then submitted for a new certification, the party that submits the application for equipment approval becomes the responsible party for that radio. That party would be required to place the new FCC ID label on the device. If this party is also a distributor or a manufacturer, they could modify the same radios in a similar manner and place the new FCC ID label on the modified radio. If a different party were to use the same kit to modify a radio, they would need to submit that modified radio for a new certification and become the responsible party for those modified radios.

Question 8: What is the FCC's proposal for handling 25-kilohertz equipment shipments for one-way paging application scenarios, which are exempt from the narrowbanding rules [90.203(j)(7)]?
Answer: 90.203(j)(7) constitutes an exception from the general prohibition in 90.203(j)(10). Transmitters designed only for one-way paging operations may still be manufactured and imported after Jan. 1, 2013.

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Question 9: Are manufacturers allowed to build and ship 25-kilohertz equipment within the United States as long as the customer/ship destination is a non-FCC licensee (non-U.S. international customers, U.S. federal, etc.)? If so, are there any detailed labeling or order processing expectations associated with this allowance?

Answer: No, there is no exception in the rules for equipment intended for export. The rules contain no special labeling requirement for 25-kilohertz equipment intended for export. But equipment manufactured solely for export is exempt pursuant to Section 2.807 of the Rules and Section 302(c) of the Communications Act. Indeed, the commission specifically stated in the narrowbanding proceeding that the deadline didn't apply to equipment intended for export. See Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended, report and order and further notice of proposed rulemaking, WT Docket No. 99-87, 15 FCC Rcd 22709, 22773 n.394 (2000).

Question 10: Is it legal to modify a wideband stand-alone receiver (VHF hi band) to narrowband by installing new crystal filters in the IF section? This modification has been accomplished on a test receiver in our shop and because the radio isn't a transmitter, none of the parameters under Part 90 are applicable. We gained approximately 2.0 dBm signal-to-noise-and-distortion (SINAD) following the modification.

Answer: The authorization requirements for receivers are in Section 15.101 – unintentional radiators. They apply to receivers that tune within the range of 30 – 960 MHz and to CB receivers and radar detectors. The receiver in question is described as "VHF hi band" and would fall within this frequency range, so it's subject to authorization under Part 15. If it's a scanning receiver, it requires certification. If not, it would fall under the category of "all other receivers subject to Part 15" and would require authorization under either certification or declaration of conformity (DoC).

When equipment is modified by a party other than the original grantee or responsible party, the person performing the modifications becomes the new responsible party. Section 2.909 addresses this for both certified equipment (paragraph a) and equipment authorized under DoC (paragraph c). Section 2.1073(d) states that equipment authorized under DoC shall be retested for compliance if any modifications are made by the responsible party that could adversely affect the emanation characteristics of the equipment. DoC testing must be done at an accredited laboratory per Section 2.948(a)(3).

Section 2.1043 permits certain changes to be made to certified equipment. However, except for changes to software-defined radio (SDR) software, only the grantee of certification can make these. See Section 2.1043(b)(4). If changes are made by another party, then a new certification would be required.

Please note that Section 15.1 prohibits the operation of intentional or unintentional radiators that don't comply with the administrative and technical requirements of Part 15, including the equipment authorization requirement.

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Question 11: Will 150-160 and 450-460 itinerant frequencies also be subject to 12.5 kHz requirements?
Answer: The various itinerant frequencies are subject to varying requirements.
Regarding the VHF high band, some of the itinerant frequencies (often previously referred to as the "color dot" channels) were moved from Part 90 to the Multi-Use Radio Service (MURS) under Part 95 (See WT Docket No. 98-182; See also, 47 CFR Part 95, Subpart J and 47 CFR 95.632) and some remained in Part 90. Of those itinerant frequencies that remained in Part 90, most were created as narrowband channels in the Refarming proceeding and may only be assigned for narrowband use (*i.e.*, 151.640 MHz is limited to a 6.25 kHz operations and 151.5125 MHz, 151.700 MHz, 151.760 MHz, 154.5275 MHz and 158.4075 MHz are limited to 12.5 kHz operations). The remaining two VHF high band itinerant channels 151.505 MHz and 158.400 MHz are subject to the narrowbanding rules and stations must narrowband by January 1, 2013. The rest of the VHF high band itinerant channels were moved to the MURS. Under those rules (*See* 47 CFR 95.632), 151.820 MHz, 151.880 MHz and 151.940 MHz are authorized for 12.5 kHz channels and 154.570 and 154.600 kHz are authorized for 25 kHz channels. However, notwithstanding those requirements, rule section 95.1317 provides for grandfathered operation of previously granted Part 90 licenses on those frequencies. The rule states that, "[s]tations that were licensed under part 90 of the Commission's Rules to operate on MURS frequencies as of November 13, 2000, are granted a license by rule that authorizes continued operations under the terms of such nullified part 90 authorizations, including any rule waivers." Therefore, stations operating on 25 kHz MURS channels prior to November 13, 2000 may continue wideband operation and all stations may operate using 25 kHz channels on 154.570 and 154.600 MHz.
The UHF itinerant channels were not moved to the MURS and are subject to the January 1, 2013 narrowbanding deadline. These channels are: 451.800 MHz, 456.800 MHz, 464.500 MHz, 464.500 MHz, 469.500 MHz, and 469.550 MHz. All other UHF itinerant channels were created as narrowband channels in the Refarming proceeding and have always been subject to narrowband use (*i.e.*, 451.80625 MHz, 451.81875 MHz, 456.80625 MHz, and 456.81875 MHz are limited to 6.25 kHz operations and 451.8125 MHz and 456.8125 MHz are limited to 12.5 kHz operations).

Question 12: It is my understanding that VHF low band frequencies (30 - 50 MHz) are not affected by the narrowbanding rules. My question is twofold: 1, are these frequencies in fact not affected at all by narrowbanding, and 2, does the FCC have future plans for these frequencies or will they be left as is?
Answer: The VHF low band is not subject to the narrowbanding rules and the Commission has no current plans to change the rules for these channels. If the Commission were to consider changes for these channels, it would be done through a notice and comment rulemaking proceeding.

Question 13: Are the 453.xxx frequencies subject to narrowbanding by the January 1, 2013 deadline?
Answer: Yes.

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Question 14:

A. General Question

1. Can I, as an end user, get my MastrII/Micor transmitters recertified for narrowband?
2. Can I do the recertification using field grade service monitors?
3. Or will I need the services of an FCC recognized lab?

B. I want to modify several VHF MSF5000 Base Stations and Repeaters using the Communications Specialists 12.5 KHz Kits.

1. What do I need to do in order to comply with the FCC regulations?
2. What is the procedure that I need to follow to recertify my equipment?
3. Do I have to send the equipment to the FCC?

Answer: [Note: This is essentially the same as the answer to #7 above]

If a kit is used to modify a radio to bring it into compliance with the narrowband rules, the radio must be recertified to show compliance with those rules. Regardless of who actually modifies the radio and the equipment used to do so, the party that submits the new application for equipment approval becomes the responsible party for that radio. That party would be required to place the new FCC ID label on the device. If this party is also a distributor or a manufacturer, they could modify the same radios in a similar manner and place the new FCC ID label on the modified radio. If a different party were to use the same kit to modify a radio, they would need to submit that modified radio for a new certification and become the responsible party for those modified radios.

For guidance on how to apply for an FCC equipment authorization, refer to guidance on our web page at: http://www.fcc.gov/oet/ea/ea_app_info.html. The modified devices need to be certified.

Question 15: The Commission, in Public Notice DA 09-2589, stated that under certain circumstances previously certified multimode equipment can be manufactured or imported after January 1, 2011. Specifically, the Public Notice stated that the equipment certification for previously certified multimode equipment containing a wideband 25 kHz mode will continue to be valid, and such equipment may continue to be manufactured and imported, only if the modes of operation are enabled primarily through software rather than firmware or hardware, and users are not provided with the programming software necessary to activate the wideband 25 kHz mode. Based on this, please clarify the following:

A. Are manufacturers required to modify radios so that previous versions of programming software (with 25 kHz capability) may not be used. This assumes the previous version of programming software is replaced by a new version (with no 25 kHz capability) and the previous version is no longer sold.

Answer: Manufacturers must ensure that equipment manufactured or imported after the transition date has the 25 kHz capability disabled. If this is done through programming software then the appropriate software must be modified to comply with this requirement and the previous version of the software must be updated or replaced.

Question 16: Are repeaters exempt from narrowbanding requirements?

Answer: No, repeaters are subject to all narrowbanding requirements. Handheld radios with output powers less than two watts that are exempt under Section 90.203(j)(4) will have to have narrowbanding capabilities to use repeaters after the transition date.

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Question 17: Do all licenses have to be updated to reflect the narrowbanding requirements?
Answer: Public Notice DA 09-2589 states that stations authorized for both wideband and narrowband emissions will initially be presumed after 1/1/13 to be operating only in narrowband mode, with no action required of the licensee. Licensees of stations authorized only for wideband emissions will be required to certify that the station meets the narrowbanding requirements (i.e., that it uses narrowband-equivalent equipment), but doesn't say when the certification requirement will be implemented.

Question 18: Is it permissible for users to program radios sold after Jan. 1, 2011, with previous versions of programming software and enable 25-kilohertz operations?
Answer: The FCC recently provided a blanket waiver in WT Docket No. 99-87 (FCC 10-119) to allow the manufacture and import of 25-kilohertz-capable equipment until January 1, 2013. Based on this decision, it is permissible for radios sold after Jan. 1, 2011, to be programmed or reprogrammed to enable the 25-kilohertz mode of operation.

Question 19: I have a mining company client that uses 72 MHZ for crane and locomotive control. All of the narrowbanding articles I have seen say frequencies in the 70-512 MHZ apply yet I have never seen anything defining narrow band operations in the 72/75 MHZ band. Please explain what happens in this band.
Answer: The narrowbanding resulting from the Refarming proceeding only pertains to the private land mobile bands between 150 MHz and 512 MHz. There is no requirement to narrowband systems operating in the 72-76 MHz band.

Question 20: The same mining company has mining operations in Canada. Do we know if Canada is going through this? Time Line? Can they move their US radios to their Canadian operation if they have been type accepted by Canada?
Answer: The following information is from Industry Canada:
The Canadian Redeployment Plan does not have a hard transition date like the U.S. If operations are located in a congested zone and a wideband system is blocking a more efficient operation then Industry Canada may narrowband the system. Notwithstanding the lack of a hard transition date, congestion in urban areas generally requires new systems, especially near the border regions, to be narrowband. Significant justification is needed for new systems in this band to obtain authorization for wideband systems.
Specifically, with respect to the mining company in question, assuming that the mining company is not in a congested area, they can move their radios to Canada if they are type accepted and they may never have to narrowband.

Question 21: I am interested to know if GMRS licensees in the Part 95 service are required to narrowband their equipment and when.
Answer: The GMRS, regulated under 47 CFR Part 95 is not required to transition to narrowband. The current narrowbanding effort only affects Private Land Mobile Radios regulated under 47 CFR Part 90. However, the Commission recently released a Notice of Proposed Rulemaking (NPRM) (WT Docket No. 10-119, available at: http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-10-106A1.pdf) in which it proposes "to implement 12.5 kHz narrowbanding in the GMRS." (See paragraphs 36-37 of the referenced NPRM). The NPRM asks questions regarding application of narrowbanding requirements and what would be an appropriate transition period. **<Return to Directory>**

Question 22: Is the frequency 450.1875 MHz (25k0F3E emissions) used for Remote Pickup affected by the requirement for narrowband operations?

Answer: The frequencies for Remote Pickup stations are regulated under Part 74 of the Commission's rules and are not subject to mandatory narrowbanding. The narrowbanding requirements apply only to stations between 150 and 512 MHz regulated under Part 90 of the Commission's rules.

Question 23: Can a Part 90 radio be certified as a 12.5 kHz single mode transmitter after the narrowbanding transition date (January 1, 2013)?

Answer: Yes, but you must meet the narrowbanding requirements. Section 90.203(j)(5) specifies that for voice, you must have one voice channel per 6.25 kHz BW. For data you are required to have a minimum data rate of 4800 bps per 6.25 kHz BW. The Order (FCC 13-431) waives the single mode requirement § 90.203(j)(5) and of multi-mode requirement of § 90.203(j)(4) for equivalent of one voice-channel per 6.25 kHz BW. This permits single mode devices to be certified with one 12.5 kHz BW voice channel. The waiver is effective on March 18, 2013 and expires on January 1, 2015. The attached table summarizes the Equipment Authorization requirements in the 150-174 MHz and 421-470 MHz bands.

Question 24: Are Part 97 amateur radio transmitters required to meet the Part 90 narrowbanding requirements?

Answer: Part 97 transmitters (with the exception of external power amplifiers) do not require equipment authorization. The 420-450 MHz 70 cm Amateur band shares the 421-430 MHz Part 90 Private Land Mobile Radio (PLMR) band on a secondary basis. Dual use (Part 90 + Part 97) equipment is not permitted to have 25 MHz BW (Wideband mode) in the 421-430 MHz band. In addition, these devices must meet the narrowbanding requirements in the PLMR band. After the Jan. 1, 2013 transition date, dual use devices will no longer be authorized to use 12.5 kHz BW with one voice channel in the 421-430 MHz band. These devices must meet the spectral efficiency requirements of one voice channel per 6.25 kHz BW for voice, and a minimum data rate of 4800 bps/6.25 kHz BW in the 421-430 MHz band. The 430-450 MHz band is not available for PLMR licensing [§ 90.173(j)]. Grants with this band must conform to the extended frequency grant listing provisions (Published KDB 634817).

Change Notice:

12/07/2012: 579009 D01 Q and A on Re-farming Part 90 freq v02 has changed to 579009 D01 Q and A on Re-farming Part 90 freq v03 to add questions 23 and 24 above.

04/08/2013: 579009 D01 Q and an on Re-farming Part 90 freq v03 has changed to 579009 D01 Q and A on Re-farming Part 90 freq v03r01. Changes were made to question 23 above.

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