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THE RADIO HOBBYIST



Unlicensed broadcast

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How many of you have ever heard of legal unlicensed "over-the-air" radio telephone activity in the 8-meter VHF band? My guess is that not many of you are aware that the FCC released an order (Part 15.117-142, Subpart D) on Jan. 19, 1977, that permits low-power unlicensed personal communications devices on five different frequencies between 49.830 and 49.890 MHz. These frequencies fall just below the "ham" amateur radio band which begins at 50 MHz.

The Part 15 FCC regulations covering this service allow both commercial and homemade radio equipment with any kind of modulation. The only stipulation is that the bandwidth be no wider than 20 KHz and that all signals falling outside the 49.8 MHz band must be reduced to levels below 50 micro-volts per meter measured at 3 meters.

This means that there is adequate bandwidth for AM, sideband, FM....even Morse code, radio-teletype, telemetry, radio control of objects or slow-scan television. No FCC license of any type is needed. It is probably to only legal unlicensed radio service that exists today. At present, these frequencies are little used by the hobbyist. This could change, however, as more and more radio enthusiasts and manufacturers find out about the existence of 49.8 MHz personal communications.

The Federal Communications Commission requires that the transmitter device be completely self-contained with the single-element antenna permanently attached to the enclosure containing the low power device. The antenna can not exceed 1 meter (about 39 inches) in length. The band is intended by the FCC for very short range radio communications and the strict antenna regulations tend to limit range to a mile or so. It is conceivably possible, however, due to sporadic 8-meter radio propagation phenomena to make an occasional long distance radio contact...sometimes 400 or 500 miles...even at the low authorized power level.

One of the main features of the service is the complete lack of any FCC rules governing operation. There are no transmitting time, distance, age restrictions...just about anything goes as long as you adhere to the FCC's technical specifications.

The transceiver must be completely self-contained and if a microphone is used, it must be built right into the enclosure. It can't be on a cord. Commercially manufactured transceivers must have RF power levels not to exceed 10,000 micro-volts per meter measured at 3 meters. Home brewed units can be built in quantities of five or less without the necessity of FCC certification. Homemade transceivers are permitted to have a power input not to exceed 100 milli-watts (one tenth of a watt) under modulation conditions. Harmonic signals (unwanted multiple spurious energy) must be suppressed at least 20 db. You are not permitted to market homemade equipment without FCC type approval.

Already in existence is a California based group called the "Forty-Niner Radio Club" whose purpose is to promote hobby type activity on the 49.8 MHz frequencies. Mike Gauthier, president of the club and a "ham" radio operator for over 20 years) told us that good commercial equipment is not yet on the market. The FCC originally authorized the band to get the small hand-held walkie-talkie off of the Channel 14 CB frequency. The radio hobbyist seeing the possibilities of the new authorized frequency band, is now figuring out ways to make use of it. One of the potentially useful applications could be for wireless inter-comm sets to be used between offices and nearby houses. Equipment is now just becoming available and there is no telling what could develop.

The frequencies assigned to the 49.8 MHz band are allocated to the government radio service in this country, but are utilized by the broadcast VHF television services in other foreign countries.

If you have any questions or comments regarding the radio hobby, please direct them to "The Radio Hobbyist" column in care of this newspaper. Universally appealing questions and comments will be covered in this newspaper.

The AMERICAN RADIO COUNCIL is a national organization of radio hobbyists that are interested in improving their radio communications skills, technical knowledge and receiving increased radio privileges. For further information, write: ARC; P.O. Box 1171; Garland, Texas 75040.