



Advisory Circular

**Subject: REQUIREMENTS FOR 760 CHANNEL VHF
RADIO FOR AERONAUTICAL OPERATIONS**

Date: 04/06/92
Initiated By: ASM-500

AC No: 90-50D

1. PURPOSE.

This advisory circular strongly encourages aircraft owners to upgrade their very high frequency (VHF) air / ground radio communication systems. This circular also describes and updates civil air traffic control frequencies in the VHF (118.000 to 136.975 MHz) band. The 136.000 to 136.975 MHz band became available for aeronautical use on January 1, 1990.

2. CANCELLATION.

Advisory Circular 90-50C, VHF Radio Frequency Assignment Plan for Aeronautical Operations, dated 3/10/86, is canceled.

3. GENERAL.

The steady growth of aviation has brought about corresponding growth in air / ground communications requirements. Further, the growing diversity of air traffic has resulted in an increasingly complex air traffic control environment, which adds to the demand for spectrum efficiency. The radio spectrum between 118.000 to 136.975 MHz is used for air / ground communications in the aeronautical mobile service. Previous use of 50 kHz bandwidth assignments yielded 360 channels. Reducing the bandwidth requirements to 25 kHz doubles the available assignment pool to 720 channels. Retaining 100 kHz protection for the 121.5 MHz emergency channel reduces the channels available to 714.

- a. Following public comments in 1972, a 1973 FAA Notice of Policy Decision informed the public that the FAA was increasing the air traffic control communications capability by dividing the available spectrum into 25 kHz assignments. The implementation of 25 kHz assignments for high altitude enroute sectors started in 1977.
- b. Following public comments in 1983, a 1984 FAA Notice of Policy Decision informed the public that FAA was continuing to increase the air traffic control communications capability by expanding the use of enroute, terminal, and flight advisory assignments on any available 25 kHz, 50 kHz, or 100 kHz channel.

- c. Following the 1983 U.S. ratification of the 1979 World Administrative Radio Conference (WARC '79) provisions, the Federal Communications Commission (FCC), in 1984, promulgated an amendment to the FCC rules and regulations concerning frequency stability tolerances for aviation services. The frequency stability tolerances for the aeronautical mobile band were reduced from 0.005 percent to 0.003 percent for all new and replacement radios installed after January 3, 1985, and for all radios after January 1, 1990. The FCC delayed the January 1, 1990, implementation date to January 1, 1997. The frequency stability tolerance of 0.003 percent is necessary for full implementation of 25 kHz assignments.

- d. Another WARC '79 provision reallocated the 136.000 to 136.975 MHz band to the aeronautical mobile services. The FCC has released a final report and order, dated July 5, 1990, that permits operation of aviation services in this band.

- e. New and replacement radios that are operable in the 118.000 through 136.975 MHz range with 25 kHz channel spacing would provide the pilot with full communication services in the future. Unrestricted Instrument Flight Rules operation requires 25 kHz communication capability.

- f. The pilot should be aware that 25 kHz channel deployment excludes adjacent channel interference protection for equipment only operable on 50 kHz channels (360 channel radios). Interference caused by proximity to aircraft and ground stations operating on adjacent 25 kHz channels should be anticipated.

4. VHF RADIO REQUIREMENTS.

- a. It is strongly recommended that aircraft owners upgrade their VHF radio communication systems and install 760 channel equipment that is operable in the 118.000 to 136.975 MHz band with 25 kHz channel spacing, if they want to be ensured of receiving full air traffic control (ATC) services.

- b. Due to heavy congestion in all parts of the country and the requirements to provide additional ATC services, the FAA is using 25 kHz spacing for all air / ground communications systems.
- c. The FAA is ready to fully implement 25 kHz channeling in the 118.00 to 136.975 MHz band.
- d. Upgrading airborne equipment to the current 720 or future 760 channel radios will provide access to three additional Unicom channels in the 118 - 136 MHz band (122.725, 122.975, and 123.075 MHz). In addition, the 760 channel radios could provide access to as many as five Unicom channels in the 136 - 136.975 MHz band.

Frequencies (MHz): 121.425 - 121.475
 Use: Band Protection for 121.5

Frequencies (MHz): 121.500
 Use: Emergency Search and Rescue (ELT Operational Check, 5 Sec)

Frequencies (MHz): 121.525 - 121.575
 Use: Band Protection for 121.5

Frequencies (MHz): 121.600 - 121.925
 Use: Airport Utility and ELT Test

Frequencies (MHz): 121.950
 Use: Aviation Instructional and Support

5. FREQUENCY ASSIGNMENT PLAN.

- a. All air traffic control frequencies in the 118.000 to 136.975 MHz band will be assigned in accordance with the following 25 kHz channel assignment plan.
 - (1) Only the emergency frequency 121.5 MHz will continue to have 100 kHz protection.
 - (2) Air route traffic control center (ARTCC) enroute and terminal assignments will be on any selected 25 kHz air traffic control channel in the 118.000 to 136.975 MHz band.
- b. All flight service station (FSS) frequencies in the 121.975 to 122.675 MHz band will be assigned on any selected 25 kHz channels.
- c. New air traffic control or advisory services that require assignments in the 118.000 to 136.975 MHz band will be assigned 25 kHz channels only.
- d. Frequency assignments in the 136.00 to 136.975 MHz band will be phased in gradually depending on the services required (e.g., Automated Weather Observing System (AWOS), Automatic Terminal Information System (ATIS), Common Traffic Advisory Frequency (CTAF), and the availability of 760 channel radio equipment).
- e. Pilots operating aircraft with 360 channel radios may experience some interference from adjacent channel assignments.

Frequencies (MHz): 121.975
 Use: FSS Private Aircraft Advisory

Frequencies (MHz): 122.000 - 122.050
 Use: Enroute Flight Advisory Service (EFAS)

Frequencies (MHz): 122.075 - 122.675
 Use: FSS Private Aircraft Advisory

Frequencies (MHz): 122.700 - 122.725
 Use: UNICOM - Uncontrolled Airport and Aeronautical Utility

Frequencies (MHz): 122.750
 Use: Aircraft Air-to-Air

Frequencies (MHz): 122.775
 Use: Aviation Instructional and Support

Frequencies (MHz): 122.800
 Use: UNICOM - Uncontrolled Airport

Frequencies (MHz): 122.825
 Use: Domestic VHF

Frequencies (MHz): 122.850
 Use: Multicom - Special Use and Aviation Support on Noninterference Basis

Frequencies (MHz): 122.875
 Use: Domestic VHF

6. ALLOCATION OF FREQUENCIES FOR THE AERONAUTICAL MOBILE SERVICE.

Frequencies (MHz): 118.000 - 121.400
 Use: Air Traffic Control

Frequencies (MHz): 122.900
 Use: Multicom

Frequencies (MHz): 122.925
 Use: Multicom - Natural Resources

Frequencies (MHz): 122.950

Use: UNICOM - Airport with full time ATCT or full time FSS

Frequencies (MHz): 122.975 - 123.000

Use: UNICOM - Uncontrolled Airport

Frequencies (MHz): 123.025

Use: Helicopter Air-to-Air

Frequencies (MHz): 123.050 - 123.075

Use: UNICOM - Uncontrolled Airport

Frequencies (MHz): 123.100

Use: Aeronautical Search and Rescue; also Temporary Control Tower on secondary basis

Frequencies (MHz): 123.125 - 123.275

Use: Flight Test Stations

Frequencies (MHz): 123.300

Use: Aviation Support

Frequencies (MHz): 123.325 - 123.475

Use: Flight Test Stations

Frequencies (MHz): 123.500

Use: Aviation Support

Frequencies (MHz): 123.525 - 123.575

Use: Flight Test Stations

Frequencies (MHz): 123.600 - 123.650

Use: FSS Air Carrier Advisory

Frequencies (MHz): 123.675 - 128.800

Use: Air Traffic Control

Frequencies (MHz): 126.200

Use: Air Traffic Control Military (Common)

Frequencies (MHz): 128.825 - 132.000

Use: Domestic VHF (Operational Control)

Frequencies (MHz): 132.025 - 135.825

Use: Air Traffic Control

Frequencies (MHz): 134.100

Use: Air Traffic Control Military (Common)

Frequencies (MHz): 135.850

Use: Flight Inspection Use

Frequencies (MHz): 135.875 - 135.925

Use: Air Traffic Control

Frequencies (MHz): 135.950

Use: Flight Inspection Use

Frequencies (MHz): 135.975 - 136.075

Use: Air Traffic Control

Frequencies (MHz): 136.100

Use: Future Use UNICOM or AWOS

Frequencies (MHz): 136.125 - 136.175

Use: Air Traffic Control

Frequencies (MHz): 136.200

Use: Future Use UNICOM or AWOS

Frequencies (MHz): 136.225 - 136.250

Use: Air Traffic Control

Frequencies (MHz): 136.275

Use: Future Use UNICOM or AWOS

Frequencies (MHz): 136.300 - 136.350

Use: Air Traffic Control

Frequencies (MHz): 136.375

Use: Future Use UNICOM or AWOS

Frequencies (MHz): 136.400 - 136.450

Use: Air Traffic Control

Frequencies (MHz): 136.475

Use: Future Use UNICOM or AWOS

Frequencies (MHz): 136.500 - 136.975

Use: Domestic VHF (Operational Control and Special Purpose)

/s/

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