

**DEPARTMENT OF TRANSPORTATION****Federal Aviation Administration****14 CFR Parts 11 and 91**

[Docket No. FAA-2002-12261; Amendment Nos. 11-49 and 91-276]

RIN 2120-AH68

**Reduced Vertical Separation Minimum in Domestic United States Airspace**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** This final rule permits the initiation of Reduced Vertical Separation Minimum (RVSM) flights in the airspace over the contiguous 48 States of the United States, the District of Columbia, Alaska, that portion of the Gulf of Mexico where the Federal Aviation Administration (FAA) provides air traffic services, the San Juan Flight Information Region (FIR), and the airspace between Florida and the San Juan FIR. The RVSM program allows the use of 1,000-foot vertical separation at certain altitudes between aircraft that meet stringent altimeter and autopilot performance requirements. This rule also requires any aircraft that is equipped with Traffic Alert and Collision Avoidance System version II (TCAS II) and flown in RVSM airspace to incorporate a version of TCAS II software that is compatible with RVSM operations. The FAA is taking this action to assist aircraft operators to save fuel and time, to enhance air traffic control flexibility, and to enhance airspace capacity.

**EFFECTIVE DATE:** This final rule is effective November 26, 2003.

**FOR FURTHER INFORMATION CONTACT:** Robert Swain, Flight Technologies and Procedures Division, Flight Standards Service, AFS-400, Federal Aviation Administration, 800 Independence Ave., SW., Washington, DC 20591, telephone (202) 385-4576.

**SUPPLEMENTARY INFORMATION:****Availability of Rulemaking Documents**

You can get an electronic copy of this document and of a chart showing the affected airspace through the Internet by taking the following steps:

(1) Go to the search function of the Department of Transportation's electronic Docket Management System (DMS) Web page (<http://dms.dot.gov/search>).

(2) On the search page type in the last five digits of the Docket number shown at the beginning of this document. Click on "search."

(3) On the next page, which contains the Docket summary information for the Docket you selected, click on the document number of the item you wish to view.

You can also get an electronic copy using the Internet through the Office of Rulemaking's Web page at <http://www.faa.gov/avr/armhome.htm> or the Government Printing Office's Web page at [http://www.access.gpo.gov/su\\_docs/aces/aces140.html](http://www.access.gpo.gov/su_docs/aces/aces140.html).

You can also get a copy by submitting a request to the Federal Aviation Administration, Office of Rulemaking, ARM-1, 800 Independence Avenue SW., Washington, DC 20591, or by calling (202) 267-9680. Make sure to identify the docket number, notice number, or amendment number of this rulemaking.

**The Reduced Vertical Separation Minimum (RVSM) Program**

The term "flight level" (FL) describes a surface of constant atmospheric pressure related to a reference datum of 29.92 inches of mercury. Flight levels are stated in three digits that represent thousands of feet. Flight levels are separated by specific pressure intervals. Rather than adjusting altimeters for changes in atmospheric pressure, pilots base altitude readings above the transition altitude (18,000 feet in the United States) on this standard reference. Thus FL 290 represents the pressure surface equivalent to 29,000 feet based on the 29.92 inches of mercury datum; FL 310 represents 31,000 feet, and so on.

The RVSM program allows the vertical separation standard that is applied below FL 290 to be applied between FL 290 and FL 410. Below FL 290, air traffic controllers can assign Instrument Flight Rules (IFR) aircraft to flight levels that are separated by 1,000 feet. Above FL 290, however, unless RVSM standards are implemented, the vertical separation minimum is 2,000 feet and IFR aircraft must be assigned to flight levels separated by 2,000 feet.

The 2,000-foot minimum vertical separation restricts the number of flight levels available above FL 290. During peak periods, these flight levels can become congested. When all RVSM flight levels (FL 290-410) are utilized, six additional flight levels are available: FL 300, 320, 340, 360, 380, and 400. Increasing the number of flight levels available in the U.S. domestic airspace is projected to provide enhancements to aircraft operations similar to those gained in the North Atlantic (NAT) and Pacific (PAC) (*i.e.*, mitigation of fuel penalties attributed to the inability to fly optimum altitudes and tracks, and

enhanced controller flexibility for air traffic control).

**Summary of the Notice of Proposed Rulemaking (NPRM) Published on May 10, 2002, and the Supplemental Notice of Proposed Rulemaking (SNPRM) Published on February 28, 2003**

The NPRM published on May 10, 2002 (67 FR 31920) proposed to implement RVSM from FL 290 through FL 410 over the contiguous U.S. and Alaska, and the portion of the Gulf of Mexico where the FAA provides air traffic services. This reduced vertical separation minimum would only be applied between those aircraft that meet stringent altimeter and autopilot performance requirements. The FAA ("we") proposed the action to assist aircraft operators to save fuel and time, to enhance air traffic control flexibility, and to provide the potential for enhanced airspace capacity. The NPRM outlined the FAA plan during the pre- and post implementation phases to monitor the program to ensure that RVSM safety standards are maintained and that aircraft altitude-keeping performance meets RVSM standards.

We subsequently revised the proposal in an SNPRM published on February 28, 2003 (68 FR 9818). We added a proposal to implement RVSM from FL 290 through FL 410 in Atlantic High Offshore airspace, Gulf of Mexico High Offshore airspace, and in the San Juan Flight Information Region (FIR). This supplement to the NPRM proposed to better define RVSM airspace off the eastern and southern coasts of the United States and harmonize RVSM airspace off the east coast of the U.S. between adjoining airspaces in the domestic U.S., Atlantic High Offshore, and the New York Oceanic FIR. We also proposed to remove the proposal in the NPRM that would have permitted part 91 turbo-propeller aircraft to operate in domestic RVSM airspace with a single RVSM compliant altimeter.

With air traffic levels increasing annually, FAA airspace planners and their international counterparts have established programs to implement RVSM as a primary measure to enhance air traffic management and aircraft operating efficiency. The RVSM program has been implemented in oceanic airspace in the North and South Atlantic, the Pacific, the South China Sea, and in the portion of the West Atlantic Route System (WATRS) that is in the New York Oceanic Flight Information Region. The RVSM program has also been implemented in the continental airspace of Australia and Europe.