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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 1, 71, 91, 95, 97, 121, 125, 129, and 135

[Docket No. FAA-2002-14002; Notice No. 02-20]

RIN 2120-AH77

Area Navigation (RNAV) and Miscellaneous Amendments

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part 2
comment date is
1-31-03*

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA is proposing to amend its regulations to reflect technological advances that support area navigation (RNAV); make certain terms consistent with those of the International Civil Aviation Organization; remove the middle marker as a required component of instrument landing systems; and clarify airspace terminology. The proposed changes are intended to facilitate the transition from ground-based navigation to new reference sources, enable advancements in technology, and increase efficiency of the National Airspace System.

DATE: Send your comments on or before [insert date 45 days after date of publication in the Federal Register].

January 31, 2003

ADDRESSES: Address your comments to the Docket Management System, U.S. Department of Transportation, Room PL 401, 400 Seventh Street, SW, Washington, DC 20590. You must identify the docket number FAA-2002-14002 at the beginning of your comments, and you should submit two copies. If you wish to receive confirmation that FAA has received your comments, include a self-addressed, stamped postcard on which the docket number appears.

You may also submit comments through the Internet to <http://dms.dot.gov>. You may review the public docket containing comments to these proposed regulations in person in the Dockets Office between 9:00 a.m. and 5:00 p.m., Monday through Friday, except Federal holidays. The Dockets Office is on the plaza level of the Nassif Building at the Department of Transportation at the above address. Also, you may review public dockets on the Internet at <http://dms.dot.gov>.

FOR FURTHER INFORMATION CONTACT: Lawrence Buehler, Flight Technologies and Procedures Division, Flight Standards Service, AFS-400, Federal Aviation Administration, 800 Independence Ave. SW, Washington, DC 20591; telephone: (202) 385-4586.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites interested persons to participate in this rulemaking by submitting written comments, data, or views. The FAA also invites comments on the environmental, energy, federalism, or economic impacts that might result from adopting the proposals in this document. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA asks that you send two copies of written comments.

The FAA will file all comments received, as well as a report summarizing each substantive public contact with FAA personnel in the docket. The docket for this rulemaking is available for public inspection before and after the comment closing date. You can review the docket in person or using the Internet (see "Addresses" above).

Before acting on this proposal, the FAA will consider all comments it receives on or before the closing date for comments. The FAA will consider comments filed late if it is possible to do so without incurring expense or delay. The FAA may change this proposal in light of comments.

Availability of Rulemaking Documents

You can get an electronic copy of this document by taking the following steps:

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

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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. Be sure to identify the docket number, or notice number with amendment number, of this rulemaking.

Guide to Terms and Acronyms Used in This Document

AGL—Above ground level

APV—Approach procedures with vertical guidance
ASR—Airport surveillance radar
ATS—Air Traffic Service
DA—Decision altitude
DH—Decision height
DME—Distance measuring equipment
FL—Flight level
GPS—Global Positioning System
ICAO—International Civil Aviation Organization
IAP—Instrument approach procedure
IFR—Instrument flight rules
ILS—Instrument landing system
MAA—Maximum authorized IFR altitude
MCA—Minimum crossing altitude
MDA—Minimum descent altitude
MEA—Minimum en route IFR altitude
MOCA—Minimum obstruction clearance altitude
MSL—Mean sea level
NAS—National Airspace System
NAVAID—Navigational aid
NDB—Nondirectional beacon
NM—Nautical mile
OEP—Operational Evolution Plan
Over the top—Over the top of clouds
PANS—Procedures for Air Navigation Services
PAR—Precision approach radar
RNAV—Area navigation
RVR—Runway visual range
SARPs—International Standards and Recommended Practices
SIAP—Standard Instrument Approach Procedure
TLOF—Touchdown and lift-off area
VOR—Very high frequency omnidirectional range
VORTAC—VOR omnidirectional range/tactical air navigation

Outline of the Preamble

I. Background

- I.A. Area Navigation (RNAV)
- I.B. Recent Technological Improvements
- I.C. International Standardization
- I.D. Middle Markers and Outer Markers
 - I.D.1. Elimination of Middle Markers
 - I.D.2. Outer Markers
- I.E. Operational Evolution Plan (OEP)

Substitutes for

BF 12/9/02

II. General Discussion of the Proposals

II.A. RNAV

II.B. ICAO

II.C. Middle and Outer Markers

II.C.1. Elimination of Middle Markers

II.C.2. Substitutes for Outer Markers

II.D. Changes in Terminology

II.D.1. Decision Height (DH) and Decision Altitude (DA)

II.D.2. RNAV

II.D.3. En Route

II.D.4. Approach and Landing Using Instrument Approach Procedures

III. Section-By-Section Discussion of the Proposed Changes

IV. Paperwork Reduction Act

V. International Compatibility

VI. Economic Evaluation

VII. Regulatory Flexibility Determination

VIII. International Trade Impact Analysis

IX. Unfunded Mandate Assessment

X. Executive Order 13132, Federalism

XI. Environmental Analysis

XII. Energy Impact

I. Background

I.A. Area Navigation (RNAV)

Historically, the principal means of air navigation for instrument flight rules (IFR) operations in the United States National Airspace System (NAS) has been a system of ground-based navigation aids (NAVAIDs), including nondirectional beacon (NDB), very high frequency omnidirectional range (VOR), and distance measuring equipment (DME). Airways and instrument procedures were developed using these NAVAIDs; however, this has required pilots to fly directly toward, or away from, the NAVAID. This limitation has resulted in less-than-optimal routes and instrument procedures, and contributed to an inefficient use of airspace.

The advent of area navigation (RNAV) in the 1960's provided enhanced navigation capabilities to the pilot. Early RNAV allowed properly equipped aircraft to navigate via a user-

defined track without the need to fly directly toward or away from a ground-based navigation aid. Early RNAV systems still relied, however, on signals from a ground-based NAVAID for source information to calculate navigational position information. To take advantage of this improved navigation capability, in the 1970's, the FAA began to publish a series of instrument approach procedures (IAPs) and routes for use by RNAV-equipped aircraft. A nationwide system of high-altitude RNAV routes was established consisting of approximately 156 route segments.

These fixed routes still depended on reference to ground-based NAVAIDs. The FAA later determined that most aircraft using RNAV in the en route system were doing so on a random basis using inertial navigation systems (INS) with little use being made of the fixed high altitude RNAV route structure. Operators were using RNAV by going from point to point. They were not using the high-altitude RNAV route structure that was designed and published by the FAA. This minimal use of the charted RNAV routes proved insufficient to justify their retention on a cost-benefit basis. As a result, in January 1983, the FAA revoked all high altitude RNAV routes in the coterminous United States. The RNAV routes in the State of Alaska were retained and remain in use today because of the scarcity of ground-based navigational aids there.

I.B. Recent Technological Improvements

The technology that evolved over the past 40 years gave avionics systems increased positional accuracy, which provided users with a greater ability to fly direct routes between any two points. In recent years, satellite navigation using the Global Positioning System (GPS) has provided even greater flexibility in defining routes, establishing instrument procedures, and designing airspace. When GPS is combined with existing RNAV system capabilities, continuous

course guidance is available over longer routes than are possible with ground-based NAVAIDs, which have limited coverage due to terrain or signal reception restrictions. Augmented GPS also introduces the ability to provide vertical guidance information for nonprecision instrument approaches. This has the potential to significantly reduce the risk of accidents caused by controlled flight into terrain (CFIT).

As a result of these technological advances, the FAA has implemented a number of RNAV routes for use by air carriers operating suitably equipped aircraft in the northeast, southeast, and southwest regions of the United States. The results so far have demonstrated the potential of RNAV, when used with new navigation reference sources, such as GPS. The entire NAS can be realigned by using more direct and user-preferred routes, thus achieving greater system flexibility, efficiency, and capacity.

Air navigation is expected to become increasingly dependent on RNAV systems that navigate with reference to geographic positions specified in latitude and longitude coordinates rather than to or from a ground-based navigation aid. Reliance on RNAV in the NAS will expand as enhancements to GPS are developed and deployed, increasing its accuracy and reliability.

The changes proposed in this NPRM would facilitate the use of RNAV throughout all phases of flight (departure, en route, and approach), which is a goal of the Free Flight program. The Free Flight program is designed to enhance the safety and efficiency of the NAS. It moves the NAS from a centralized command-and-control system between pilots and air traffic controllers to a system that allows pilots, whenever practical, to choose their own routes and file flight plans that follow the most efficient and economical routes. The changes proposed in this NPRM would result in greater flexibility in air traffic routing, instrument approach procedure

design, and airspace use than is now possible under a ground-based system structure. The improved navigation accuracy and flexibility would enhance both system capacity and overall flight safety, and would promote the Free Flight concept in the NAS by enabling the NAS to move from reliance on ground-based NAVAIDs.

I.C. International Standardization

The International Civil Aviation Organization (ICAO) is an agency of the United Nations that promotes the development of uniform world-wide procedures and standardization to ensure the safety and efficiency of international civil aviation operations. ICAO's standards are found in the 18 Annexes to the Convention on International Civil Aviation. To achieve this standardization, ICAO publishes various International Standards and Recommended Practices (SARPs) and Procedures for Air Navigation Services (PANS). This proposal is part of a continuing effort to recognize the advent of new technologies and international efforts to create a seamless air traffic system by making the terms used in FAA's regulations consistent with ICAO terminology.

I.D. Middle Markers and Outer Markers

Middle and outer markers are beacons that define points along the glide path on an instrument landing system (ILS) approach. An outer marker is usually located at or near the glide path intercept point of an ILS approach, normally 4 to 7 miles from the runway threshold. A middle marker indicates a position approximately 3,500 feet from the landing threshold. This is normally located near the point where an aircraft on the glide path will be at an altitude of approximately 200 feet above the elevation of the runway touchdown zone. For a Category I ILS

approach, this coincides with the decision height, or the height at which a pilot must decide whether to continue the approach to landing or execute a missed approach procedure. This proposal would eliminate the middle marker as a required ILS component and would enable the use of other navigation means to substitute for the outer marker beacon.

I.D.1. Elimination of Middle Markers

According to instrument procedure design criteria, all required components must be operational in order for the pilot to fly the ILS to the lowest authorized approach minimums. Originally, the middle marker was a required component of an ILS. Terminal instrument procedure design criteria required that, when the middle marker was inoperative, a penalty was applied to increase the published landing minimums to compensate. The higher minimums imposed by these penalties could result in the pilot being unable to land at that destination.

In January 1988, through Operations Specifications, the FAA eliminated the landing penalties of increased landing minimums for 14 CFR part 121 and part 135 operators conducting ILS approaches with inoperative middle markers. The justification for this change was the long-term operational success experienced by European air carriers and the U.S. Department of Defense when not using middle markers and when not applying penalties for inoperative middle markers. On December 4, 1990, therefore, the FAA removed the inoperative middle marker landing minimum penalties for all operators through change 10 to the Terminal Instrument Procedures (TERPS).

In June 1992, the FAA completed an evaluation of the operational effectiveness and safety benefits of middle markers during ILS operations and issued a document entitled "Middle Marker Evaluation Project." A copy of the evaluation has been placed in the docket for this

rulemaking. That evaluation studied 165 missed approaches--83 with the middle marker operative, and 82 with the middle marker inoperative. The approaches were conducted by 18 pilots. Two pilots worked for the FAA, and 16 worked, or had worked, in corporate aviation. None of the pilots was told the objective of the flight test until after the flight test. The result of the evaluation was that there was no significant difference in pilot performance while conducting an ILS approach with or without a middle marker. Consequently, on October 15, 1992, the landing minima penalties for conducting an ILS approach with an inoperative middle marker were removed for the Standard Instrument Approach Procedures (SIAPs). This action was taken because the FAA has determined that middle markers are redundant and are no longer needed for safety. The FAA is therefore proposing that the requirement for middle markers be removed from its regulations.

I.D.2. Substitutes for Outer Markers

The outer marker is another required component of the ILS. In lieu of a marker beacon, a compass locator transmitter, DME, or airport surveillance radar (ASR) may be used to identify the outer marker position. This proposal would allow the use of waypoints for outer markers, resulting in additional flexibility in airspace utilization and procedure design.

I.E. Operational Evolution Plan (OEP)

This proposal would address a portion of the FAA's Operational Evolution Plan (OEP), which is the FAA's overall plan to modernize the NAS. The OEP has several components, including ones to alleviate en route congestion, increase arrival and departure rates at airports, improve response to en route severe weather, and improve operational procedures and tools for

operations in poor airport weather conditions. Task 3.2 of the OEP states that arrival and departure routes should be constructed independent of navigation aids. A subordinate task is to review and update the Code of Federal Regulations to allow for routing independent of ground-based navigation aids.

II. General Discussion of the Proposals

II.A. RNAV

The expanded use of RNAV and GPS navigation would fully support the FAA's Free Flight concept. RTCA's Task Force 3 issued a report in 1995 in which it defined the implementation of a concept to move from today's largely ground-based system by applying current technologies. (See "Final Report of RTCA Task Force 3, Free Flight Implementation," October 26, 1995/November 1995. Copies are available for purchase from RTCA, 1828 L St. NW, Suite 805, Washington, DC, 20036 (telephone 202-833-9339).) Although the immediate effect of the proposed amendments would be to allow increased use of GPS, the proposed terminology changes would also be broad enough to allow for new technologies as they become available and are approved for use.

II.B. ICAO

As an ICAO Contracting State, the United States strives to adhere to the rules and procedures set forth in the ICAO SARPs and PANS as much as possible. For example, in 1993, the United States reclassified its domestic airspace to adopt, in part, the ICAO airspace classifications (i.e., Class A, Class B, etc.) outlined in Annex 11 to the Convention. In formulating this NPRM, the FAA has an opportunity to make additional terminology in its

regulations consistent with ICAO. The current U.S. terminology for naming routes differs from that used by ICAO. Through this proposal, the United States would adopt the ICAO term “Air Traffic Service (ATS) Route” to describe the U.S. en route structure. Other examples of how this proposal would promote compatibility with ICAO include the proposed addition of the term “decision altitude (DA),” and the proposed change of the abbreviation of HAT from “height above touchdown” to “height above threshold.” The proposed changes would be a step in bringing U.S. terminology closer to fulfilling the United States’ responsibilities as an ICAO member.

II.C. Middle and Outer Markers

In addition to the proposed amendments regarding RNAV, the FAA is proposing to update its regulations to eliminate the middle marker as a required basic ground component of an ILS, and to increase the number of acceptable substitutes for the outer marker component of an ILS. These amendments would facilitate flexibility in the development of new instrument approach procedures.

II.D. Changes in Terminology

The following are subject areas in which the FAA is proposing to change the terminology in its regulations. For specific sections that are amended, see “III. Section-By-Section Discussion of the Proposed Changes” in this preamble.

II.D.1. Decision Height (DH) and Decision Altitude (DA)

References to “decision height” and “DH” are being replaced with references to “decision altitude” and “DA,” respectively, where minimums are based upon barometric altitude, which is expressed in feet above mean sea level (MSL). In contrast, where minimums are based upon height above ground level (AGL), the term decision height (DH) is used. These changes are being proposed to make the FAA’s regulations consistent with ICAO terminology and to more accurately describe when the decision to continue the approach below the authorized minima or make a missed approach is made.

II.D.2. RNAV

The FAA is proposing to revise the definition of “area navigation (RNAV).” The FAA is also proposing to remove references to the words “ground” and “radio” where using these words restricts the type of navigation and communication systems persons can use. The amendments would either replace those words with less restrictive language or remove them entirely, which would allow the expanded use of RNAV systems and permit persons to take advantage of future changes in technology.

II.D.3. En Route

The FAA is proposing new terms, “Air Traffic Service (ATS) route” and “area navigation (RNAV) route.”

“Air Traffic Service (ATS) route” would be used to describe the U.S. en route structure. The term “ATS route” would include Federal airways, jet routes, and area navigation routes in the United States.

“Area navigation (RNAV) route” would refer to ATS routes established for the use of aircraft capable of using area navigation. Note that not all RNAV-capable aircraft are suitably equipped to operate on all RNAV routes. The FAA would determine the means to qualify aircraft for various RNAV operations and the method for promulgating the requirements to operate on RNAV routes. These requirements would be promulgated similarly to the way part 71 routes and part 97 procedures are currently promulgated.

In addition, the FAA is proposing to change the current definition of “route segment” to facilitate RNAV operations.

II.D.4. Approach and Landing Using Instrument Approach Procedures

The FAA is proposing to amend the following definitions—

- Nonprecision approach procedure
- Precision approach procedure

The FAA is proposing to add the following terms—

- Approach procedure with vertical guidance (APV)
- Area navigation route
- Category I operations
- Decision altitude (DA)
- Instrument approach procedure (IAP).

The FAA is proposing to revise the following definitions—

- Category II, III, IIIa, IIIb, and IIIc operations
- Decision height (DH)
- Minimum descent altitude (MDA)

III. Section-By-Section Discussion of the Proposed Changes

Section 1.1 General definitions

Air Traffic Service (ATS) route: The FAA is proposing to adopt the term “Air Traffic Service (ATS) route” to describe the U.S. route structure. The term ATS route would include jet routes, area navigation (RNAV) routes, and arrival and departure routes. An ATS route would be defined by route specifications. These route specifications may include an ATS route designator, the path to or from fixes, distance between fixes, reporting requirements, and the lowest safe altitude determined by the appropriate authority.

Approach procedure with vertical guidance (APV): This new term would mean an instrument approach procedure based on lateral path and glide path. These approach procedures are flown to a decision altitude (DA). Although these procedures include glide path information, they may not meet the requirements currently established for precision approach and landing operations. This includes the vertical navigation performance and airport infrastructure requirements (i.e., ICAO Annex 14 and FAA Advisory Circular (AC) 150/5300-16). Safety for these procedures is maintained by increasing the required obstacle clearance height or required visibility. An example of an APV approach is the LNAV/VNAV (lateral navigation/vertical navigation) approach minima currently published on RNAV approach plates.

Area navigation low route and Area navigation high route: These terms would be removed and replaced with the term “area navigation (RNAV) route.” See discussion of “area navigation (RNAV) route” below.

Area navigation (RNAV): The definition of “area navigation (RNAV)” would be broadened by removing the words “station-referenced navigation signals,” which refer to ground-based signals, and adding the words “flight path” to cover operations in both the lateral and vertical planes (i.e. lateral navigation (LNAV) and vertical navigation (VNAV)).

Area navigation (RNAV) route: The new term “area navigation (RNAV) route” would refer to those ATS routes established for aircraft capable of using area navigation equipment suitable for those routes.

Category I (CAT I) operation: The term “Category I operation” commonly has been used in the aviation industry and in the preambles of FAA regulatory documents for years, but it has never been defined in the CFR. The FAA is therefore proposing to add a definition of this term. The proposed definition of “Category I (CAT I) operation” is “a precision approach with a decision altitude that is not lower than 200 feet (60 meters) above the threshold and with either a visibility of not less than one half statute mile (800 meters) or a runway visual range (RVR) of not less than 1,800 feet (550 meters).”

Category II (CAT II) operation, Category III (CAT III) operation, Category IIIa (CAT IIIa) operation, Category IIIb (CAT IIIb) operation, and Category IIIc (CAT IIIc) operation:

These definitions would be revised to incorporate the concept of precision RNAV. In each of these definitions, the terms “ILS approach” or “ILS instrument approach” would be replaced with the terms “precision approach” and “precision instrument approach,” respectively. The definitions would also be updated to be compatible with the Joint Aviation Authorities (JAA) terminology.

Decision altitude (DA): The FAA proposes to add the definition for “decision altitude (DA)” to describe the mean sea level altitude at which the decision to continue the approach below the authorized minima or make a missed approach is made. This term would be consistent with ICAO terminology.

Decision height (DH): The definition of “decision height” would be revised to specify that it applies only to Category II and III approaches rather than Category I approaches, which would refer to decision altitude. See discussion under “II.D.1. Decision Height (DH) and Decision Altitude (DA).”

Final approach fix (FAF): This term would be added to indicate that a final approach fix is associated with a nonprecision approach.

Instrument approach procedure (IAP): This term would be added. It is a general term that applies to all types of approach procedures.

Minimum descent altitude (MDA): The definition of “minimum descent altitude” would be revised to change the words “final approach” to “nonprecision final approach,” and to remove the references to “standard instrument approach procedure” and “electronic glide slope.” This change would clarify the definition, as an MDA is applicable to a SIAP without electronic glide slope.

Night: The FAA is proposing to revise the definition of the term “night” to reflect that local night may differ from the times published in the American Air Almanac. This concept of local night could limit operations at a particular location when the FAA determines it to be necessary for the safety of operations, for example, when terrain causes sunset significantly earlier than the Almanac indicates.

Nonprecision approach procedure (NPA): The FAA is proposing to revise the definition of this term so that there would be no reference to “electronic glide slope.” The term would apply to navigation systems that provide lateral (but not vertical) path deviation guidance.

Precision approach procedure (PA): The FAA is proposing to revise the definition so that there would be no references to “standard instrument approach procedure” and “electronic glide slope.” The revised term, however, would still be based on lateral course and track information with vertical glide path information. Currently, ILS, microwave landing systems (MLS), Global Navigation Satellite System (GNSS) landing systems (GLS) and precision approach radar (PAR) are recognized precision approach systems.

Precision final approach fix (PFAF): This term would be added to indicate that a precision final approach fix is associated with a precision or APV approach procedure.

RNAV waypoint: The FAA proposes to remove the definition of “RNAV way point (W/P)” because it is overly restrictive.

Route segment: The definition of “route segment” would be revised to mean a portion of a route bounded on each end by a fix or NAVAID. The proposed change would facilitate the development of RNAV routes.

Section 1.2 Abbreviations and symbols

The FAA proposes to add the following acronyms to the list of abbreviations and symbols in §1.2:

APV means approach procedure with vertical guidance.

NM means nautical mile.

NPA means nonprecision approach.

PA means precision approach.

RNAV means area navigation.

Part 71 Amended

The current part 71 is limited to ground-based navigation systems, includes extraneous information, and is not organized clearly. Although the amendments would not be related

directly to the RNAV proposals, the FAA proposes to take this opportunity to improve the readability of part 71 by separating the sections that provide general information about part 71 (§§71.1 through 71.15) from the sections that apply only to Class A airspace, and by combining or realigning the sections in part 71 in a more efficient way. These changes are discussed in further detail below.

Part 71 Heading revised

The FAA proposes to revise the heading of part 71. The current title, “Designation Of Class A, Class B, Class C, Class D, And Class E Airspace Areas; Airways; Routes; And Reporting Points,” would be revised to read “Designation of Class A, Class B, Class C, Class D, and Class E Airspace Areas: Air Traffic Service Routes; and Reporting Points.” In the new heading, the words “Airways; Routes” would be replaced with the words “Air Traffic Service Routes,” which would cover jet routes, VOR Federal airways, Colored Federal airways, and area navigation routes. This would be consistent with ICAO’s use of the term “air traffic service routes.”

Subpart A--Class A Airspace

The FAA proposes to move the heading of subpart A so that it appears directly before §71.31 and revise it to read, “Class A Airspace.” As a result, sections appearing at the beginning of part 71 would provide general information on multiple sections in part 71, and sections in the newly designated subpart A (§§71.31 and 71.33) would contain regulations pertinent only to Class A airspace. This would make subpart A consistent with the rest of part 71, where subpart

designations correspond to the airspace classes covered. For example, subpart A would cover class A airspace; subpart B would cover class B airspace, and so forth.

Section 71.11 Air Traffic Service (ATS) routes

The FAA proposes to add §71.11, Air Traffic Service (ATS) routes. The text for the new section would come from the current §71.75, Extent of Federal airways, paragraphs (a), (b)(1), and (d). This text would be revised to apply to ATS routes in general. The FAA is proposing this change to include ATS route terminology and to improve the organization of part 71.

Paragraph (a) of §71.11 would differ from the text of §71.75 in that the words “navigational aid or intersection” that are currently in §71.75, would read, “navigation aid, fix, or intersection” for defining route segments. These changes would accommodate the development of ATS routes that are not linked to ground-based navigation aids.

Paragraph (b) of §71.11 would differ from the text of §71.75 by referencing FAA Order 8260.3, “U.S. Standard for Terminal Instrument Procedures (TERPS),” as the source for criteria regarding ATS route dimensions and protected airspace.

Paragraph (c) would differ from the text of §71.75 by stating that all ATS routes exclude the airspace of prohibited areas, rather than just Federal airways. This would mean that if the route passed through a prohibited area (i.e., a type of special use airspace designated under 14 CFR part 73), the FAA would write an exclusion into the legal description of the route that stated that the prohibited area airspace was excluded from the route.

Section 71.13 Classification of Air Traffic Service (ATS) routes

The FAA proposes to use the current text of §71.73, Classification of Federal airways, as a basis for proposed new §71.13, Classification of Air Traffic Service (ATS) routes, and expand the scope of it to classify the Federal airway, jet route, and area navigation route components of the U.S. route structure as ATS routes. The FAA is proposing this change to improve the organization of part 71 and to facilitate the development of RNAV routes that are not linked to ground-based navigation aids.

Section 71.15 Designation of jet routes and VOR Federal airways

The text of proposed §71.15 would come from current §71.79, with information added to ensure that the stated place name criteria apply to jet routes as well as VOR Federal airways. This change is proposed to consolidate similar information and to reorganize part 71 for clarity.

Section 71.73 Classification of Federal airways

Section 71.73 would be removed and used as a basis for new §71.13. This change would result in classifying the various types of ATS routes in one section for clarity and would improve the organization of part 71. See discussion of §71.13 above.

Section 71.75 Extent of Federal airways

Section 71.75 would be removed and parts of it used as a basis for new §71.11. This change would consolidate related information, remove information that is not needed, and improve the organization of part 71. See discussion of §71.11 above.

Section 71.79 Designation of VOR Federal airways

The FAA proposes to remove §71.79 and move the information to the proposed new §71.15, Designation of jet routes and VOR Federal airways. This change improves the organization of part 71 by consolidating related information. See discussion of §71.15 above.

Section 91.129 Operations in Class D airspace

The FAA is proposing to revise §91.129 (e) in clearer language. Although substantive changes would be made only in paragraph (e)(2) (discussed below), the FAA is taking this opportunity to propose clearer language for the rest of (e).

Currently, §91.129 (e)(2) requires that when a pilot of a large or turbine-powered airplane is approaching to land on a runway served by an ILS and within Class D airspace, the pilot must fly at an altitude at or above the glide slope between the outer marker (or the point of interception with the glide slope, if compliance with the applicable distance-from-cloud-criteria requires interception closer in) and the middle marker. The proposed rule would require that a person operate at or above the glide path between the precision final approach fix (or point of interception with the glide slope, if compliance with the applicable distance-from-cloud criteria requires interception closer in) and the published decision altitude or decision height.

Specifically, changes to (e)(2) would be as follows--

(1) The phrase “served by an instrument landing system (ILS)” would read “served by an APV or precision approach procedure.” The reason for the change is that ILS is not the only type of approach with a glide path.

(2) The term “glide slope” would read “glide path” because the term “glide slope” is generally used with respect to ILS, whereas the term “glide path” includes both ILS and APV.

(3) The reference to “outer marker” would be replaced with “precision final approach fix.” This would facilitate determining aircraft position as appropriate (e.g., DME, RNAV, or radar) and would make the paragraph consistent with proposed §91.175 (k). The term “middle marker” would be replaced by “decision altitude or decision height.”

Section 91.131 Operations in Class B airspace

The FAA is proposing to revise §91.131 (c)(1) by adding the words “suitable RNAV system” to provide another option for meeting the communications and navigation equipment requirement. This change would be consistent with the proposed definition of RNAV.

Section 91.175 Takeoff and landing under IFR

The FAA is proposing to revise §91.175 (a) by replacing the term “instrument letdown” with the term “instrument approach” because “letdown” is outdated terminology.

The FAA is proposing to revise paragraph (b) to change the term “DH” to “DA/DH.” See discussion “II.D.1. Decision Height (DH) and Decision Altitude (DA)” above.

Paragraph (c) would be amended to change the term “DH” to “DA/DH.” See discussion “II.D.1. Decision Height (DH) and Decision Altitude (DA)” above.

The FAA is proposing to amend the introductory text of paragraph (e) by changing the word “pilot” to “person” to make the regulation consistent with the definition of “person” currently in §1.1. In addition, paragraph (e)(1)(ii) would be revised to replace the term “DH” with “DA/DH.” See discussion “II.D.1. Decision Height (DH) and Decision Altitude (DA)” above.

The FAA is proposing to revise paragraph (f) to clarify that published takeoff minimums are associated with a particular departure procedure. Takeoff minimums are determined from the analysis of a particular runway environment. Thus, the departure procedure must be followed for a particular runway to ensure adequate obstacle clearance.

Paragraph (h) would be amended by removing the RVR table from paragraph (h)(2) and replacing it with a reference to FAA Order 8260.3, "U.S. Standard for Terminal Instrument Procedures (TERPS)," which contains the RVR table. This would eliminate duplication, and ensure that the public has information based on on-going changes in technology. In addition to appearing in FAA Order 8260.3, the RVR table also appears in the Aeronautical Information Manual (AIM), the Instrument Flying Handbook, and in the Flight Information Publications.

Paragraph (j) would be amended by changing the word "pilot" to "person" to make the regulation consistent with the definition of "person" currently in §1.1.

Paragraph (k) would be amended to allow certain locations on the ILS to be fixed by other-than-ground-based navigation aids. As technology develops, these points could be indicated by fix instead of actual markers. Finally, middle markers would be deleted from this paragraph as they are no longer a basic component of an ILS. Although some middle markers are still in use, no additional middle markers are being installed at new ILS sites.

Section 91.177 Minimum altitudes for IFR operations

The FAA is proposing to amend §91.177 (a) by adding language to clarify that the section would apply when both a minimum en route IFR altitude (MEA) and a minimum obstruction clearance altitude (MOCA) are prescribed for a particular route or route segment. The sentence that currently appears as concluding text of paragraph (a)(2) would be moved to

paragraph (a)(1) and amended by adding the phrase, “using VOR for navigation.” This proposed change would clarify that a person could travel at the MOCA for the full route segment if the person is using another navigation system that meets navigation requirements and is available, e.g. GPS-based RNAV. If, however, a person were using VOR for navigation then the person would have to operate at the MEA except within 22 NM of the VOR facilities. If a person were using a navigation system other than VOR or GPS, the person would have to take positive action to ensure that he or she was receiving a suitable navigation signal along the full route. This change would allow operations at the MOCA, provided the applicable navigation signals were available. Although the change would be permissive, it would not change the requirements for communication and surveillance along the route. Therefore, the FAA may require a higher altitude to meet all the requirements of communication, navigation, and surveillance.

Section 91.179 IFR cruising altitude or flight level

The FAA is proposing to amend §91.179 by adding introductory text to read, “Unless otherwise authorized by the ATC, the following rules apply.” While the FAA recognizes that there will be an ATC clearance associated with an IFR operation, adding this clause would facilitate the future implementation of new technology by giving the FAA the flexibility to allow alternatives to current altitude assignment procedures.

Section 91.181 Course to be flown

The FAA proposes to amend §91.181(a) by removing the words “a Federal airway” and adding in their place “an ATS route,” since the proposed changes in §71.13 define an ATS route to include Federal airways and the new RNAV routes.

Section 91.183 IFR communications

The FAA would amend §91.183 by removing the word “radio” from the heading and from the introductory text of paragraph (a). Paragraph (a) introductory text would also be changed by adding at the beginning the phrase, “Unless otherwise authorized by the FAA,....” This phrase would facilitate the use of advanced communications by means other than voice.

Section 91.185 IFR operations: Two-way communications failure

Section 91.185 would be amended by removing the word “radio” from the heading and from paragraph (a). This would eliminate reliance on radio technology.

Section 91.189 Category II and III operations: General operating rules

The FAA proposes to amend §91.189 (c) by replacing the term “DH” and adding the term “DA/DH.” See discussion under “II.D.1. Decision Height (DH) and Decision Altitude (DA)” above.

The FAA would also amend paragraph (d) by changing the word “pilot” to “person” to make the regulation consistent with the definition of “person” currently in §1.1.

Section 91.205 Powered civil aircraft with standard category U.S. airworthiness certificates:

Instrument and equipment requirements

Currently, §91.205 (d)(2) states that, for IFR flight, “two-way radio communications system and navigation equipment appropriate to the ground facilities to be used” are required. The FAA is proposing to amend (d)(2) by removing references to radio and ground facilities to

facilitate future developments in communications. As amended, the paragraph would prescribe for IFR flight, “two-way communication and navigation systems suitable for the route to be flown.”

Paragraph (e) would be revised to require that aircraft operating at and above 18,000 feet (flight level (FL) 180) would have to be equipped with DME. The current rule sets the limit at 24,000 feet MSL (FL 240). On October 14, 1971, the FAA completed the lowering of the base of the positive control area (now called Class A airspace) from 24,000 feet to 18,000 feet MSL over the entire 48 contiguous States. (See 36 FR 15743; Aug. 18, 1971.) This proposed change would make this section consistent with the current floor of Class A airspace. While this proposed rule change would extend the equipment requirements for civil aircraft to FL 180, most affected aircraft already meet these standards. The FAA specifically seeks comments on this proposed change.

In addition, paragraph (e) would be amended to include suitable RNAV system as an alternative to DME. Modern RNAV systems provide distance from the active waypoint as an integral function. This distance readout can serve any purpose that DME serves.

Section 91.219 Altitude alerting system or device: Turbojet-powered civil airplanes

The FAA is proposing to amend §91.219 (b)(5) by replacing the term “DH” with the term “DA/DH.” See discussion under “II.D.1. Decision Height (DH) and Decision Altitude (DA)” above.

Section 91.511 Communication and navigation equipment for over-water operations

The FAA is proposing to amend §91.511 by changing the heading from “Radio equipment for over-water operations” to “Communication and navigation equipment for over-water operations.” Paragraph (a)(1) would be amended by changing the term “radio communication equipment” to “communication equipment.” This change would facilitate future developments in technology. Also, in this paragraph the term “surface facility” would be changed to “communication facility” because, in the future, communication facilities may not be on the surface.

Section 91.711 Special rules for foreign civil aircraft

The FAA is proposing to amend §91.711 (c)(1)(ii) by changing the term “radio navigational equipment appropriate to the navigational facilities to be used” to “navigation equipment suitable for the route to be flown.” This change would facilitate future developments in navigation technology.

Paragraph (e) would be amended by changing the specified flight level and by adding reference to “an IFR-approved RNAV system.” As amended, the paragraph would state that foreign aircraft operating at and above 18,000 feet (FL 180) must be equipped with DME or an IFR-approved RNAV system. The current rule sets the limit at 24,000 feet MSL (FL 240); however, the altitude defining the base of Class A airspace (formerly the positive control area) was lowered from 24,000 feet (FL 240) to 18,000 feet (FL 180) in October 1971. While this rule change would increase the requirements for foreign civil aircraft, the FAA believes that the affected aircraft already meet these standards. The FAA specifically seeks comments on this proposed change. In addition, the provision for a suitable RNAV system is being added because

modern RNAV systems provide distance from the active waypoint as an integral function in lieu of DME. This distance readout from a RNAV system can serve any purpose that DME serves.

Section 95.1 Applicability

The FAA is proposing to revise §95.1. In paragraphs (a), (b), and (d), references to “Federal airway(s), jet route(s), area navigation low or high route(s)” would be changed to “ATS route(s).” The use of the term “ATS route” would make the FAA’s regulations consistent with ICAO.

Paragraph (d) would be further amended in the second sentence by adding the phrase, “Unless otherwise specified,” to the beginning, and by changing the term “radio fixes” to “navigation fixes.” These changes would increase the flexibility of the FAA to allow the use of other-than-ground-based navigation systems.)

Current paragraph (e) uses 25 miles as the distance for reception of navigation signals. The FAA proposes to revise the paragraph to allow air navigation along the entire route (subject to air traffic restrictions) at the MOCA when using suitable navigation systems (e.g., GPS). Also, because nautical miles are the standard unit of measurement in air navigation, the reference to “25 miles” would be converted to “22 nautical miles.”

Paragraph (f) would be revised to specify that an MRA is applicable only to intersections defined by ground-based navigation aids.

In paragraph (g), the term “facility or way point” would be changed to “ground-based navigation aid.” Current paragraph (g)(1), which addresses reception requirements, would be

retained in proposed paragraph (g), and the term “facilities” would be changed to “signals.”

Finally, the text of current paragraph (g)(2) would be removed. These changes would increase the flexibility of the rule to allow the use of other-than-ground-based navigation systems.

Part 97--Heading revised

The heading for part 97, now reading “Standard Instrument Approach Procedures” would be revised to read “Standard Instrument Procedures” because the part is not limited to approach procedures.

Section 97.1 Applicability

The FAA is proposing to revise §97.1 to provide a more accurate and complete description of the applicability of part 97. The words “standard instrument approach procedures” would be changed to “standard instrument procedures” to reflect the fact that part 97 refers to takeoffs and approaches. The proposed rules also would expand the scope of part 97 to include departure procedures, since those departure procedures are used as the basis for takeoff weather minimums. Proposed §97.1 would clarify that published civil takeoff weather minimums are based on a specified route, and that pilots must comply with that route unless an alternative route has been assigned by ATC. The section would be further amended by deleting the words “for instrument letdown,” which is obsolete terminology.

Section 97.3 Symbols and terms used in procedures

The FAA is proposing to revise §97.3 by to remove the paragraph designations and to organize the terms alphabetically. In addition, the following terms would be revised:

The terms “A” (alternate airport weather minimum) in paragraph (a), “C” (circling landing minimum) in paragraph (d), and “S” (straight in minimum) in paragraph (s), would be removed in the proposed revision of §97.3. These items are more appropriately spelled in full in the legend of the approach charts.

The term “approach procedure segments” would be modified to include specification of a path to accommodate RNAV approaches, and “DH” would be replaced with “DA/DH.”

The term “ceiling minimum” in paragraph (e) would be changed to “ceiling” and clarified to refer to airport elevation rather than the current general term “surface of the airport.”

The term “D” (day) in paragraph (f) would be removed, as the term is no longer used.

The term “decision height” that appears in the definition of “missed approach” in paragraph (c)(5), and in the definition of “copter procedures” in paragraph (d)(1), would be changed to “decision altitude or decision height (DA/DH).” See discussion “II.D.1. Decision Height (DH) and Decision Altitude (DA)” above.

The term “copter procedures” would further be revised to clarify the circumstances under which the reduction of the charted visibility is authorized. It is also important to highlight that the one-quarter mile prevailing visibility and the 1200-foot RVR mentioned in the proposed definition are minimum limits. Although both are specified to permit the application of reduced visibility minimums if either visibility or RVR is reported, no equivalency between one-quarter mile and the 1200-foot RVR is intended. For equivalency, see the RVR tables in Flight Information Publications.

The term “HAA” (height above airport) in paragraph (h) would be revised to add the words, “expressed in feet.”

The term “HAL” (height above landing) in paragraph (h)(1) would be revised to read, “height of the DA/MDA above a designated helicopter landing area elevation used for helicopter instrument approach procedures.” This proposed definition would include references to decision altitude (see II.D.1. above) and MDA (see discussion of §1.1 above), and would facilitate future Wide-Area Augmentation Systems (WAAS) operations.

The term “HAS” would be added to read, “height of the DA/MDA above the highest terrain/surface within a 5,200-foot radius of the missed approach point used in helicopter instrument approach procedures and is expressed in feet AGL.” This definition would support point-in-space operations and provide additional information for maneuvering in the vicinity of a heliport.

The term “HAT” (height above touchdown), which currently appears in paragraph (i), would be revised to read, “height above threshold expressed in feet.” This would be a nomenclature change to make the FAA’s regulations consistent with ICAO and is not considered operationally significant. Changes to approach charts and affected FAA documents will be made during regular review process.

The term “HCH” would be added to read, “helipoint crossing height and is the computed height of the vertical guidance path above the helipoint elevation at the helipoint expressed in feet.” This is a new technical term used in the construction of helicopter instrument approach procedures. The HCH affects the size of the obstacle evaluation area for the copter instrument approach and is another means of providing a margin of safety to the operator.

This proposal would also add the term “helipoint,” which is normally the center point of the touchdown and lift-off area (TLOF). It is usually a designated arrival and departure point located in the center of an obstacle-free area, 150-foot square, overlying an approved landing

area, where the approach may be terminated in a hover or touchdown. The helipad of intended landing may not be located at the helipoint, however.

The term “MSA” (minimum safe altitude) would be revised in more general wording. The proposed wording allows for any navigation aid or fix to be the reference point, which would provide greater flexibility in procedure construction. The distance is specified on the approach chart.

The term “N” (night) in paragraph (m) would be removed from §97.3 because the abbreviation is no longer in use.

The term “point in space approach” in paragraph (o)(1) would be removed because the definition is out of date. The term is accurately defined in FAA Order 8260.3 “U.S. Standard for Terminal Instrument Procedures (TERPS)” (incorporated by reference in proposed §97.20), and, therefore, would not need to be duplicated in §97.3.

The term “shuttle” in current paragraph (t), would be removed because it is obsolete. It would be replaced with the term “hold in lieu of PT,” meaning a holding pattern established under applicable FAA criteria, and used in lieu of a procedure turn (PT) to execute a course reversal. By adding this new term, the FAA intends to codify current procedures for using a holding pattern in lieu of a procedure turn for course reversal.

The term “SIAP” (standard instrument approach procedure) would be added to the section because it is a commonly used acronym.

The term “T” (takeoff minimum) would be revised for clarity and accuracy to mean nonstandard takeoff minimums or specified departure routes/procedures, or both.

Section 97.5 Bearings, courses, headings, radials, miles

The FAA is proposing to amend §97.5 by adding the word “tracks” to the heading and to paragraph (a). The word “tracks” is used to describe the type of information provided by GPS and RNAV systems. Also, paragraph (a) would be amended by adding the phrase “unless otherwise designated” to the end of the paragraph. This change would allow for future changes in technology and flexibility in route construction and assignment.

Section 97.10 General

The FAA is proposing to remove §97.10, General. This section prescribes standard instrument procedures “other than those based on the criteria contained in the U.S. Standard for Terminal Instrument Approach Procedures (TERPS).” These types of approach procedures no longer exist.

Section 97.20 General

The FAA is proposing to revise §97.20 to incorporate FAA Order 8260.3, “U.S. Standard for Terminal Instrument Procedures (TERPS),” and FAA Order 8260.19, “Flight Procedures and Airspace” into the Code of Federal Regulations. These orders would be added to include the requirements for the developing and processing of instrument procedures. The proposed text is shown in the regulation, and the FAA would get approval from the Director of the Federal Register if it is adopted as final.

Section 121.99 Communications facilities

The FAA is proposing to amend §121.99 (a) by changing the term “two-way radio communication system” to “two-way communication system.” In addition, the term “point-to-

point circuits” would be changed to “communication links.” These changes would make the regulation more flexible for modern means of communication and would allow for future changes in technology. In addition, the FAA is proposing to add a requirement for a communication system that would have two-way voice communication capability for use between each airplane and the appropriate dispatch office, and between each airplane and the appropriate ATC unit, for non-normal and emergency conditions. The FAA believes it would be necessary from the pilot workload and flight safety standpoints to retain two-way voice communication capability for non-normal and emergency conditions. Data link communication systems currently require a pilot to use a keyboard to communicate between the airplane and the stations described above. Reliance on data link communications alone during an emergency could cause an unsafe condition.

Additionally, with respect to communications between the airplane and the dispatch office, the FAA is proposing to add a definition of “rapid communications” that is based on a legal interpretation issued by the Regional Counsel of the FAA’s southern region on May 26, 1977. A copy of this interpretation can be found in the public docket for this rulemaking. Generally speaking, rapid communication means that the calling party must be able to establish communication with the called party in less than 4 minutes.

Section 121.103 En route navigation systems

The FAA is proposing to revise §121.103 by changing the heading from “En route navigational facilities” to “En route navigation systems.” In addition, the term “nonvisual ground aids” would be changed to “navigation aids” in paragraphs (a) and (b). The wording would be changed to make the regulation performance-based by requiring that the navigation

aids are available over the route to navigate the airplane along the route with the required accuracy, so that any suitable navigation system could be used. Demonstration of compliance to this requirement would be specific to the operator, the aircraft navigation system (e.g., GPS, DME/DME, DME/DME/INS), the available navigation aids, and the route (including planned contingencies such as alternates). The required accuracy is defined by the route specifications (including route width) or as defined by ATC if not operating on a route.

Finally, the section would be revised to permit “other operations approved by the FAA” to be conducted without navigation aids. These revisions would allow for changes in technology.

Section 121.121 En route navigation facilities

The FAA is proposing to revise §121.121 by changing the title from “En route navigational facilities” to “En route navigation systems,” and the section would be formatted to be consistent with §121.103. In addition, the term “nonvisual ground aids” would be changed to “navigation aids” in paragraphs (a) and (b). The wording would be changed to make the regulation performance-based by requiring that adequate navigation aids are available to navigate the airplane along the route with the required accuracy, so that any suitable navigation system could be used. “Lighted airways” also would be removed because it is an obsolete term. Finally, paragraph (b)(3) would be revised, consistent with the proposed change to §121.103 (b)(3), to permit “other operations approved by the FAA.” This revision would allow for future changes in technology.

Section 121.344 Digital flight data recorders for transport category airplanes

The FAA proposes to amend §121.344 (a)(54) by replacing the term “decision height” with the term “decision altitude/decision height.” See discussion “II.D.1. Decision Height (DH) and Decision Altitude (DA)” above.

Section 121.345 Communication equipment

Section 121.345 would be revised by replacing the word “radio” in the heading and in paragraphs (a) and (b), with the word “communication.” This would eliminate the reliance on voice technology and allow for future developments in technology.

Section 121.347 Communication and navigation equipment for operations under VFR over routes navigated by pilotage

The FAA is proposing to amend §121.347 by changing the term “radio equipment” to “communication and navigation equipment” in the heading. In addition, the FAA would amend paragraph (a) to change “radio equipment” to “communication equipment,” remove the word “ground” from (a)(1), and clarify (a)(2) by removing words “lateral boundaries of the surface areas of.”

Paragraph (b) would be revised to separate the communication and navigation equipment requirements, and the requirement for navigation equipment would be made more generic to accommodate RNAV systems. A marker beacon receiver or ILS receiver would not be required under the proposed rule since precision approaches are not appropriate to VFR operations, so the last phrase of this paragraph would be deleted.

These changes would allow for communications that are not “voice” communications, would make the regulation more flexible for modern means of communication, and would allow for future changes in technology.

Section 121.349 Communication and navigation equipment for operations under VFR over routes not navigated by pilotage or for operations under IFR or over the top

The FAA is proposing to revise §121.349 to recodify and clarify existing requirements. The proposed paragraph (a) would replace the requirement for two independent receivers with a requirement for two independent navigation systems. The two independent navigation systems must be suitable for the route to be flown, so that they both support compliance with the requirements proposed in §121.103 (a) or §121.121 (a). There would be no requirement for the two systems to be identical, so that a single VOR and a single suitable RNAV system would satisfy this requirement on a Victor airway. The intent of this rule is to ensure that there is no single point of failure or event affecting aircraft navigation systems that causes loss of the ability to navigate along the intended route or to navigate to a suitable diversion airport. The change is also intended to address the vulnerability of GPS, which uses very weak signals that are susceptible to interference. For example, two minimum GPS (or other satellite navigation) receivers may not be considered “independent,” since both are so vulnerable to interference. However, the proposed rule would be performance-based rather than prescriptive; thus, it is possible that two GPS receivers with an anti-jam capability could be considered independent, since they would not be so vulnerable to interference. Systems are considered independent if there is no probable failure or event that could affect both systems. In addition, the allowance for a single ILS and marker beacon would be extended to any precision approach or APV system.

The paragraph would also be revised to broaden the exception for two independent navigation systems in paragraph (b) to allow for the use of any single navigation system consistent with the provisions in proposed §121.349 (c). In addition, for non-normal and emergency operating conditions, the FAA proposes to add a requirement for at least one of the independent communication systems to have two-way voice communication capability. The requirement to report DME failures has been removed since it is required in current §91.187. These changes would make the regulation more flexible for modern means of communication and navigation and would allow for future changes in technology.

The proposed changes to §121.349 are intended to be broad in scope. The proposed wording would allow for the future evolution of navigation system technology. Presently the FAA sees a need for a full DME infrastructure and a minimal VOR network to remain for the foreseeable future. However, as the NAS evolves and navigation technology improves, a satellite-based system may become the core of the aviation navigation system.

The proposed rule language is designed to provide the most flexibility for the operator rather than being prescriptive. It would be through the operations specification process that the operator would indicate the suitability of its equipage. The FAA sees a benefit to the use of a performance-based rule for both the operator and the regulator, as this would be a way to address the variety of navigation equipment installed in the various fleets. The FAA seeks comments on whether to adopt a broad, performance-based rule language or a narrow, prescriptive language requiring specific systems.

Section 121.351 Communication and navigation equipment for extended over-water operations and for certain other operations

The FAA is proposing to amend §121.351 by changing the words “radio equipment” to “communication and navigation equipment” in the heading, and the words “radio communication” to “communication and navigation” in paragraph (a). This would permit the use of data link communications systems for normal operating conditions. Also, paragraph (a) would be revised to require at least one of the independent communication systems to have two-way voice communication capability for non-normal and emergency operating conditions. In addition, references would be changed to be consistent with other proposed changes and requirements would be explained in full instead of referring the reader to another section of the CFR.

Also, paragraph (c)(1) would be revised to use terminology consistent with the proposed changes to §§121.103 and 121.121, and paragraph (c)(3) would be revised to apply to aircraft equipped with only VHF communications equipment.

Section 121.419 Pilots and flight engineers: Initial, transition, and upgrade ground training

The FAA proposes to amend §121.419 (a)(1)(vii) by replacing the term “DH” with the term “DA/DH.” See discussion “II.D.1. Decision Height (DH) and Decision Altitude (DA)” above.

Section 121.559 Emergencies: Supplemental operations

The FAA is proposing to amend §121.559 (c) by replacing the term “ground radio station” with the term “communication facility. The term “communications facility” is more accurate than the term “ground radio station.” See discussion for §121.565 below.

Section 121.561 Reporting potentially hazardous meteorological conditions and irregularities of ground and navigation facilities

The FAA is proposing to amend §121.561 by revising the heading to replace the words “ground and navigation facilities” with “ground facilities and navigation aids.” The same change is proposed for paragraph (a). The term “navigation aids” is used throughout this proposal.

Section 121.565 Engine inoperative: Landing; reporting

The FAA is proposing to amend §121.565 (c) by replacing the term “ground radio station” with the term “communication facility” and the term “station” with “facility.” The term “communication facility” is more accurate than “ground radio station” since the communication facility could be other than ATC. For example, if a pilot sent a report to dispatch or to the Aeronautical Radio, Inc.(ARINC) service provider, then dispatch or the ARINC service provider would forward the report to ATC.

Section 121.579 Minimum altitudes for use of autopilot

The FAA is proposing to amend §121.579 (b) by replacing the term “decision height” with the term “DA/DH.” See discussion “II.D.1. Decision Height (DH) and Decision Altitude (DA)” above. In addition, the FAA is proposing to replace the term “ILS” with the word “precision” in (b)(1) and (b)(2). This would be consistent with the proposed definition of “precision approach procedure” in §1.1.

Section 121.651 Takeoff and landing weather minimums: IFR: All certificate holders

The FAA proposes to amend §121.651 by replacing the term “DH” with “DA/DH” in paragraph (c). See discussion “II.D.1. Decision Height (DH) and Decision Altitude (DA)” above.

Current paragraph (d) sets forth requirements for a final approach segment of an instrument approach procedure (other than a Category II or Category III procedure) at an airport with less-than-certain visibility minimums where the ILS and an operative PAR are collocated and coincident. The FAA is proposing to amend the paragraph to expand it from only ILS to include an operative PAR and any other precision instrument approach system.

Section 121.652 Landing weather minimums: IFR: All certificate holders

The FAA proposes to amend §121.652 by replacing the term “DH” with “DA/DH” in paragraph (a). See discussion “II.D.1. Decision Height (DH) and Decision Altitude (DA)” above.

Appendix M to Part 121

The FAA proposes to amend Appendix M to part 121 by replacing the words, “Selected decision height” with the words “Selected decision altitude/decision height” in Parameter Number 54. See discussion “II.D.1. Decision Height (DH) and Decision Altitude (DA)” above.

Section 125.51 En route navigational facilities

The FAA proposes to revise the heading to read “En route navigation aids” and to amend paragraphs (a) and (b) of §125.51 by replacing the words “nonvisual ground aids” with

“navigation aids” to allow for navigation by other-than-ground-based navigation aids, and to change the heading from “en route navigational facilities” to “en route navigation systems.”

Section 125.203 Radio and navigational equipment

Section 125.203 would be revised. In the heading, the words “Radio and navigational” would be replaced with the words “Communication and navigation.” Throughout the rest of the section, proposed changes would mirror proposed §§121.349, 129.17 and 135.165 requirements. These are described in the discussion of proposed §121.349. In addition, because nautical miles are the standard unit of measurement in air navigation, the words “25 miles” in paragraph (a) would be replaced with the words “22 nautical miles.”

For the purposes of §125.203, a system that provides both communication and navigation may be used in place of separate communications and navigation systems. However, existing §125.203 (d) would be removed because it does not contain a requirement and is merely guidance.

Section 125.321 Reporting potentially hazardous meteorological conditions and irregularities of ground and navigation facilities

The FAA is proposing to revise §125.321 so that it would be identical to proposed §121.561.

Section 125.379 Landing weather minimums: IFR

The FAA proposes to amend §125.379 (a) by replacing the term “DH” with “DA/DH” in paragraph (a). See discussion “II.D.1. Decision Height (DH) and Decision Altitude (DA)” above.

Section 125.381 Takeoff and landing weather minimums: IFR

The FAA is proposing to amend §125.381 (a) and (b) by changing the word “pilot” to “person” to make the regulation consistent with the definition of “person” currently in §1.1.

The FAA is also proposing to revise §125.381 (c) to update the terminology and to reorganize the paragraph to improve its clarity. As proposed, the term “outer marker” would be replaced with the more accurate term “precision final approach fix” in paragraph (c)(1). In addition, the FAA is proposing to change the term “DH” to “DA/DH.” See discussion under “II.D.1. Decision Height (DH) and Decision Altitude (DA)” above.

Section 129.16 Communication and navigation equipment for rotorcraft operations under VFR over routes navigated by pilotage

The FAA is proposing to add new §129.16 to mirror the requirements of §121.347 for part 129 rotorcraft VFR operations. This would impose no burden on operators of those rotorcraft because they are already equipped with the communication equipment, and the communication and navigation equipment needed for night VFR operations, that would meet the proposed requirements. These changes would make the regulation more flexible for modern means of communication and navigation and would allow for future changes in technology.

Section 129.17 Radio equipment

The FAA is proposing to revise the heading of §129.17 to replace “radio equipment” with “aircraft communication and navigation equipment for operations under IFR or over the top.” Throughout the rest of the section, proposed changes would mirror proposed §§121.347, 121.349, and 135.165 requirements. These are described in the explanation of changes to §121.349. The change would impose no burden on operators of those aircraft because they are already equipped with the communication and navigation equipment that would meet the proposed requirements. These changes would make the regulation more flexible for modern means of communication and navigation and would allow for future changes in technology.

Section 129.21 Control of traffic

The FAA is proposing to revise §129.21 to remove references to “ground” and “voice.” This revision would enable air carriers to take advantage of advances in technology.

Appendix A to Part 129

The FAA is proposing to revise paragraph (b), Section IV, of part 129, Appendix A, to replace the words “Radio Facilities: Communications” with “Communications Facilities” in the paragraph heading, and by replacing the words “ground radio communication facilities” with “communication facilities” in the text. This would allow those facilities to be located wherever appropriate.

Section 135.67 Reporting potentially hazardous meteorological conditions and irregularities of communications or navigation facilities

The FAA is proposing to amend §135.67 so that the section would be identical to proposed §121.561.

Section 135.78 Instrument approach procedures and IFR landing minimums

The FAA is proposing to add new §135.78 to be consistent with the requirements in §§121.567 and 125.325. This would give the FAA a regulatory basis for authorizing in the certificate holder's operations specifications for new kinds of approaches and revising weather minimums for certain conditions.

Section 135.79 Flight locating requirements

The FAA is proposing to amend §135.79 (a)(3) by replacing the term "radio or telephone communications" with the term "communications." By using less specific language, certificate holders would have greater flexibility in determining what type of communication equipment to use, and thus be able to take advantage of changes in technology.

Section 135.93 Autopilot: Minimum altitudes for use

The FAA is proposing to replace the words "When using an instrument approach facility other than ILS," at the beginning of §135.93 (b) with the words "For other than precision approaches,...." This would eliminate the use of the word "facility." Under the existing language, paragraph (b) already allows for approach and landing operations with vertical guidance (APV) by using the phrase "other than ILS." The term "facility" is not necessary and would be removed to improve clarity.

Paragraph (c) would be amended to facilitate future technology by replacing the words “For ILS approaches” in the beginning of the paragraph with “For precision approaches.”

Section 135.152 Flight recorders

The FAA proposes to amend §135.152 (h)(54) by replacing the words “decision height” with the words “decision altitude/decision height” in paragraph (a). See discussion “II.D.1. Decision Height (DH) and Decision Altitude (DA)” above.

Section 135.161 Communication and navigation equipment for aircraft operations under VFR over routes navigated by pilotage

The FAA is proposing to revise §135.161 to mirror the requirements of §121.347 (a) and (b) for operations conducted under VFR over routes navigated by pilotage. This would not result in a substantive change to the existing requirements in the section. These changes would make the regulation more flexible for modern means of communication and would allow for future changes in technology. In addition, the FAA is proposing to remove the words “carrying passengers” to make the section applicable to all VFR operations, including all-cargo.

Section 135.165 Radio and navigational equipment: Extended over-water or IFR operations

The FAA is proposing to revise the heading of §135.165 and to amend the section by removing the words “radio communication and navigational equipment appropriate to the facilities to be used” and using the words “communication systems,” “navigation systems” and “suitable for the route to be flown.”

Throughout the rest of the section, proposed changes would mirror proposed §§121.349, 125.203, and 129.17 requirements. These are described in the discussion of proposed §121.349. Also, for non-normal and emergency conditions, the FAA would add a requirement that aircraft used in extended over-water or IFR operations be equipped with at least one independent communication system having two-way voice communication capability. These changes would make the regulation more flexible for modern means of communication and navigation and would allow for future changes in technology. For the purposes of §135.165, a system that provides both communication and navigation may be used in place of separate communications and navigation systems. However, existing §135.165 (c) would be removed because it does not contain a requirement and is merely guidance.

Section 135.225 IFR: Takeoff, approach and landing minimums

The FAA is proposing to amend §135.225 (a), (b), (e), (f), and (g) by changing the word “pilot” to “person” to make the regulation consistent with the definition of “person” currently in §1.1.

The FAA is also proposing to amend paragraph (c)(1) by changing the term “an ILS final approach” to the term “a precision or APV approach.” This would broaden the term to address any precision approach and the new APV approaches, not only ILS.

In the introductory text of paragraph (c)(3), the words “on a final approach using a VOR, NDB, or comparable approach procedure” would be changed to “on a nonprecision final approach.”

In paragraphs (c)(3)(ii) and (d), the term “DH” would be changed to “DA/DH.” See discussion “II.D.1. Decision Height (DH) and Decision Altitude (DA)” above.

Section 135.345 Pilots: Initial, transition, and upgrade ground training

The FAA proposes to amend §135.345 (a)(7) by replacing the term “DH” with “DA/DH” in paragraph (a). See discussion “II.D.1. Decision Height (DH) and Decision Altitude (DA)” above.

Section 135.371 Large transport category airplanes: Reciprocating engine powered: En route limitations: One engine inoperative

The FAA is proposing to amend §135.371 (c)(2) by removing the word “radio.” This would eliminate the reliance on ground-based navigational aid fixes and permit the use of other means such as RNAV waypoints to identify such fixes.

Section 135.381 Large transport category airplanes: Turbine engine powered: En route limitations: One engine inoperative

The FAA is proposing to amend §135.381 (b)(2) by removing the word “radio.” This would eliminate the reliance on voice technology.

Appendix F to Part 135

The FAA proposes to amend Appendix F to part 135 by replacing the words, “Selected decision height” with the words “Selected decision altitude/decision height” in Parameter Number 54. See discussion “II.D.1. Decision Height (DH) and Decision Altitude (DA)” above.

IV. Paperwork Reduction Act

The Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)) requires that the FAA consider the impact of paperwork and other information collection burdens imposed on the public. We have determined that there are no new information collection requirements associated with this proposed rule.

V. International Compatibility

In keeping with United States obligations under the Convention on International Civil Aviation, it is the FAA's policy to comply with International Civil Aviation Organization (ICAO) Standards and Recommended Practices to the maximum extent practicable. The FAA has determined that there are no ICAO Standards and Recommended Practices that corresponded to these proposed regulations.

VI. Economic Evaluation

Proposed and final rule changes to federal regulations must undergo several economic analyses. First, Executive Order 12866 directs that each Federal agency propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs. Second, the Regulatory Flexibility Act of 1980 requires agencies to analyze the economic impact of regulatory changes on small entities. Third, the Trade Agreements Act (19 U.S.C. 2531 through 2533) prohibits agencies from setting standards that create unnecessary obstacles to the foreign commerce of the United States. In developing U.S. standards, the Trade Agreements Act also requires agencies to consider international standards and, where appropriate, use them as the basis of U.S. standards. Fourth, the Unfunded Mandates Reform Act of 1995 requires agencies to prepare a written assessment of the costs, benefits, and other

effects of proposed or final rules that include a federal mandate likely to result in the expenditure by state, local, or tribal governments, in the aggregate, or by the private sector, of \$100 million or more annually (adjusted for inflation).

In conducting these analyses, the FAA has determined that this NPRM: (1) Would not be "a significant regulatory action" as defined in the Executive Order, and would not be "significant" as defined in the Department of Transportation's Regulatory Policies and Procedures; (2) would not have a significant impact on a substantial number of small entities; (3) would not impose barriers to international trade; and (4) would not impose an unfunded mandate on state, local, or tribal governments, or on the private sector. These analyses are available in the docket, and are summarized below.

Benefits and Costs

The proposed rule expands the use of area navigation systems to allow for technological advances that support RNAV, such as GPS, while retaining the current ground-based systems. The proposed rule would not impose an obligation to change current navigation systems, and therefore, the proposed rule would mandate no costs on aircraft operators. The proposed rule would also add language that would codify current practice and, therefore, would not impose costs. To enhance safety, the proposed rule would revise the definition of "night," which would allow the FAA to limit operations at locations where terrain might result in an earlier nightfall than published in the American Air Almanac. This could affect a very small number of airports in the United States, and, while the FAA does not expect any cost impact, the agency asks for comments.

Cost savings might result because the proposed rule would enable the use of advanced RNAV navigation routes that the FAA has been developing. These routes are typically more direct, and therefore, shorter than the current Federal Airways and jet routes and in following these advanced RNAV routes aircraft may require less fuel and time to reach their destinations. Advanced area navigation routes have not been planned, so cost savings cannot be reliably estimated at this time. However, estimates of cost savings from flying advanced RNAV test routes that the FAA has established are in excess of \$30 million annually.

In addition, the proposed rule would amend the current regulation and eliminate the middle marker as a required ILS component, as indicated in §91.175 (k) of the proposed amendments. In 1992, the FAA completed an evaluation of the operational effectiveness and safety benefits provided by a middle marker during ILS operations. The evaluation concluded that a middle marker makes no significant difference in pilot performance while conducting an ILS approach. Elimination of the middle marker as a required ILS component would result in net cost savings to owners of middle marker facilities who choose to decommission their middle marker facilities. Owners of middle marker facilities would save a total of \$2.3 million per year if all the 672 middle marker facilities are decommissioned. The total operating cost savings over 15 years would be \$34 million (approximately \$20 million discounted). However, there are costs to decommission the facilities and these costs range from \$10,000 to \$30,000 per facility. The FAA assumes that half the middle markers would be decommissioned at the end of 2003 and the other half at the end of 2004. The total cost to decommission all the middle marker facilities would range from a total of \$6.7 million (\$6.0 million discounted) to approximately \$20.2 million (\$18.2 million discounted). The net cost savings would be \$27.2 million (\$13.5 million

discounted) over the 15 year period given the low estimate of decommissioning costs to \$13.8 million (\$1.3 million discounted) given the high estimate.

In addition, the proposed amendments would expand the number of acceptable substitutes for the outer marker. This would allow more flexibility in the design of future instrument approaches.

VII. Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (RFA) establishes “as a principle of regulatory issuance that agencies shall endeavor, consistent with the objective of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of the business, organizations, and governmental jurisdictions subject to regulation.” To achieve that principle, the RFA requires agencies to solicit and consider flexible regulatory proposals and to explain the rationale for their actions. The RFA covers a wide range of small entities, including small businesses, not-for-profit organizations and small governmental jurisdictions.

Agencies must perform a review to determine whether a proposed or final rule will have a significant economic impact on a substantial number of small entities. If the determination is that it will, the agency must prepare a regulatory flexibility analysis as described in the RFA.

However, if an agency determines that a proposed or final rule is not expected to have a significant economic impact on a substantial number of small entities, section 605(b) of the 1980 Act provides that the head of the agency may so certify and a Regulatory Flexibility Analysis is

not required. The certification must include a statement providing the factual basis for this determination, and the reasoning should be clear.

This proposed rule may effect those privately owned small airports that would be allowed to decommission their middle marker facilities. There are an estimated 38 non-Federal middle marker facilities. For the purposes of this regulatory flexibility determination, the FAA assumes that all 38 middle marker facilities are at airports operated by small entities. The estimated cost to decommission a middle marker facility ranges from \$10,000 to \$30,000 per facility. On the other hand, the non-Federal navigation facilities would save operating costs by no longer having to maintain and operate these middle marker facilities. These savings would be about \$3,400 annually per facility. Over a period of 15 years, each facility would save \$51,000 in operating costs if it decommissioned its middle markers. However, the proposed rule would not mandate that the middle marker facilities be decommissioned. The private facility owners would not be required to decommission their facilities; therefore they would only do so if they believed it to be cost-beneficial. Consequently, the FAA certifies that the proposed rule would not have a significant economic impact on a substantial number of small entities. The FAA solicits comments from the public regarding this finding.

VIII. International Trade Impact Analysis

The Trade Agreement Act of 1979 prohibits Federal agencies from engaging in any standards or related activities that create unnecessary obstacles to the foreign commerce of the United States. Legitimate domestic objectives, such as safety, are not considered unnecessary

obstacles. The statute also requires consideration of international standards and, where appropriate, that they be the basis for U.S. standards.

This action proposes to impose requirements on foreign air carriers operating in the United States that would mirror the communication and navigation equipment requirements placed on domestic air carriers operating in the United States. This would mean that the requirements imposed on foreign air carriers operating in the United States would be consistent with those that are imposed on U.S. commercial operators and air carriers operating domestically. For example, proposed §§121.349, 125.203, and 135.165 would impose substantially the same communication and navigation system requirements for operations in the United States under IFR or over the top as proposed in §129.17 for foreign air carriers that conduct IFR or over the top operations in the United States. Therefore the FAA has determined that the proposed rule would have a neutral impact on foreign trade and would create no obstacles to the foreign commerce of the United States.

IX. Unfunded Mandate Assessment

The Unfunded Mandates Reform Act of 1995 (the Act), enacted as Pub. L. 104-4 on March 22, 1995 is intended, among other things, to curb the practice of imposing unfunded Federal mandates on State, local, and tribal governments. Title II of the Act requires each Federal agency to prepare a written statement assessing the effects of any Federal mandate in a proposed or final agency rule that may result in a \$100 million or more expenditure (adjusted annually for inflation) in any one year by State, local, and tribal governments, in the aggregate, or by the private sector; such a mandate is deemed to be a “significant regulatory action.” This

proposed rule would not contain such a mandate. Therefore, the requirements of Title II of the Unfunded Mandates Reform Act of 1995 do not apply.

X. Executive Order 13132, Federalism

The FAA has analyzed this proposed rule under the principles and criteria of Executive Order 13132, Federalism. The FAA has determined that this action would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, we determined that this proposal would not have federalism implications.

XI. Environmental Analysis

FAA Order 1050.1D defines FAA actions that may be categorically excluded from preparation of a National Environmental Policy Act (NEPA) environmental impact statement. In accordance with FAA Order 1050.1D, appendix 4, paragraph 4(j), this proposed rulemaking action qualifies for a categorical exclusion.

XII. Energy Impact

The energy impact of this proposed rule has been assessed in accordance with the Energy Policy and Conservation Act (EPCA) (Pub. L. 94-163, as amended; 42 U.S.C. 6362) and FAA Order 1053.1. The FAA has determined that the proposed rule is not a major regulatory action under the provisions of the EPCA.

List of Subjects

14 CFR Part 1

Air transportation.

14 CFR Part 71

Airspace, Navigation (air).

14 CFR Part 91

Agriculture, Air traffic control, Aircraft, Airmen, Airports, Aviation safety, Canada, Freight, Mexico, Noise control, Political candidates, Reporting and recordkeeping requirements.

14 CFR Part 95

Air traffic control, Airspace, Alaska, Navigation (air), Puerto Rico.

14 CFR Part 97

Air traffic control, Airports, Navigation (air), Weather.

14 CFR Part 121

Air carriers, Aircraft, Airmen, Aviation safety, Charter flights, Drug testing, Reporting and recordkeeping requirements, Safety, Transportation.

14 CFR Part 125

Aircraft, Airmen, Aviation safety, Reporting and recordkeeping requirements

14 CFR Part 129

Air carriers, Aircraft, Aviation safety, Reporting and recordkeeping requirements, Security, Smoking.

14 CFR Part 135

Air taxis, Aircraft, Airmen, Aviation safety, Reporting and recordkeeping requirements.

The Proposed Amendments

In consideration of the foregoing, the Federal Administration Aviation proposes to amend chapter I of 14 CFR as follows:

PART 1 – DEFINITIONS AND ABBREVIATIONS

1. The authority citation for part 1 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

2. Amend §1.1 as follows:

- a. Remove the definitions of Area navigation high route, Area navigation low route, Category II operations, Category III operations, Category IIIa operations, Category IIIb operations, Category IIIc operations, Decision height, Minimum descent altitude, Nonprecision approach procedure, Precision approach procedure, and RNAV way point.

- b. Add definitions for Air Traffic Service (ATS) route, Approach procedure with vertical guidance (APV), Area navigation (RNAV) route, Category I (CAT I) operation, Category II (CAT II) operation, Category III (CAT III) operation, Category IIIa (CAT IIIa) operation, Category IIIb (CAT IIIb) operation, Category IIIc (CAT IIIc) operation, Decision altitude (DA), Decision height (DH), Final approach fix (FAF), Instrument approach procedure (IAP), Minimum descent altitude (MDA), Nonprecision approach procedure (NPA), Precision approach procedure (PA), and Precision final approach fix (PFAF) in alphabetical order to read as set forth below.

- c. Revise the definitions of Area navigation (RNAV), Night, and Route segment to read as set forth below.

§1.1 General definitions.

Air Traffic Service (ATS) route is a specified route designated for channeling the flow of traffic as necessary for the provision of air traffic services. The term "ATS route" refers to a variety of airways, including jet routes, area navigation (RNAV) routes, and arrival and departure routes. An ATS route is defined by route specifications, which may include:

- (1) An ATS route designator;
- (2) The path to or from significant points;
- (3) Distance between significant points;
- (4) Reporting requirements; and
- (5) The lowest safe altitude determined by the appropriate authority.

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Approach procedure with vertical guidance (APV) is an instrument approach procedure based on lateral path and vertical glide path. These procedures may not conform to requirements for precision approaches.

* * * * *

Area navigation (RNAV) is a method of navigation that permits aircraft operations on any desired flight path.

Area navigation (RNAV) route is an ATS route based on RNAV that can be used by suitably equipped aircraft.

* * * * *

Category I (CAT I) operation is a precision instrument approach and landing with a decision altitude that is not lower than 200 feet (60 meters) above the threshold and with either a

visibility of not less than 1/2 statute mile (800 meters), or a runway visual range of not less than 1,800 feet (550 meters).

Category II (CAT II) operation is a precision instrument approach and landing with a decision height lower than 200 feet (60 meters), but not lower than 100 feet (30 meters), and with a runway visual range of not less than 1,200 feet (350 meters).

Category III (CAT III) operation is a precision instrument approach and landing with a decision height lower than 100 feet (30 meters) or no DH, and with a runway visual range less than 1200 feet (350 meters).

Category IIIa (CAT IIIa) operation is a precision instrument approach and landing with a decision height lower than 100 feet (30 meters), or no decision height, and with a runway visual range of not less than 700 feet (200 meters).

Category IIIb (CAT IIIb) operation is a precision instrument approach and landing with a decision height lower than 50 feet (15 meters), or no decision height, and with a runway visual range of less than 700 feet (200 meters), but not less than 150 feet (50 meters).

Category IIIc (CAT IIIc) operation is a precision instrument approach and landing with no decision height and with a runway visual range less than 150 feet (50 meters).

* * * * *

Decision altitude (DA) is a specified altitude at which a person must initiate a missed approach if the person does not see the required visual reference. Decision altitude is expressed in feet above mean sea level.

Decision height (DH) is a specified height above the ground level at which a person must initiate a missed approach during a Category II or III approach if the person does not see the required visual reference.

Final approach fix (FAF) defines the beginning of the nonprecision final approach segment and the point where final segment descent may begin.

* * * * *

Instrument approach procedure (IAP) is a predetermined ground track and vertical profile that provides prescribed measures of obstruction clearance and assurance of navigation signal reception capability. An IAP enables a person to maneuver a properly equipped aircraft with reference to approved flight instruments from a specified position and altitude to--

- (1) A position and altitude from which a landing can be completed; or
- (2) A position and altitude at which holding or en route flight may begin.

* * * * *

Minimum descent altitude (MDA) is the lowest altitude to which a person may descend on a nonprecision final approach, or during a circle-to-land maneuver, until the visual reference requirements of §91.175 (c) of this chapter are met. Minimum descent altitude is expressed in feet above mean sea level.

* * * * *

Night is the time between the end of evening civil twilight and the beginning of morning civil twilight, as published in the American Air Almanac, converted to local time or such other period between sunset and sunrise, as may be prescribed by the FAA.

* * * * *

Nonprecision approach procedure (NPA) is an instrument approach procedure based on a lateral path and no vertical glide path.

* * * * *

Precision approach procedure (PA) is an instrument approach procedure based on a lateral path and a vertical glide path

Precision final approach fix (PFAF) defines the beginning of the precision or APV final approach segment, and denotes the location where the glide path intersects the intermediate segment altitude; i.e., where final segment descent on glide path may begin.

* * * * *

Route segment is a portion of a route bounded on each end by a fix or navigation aid (NAVAID).

* * * * *

3. Amend §1.2 by adding the following abbreviations in alphabetical order to read as follows:

§1.2 Abbreviations and symbols.

* * * * *

APV means approach procedure with vertical guidance.

* * * * *

NM means nautical mile.

NPA means nonprecision approach procedure.

* * * * *

PA means precision approach procedure.

* * * * *

RNAV means area navigation.

* * * * *

PART 71 – DESIGNATION OF CLASS A, CLASS B, CLASS C, CLASS D, AND CLASS E AIRSPACE AREAS; AIR TRAFFIC SERVICE ROUTES; AND REPORTING POINTS

4. The authority citation for part 71 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40103, 40113, 40120; E.O. 10854, 24 FR 9565, 3 CFR, 1959-1963 Comp., p. 389.

5. Revise the heading of part 71 to read as set forth above.

Class A Airspace
Subpart A—~~Heading transferred and revised~~

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12/9/02

6. Transfer the heading "Subpart A – General; Class A Airspace" from where it appears preceding §71.1 to preceding §71.31 and revise it to read *as set forth above* "~~Subpart A – Class A Airspace.~~"

7. Add §71.11 to read as follows:

§71.11 Air Traffic Service (ATS) routes.

Unless otherwise specified, the following apply:

(a) An Air Traffic Service (ATS) route is based on a centerline that extends from one navigation aid, fix, or intersection, to another navigation aid, fix, or intersection (or through several navigation aids, fixes, or intersections) specified for that route.

(b) ATS routes include the primary protected airspace dimensions defined in FAA Order 8260.3, "United States Standard For Terminal Instrument Procedures (TERPS)." Order 8260.3 is incorporated by reference in §97.20 of this chapter.

(c) An ATS route does not include the airspace of a prohibited area.

8. Add §71.13 to read as follows:

§71.13 Classification of Air Traffic Service (ATS) routes.

Unless otherwise specified, ATS routes are classified as follows:

(a) In subpart A of this part:

- (1) Jet routes.
- (2) Area navigation (RNAV) routes.

(b) In subpart E of this part:

- (1) VOR Federal airways

- (2) Colored Federal airways
 - (i) Green Federal airways
 - (ii) Amber Federal airways
 - (iii) Red Federal airways
 - (iv) Blue Federal airways
- (3) Area navigation (RNAV) routes.

9. Add §71.15 to read as follows:

§71.15 Designation of jet routes and VOR Federal airways.

Unless otherwise specified, the place names appearing in the descriptions of airspace areas designated as jet routes in subpart A of FAA Order 7400.9, and as VOR Federal airways in subpart E of FAA Order 7400.9, are the names of VOR or VORTAC navigation aids. FAA Order 7400.9 is incorporated by reference in §71.1.

§71.73 [Removed]

10. Remove §71.73.

§71.75 [Removed]

11. Remove §71.75.

§71.77 [Removed]

12. Remove §71.77.

§71.79 [Removed]

13. Remove §71.79.

PART 91 – GENERAL OPERATING AND FLIGHT RULES

14. The authority citation for part 91 continues to read as follows:

Authority: 49 U.S.C. 106(g), 1155, 40103, 40113, 40120, 44101, 44111, 44701, 44709, 44711, 44712, 44715, 44716, 44717, 44722, 46306, 46315, 46316, 46504, 46506-46507, 47122, 47508, 47528-47531, articles 12 and 29 of the Convention on International Civil Aviation (61 stat. 1180).

15. Amend §91.129 by revising paragraph (e) to read as follows:

§91.129 Operations in Class D airspace.

* * * * *

(e) Minimum altitudes when operating to an airport in Class D airspace. (1) Unless required by the applicable distance-from-cloud criteria, each person operating a large or turbine-powered airplane must enter the traffic pattern at an altitude of at least 1,500 feet above the elevation of the airport and maintain at least 1,500 feet until further descent is required for a safe landing.

(2) Each person operating a large or turbine-powered airplane that is performing approach and landing operations with vertical guidance (APV) or a precision approach procedure must:

(i) Operate at an altitude at or above the glide path between the published precision final approach fix and the decision altitude (DA), or decision height (DH), as applicable; or

(ii) If compliance with the applicable distance-from-cloud criteria requires interception closer in, operate at or above the glide path, between the point of interception of glide path and the DA or the DH.

(3) Each person operating an airplane approaching to land on a runway served by a visual approach slope indicator must maintain an altitude at or above the glide path until a lower altitude is necessary for a safe landing.

(4) Paragraphs (e) (2) and (e)(3) of this section do not prohibit normal bracketing maneuvers above or below the glide slope that are conducted for the purpose of remaining on the glide path.

* * * * *

16. Amend §91.131 by revising paragraph (c)(1) to read as follows:

§91.131 Operations in Class B airspace.

* * * * *

(c) * * *

(1) For IFR operation. An operable and suitable RNAV system, or VOR or TACAN receiver; and

* * * * *

17. Amend §91.175 by amending paragraphs (e) introductory text and (j) by removing the word “pilot” and adding in its place the word “person,” by revising paragraphs (a), (b), (c) introductory text, (e)(1)(ii), (f) introductory text, (h), and (k) to read as follows:

§91.175 Takeoff and landing under IFR.

(a) Instrument approaches to civil airports. Unless otherwise authorized by the FAA, when it is necessary to use an instrument approach to a civil airport, each person operating an aircraft must use a standard instrument approach procedure prescribed in part 97 of this chapter for that airport. This paragraph does not apply to United States military aircraft.

(b) Authorized DA/DH or MDA. For the purpose of this section, when an approach procedure requires the use of DA/DH or MDA, the authorized DA/DH or MDA is the highest of the following--

- (1) The DA/DH or MDA prescribed by the approach procedure.
- (2) The DA/DH or MDA prescribed for the pilot in command.
- (3) The DA/DH or MDA for which the aircraft is equipped.

(c) Operation below DA/DH or MDA. Where a DA/DH or MDA is applicable, no pilot may operate an aircraft, except a military aircraft of the United States, at any airport below the authorized MDA or continue an approach below the authorized DA/DH unless--

* * * * *

(e) * * *

(1) * * *

(ii) Upon arrival at the missed approach point, including a DA/DH where a DA/DH is specified and its use is required, and at any time after that until touchdown.

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12/9/02

(f) Civil airport takeoff minimums. Unless otherwise authorized by the FAA, no person operating an aircraft under part 121, 125, 129, or 135 of this chapter may takeoff from a civil airport under IFR unless weather conditions are at or above the weather minimums for IFR takeoff prescribed for that airport under part 97 of this chapter. Where published civil takeoff minimums are based on a specified route, persons operating that aircraft must comply with that route unless an alternative route has been assigned by ATC. If takeoff minimums are not prescribed under part 97 of this chapter for a particular airport, the following minimums apply to takeoffs under IFR for aircraft operating under part 121, 125, 129, or 135 of this chapter:

* * * * *

(h) Comparable values of RVR and ground visibility. Except for Category II or Category III minimums, if RVR minimums for takeoff or landing are prescribed in an instrument approach procedure, but RVR is not reported for the runway of intended operation, the RVR minimum must be converted to ground visibility in accordance with the Comparable Values of RVR and Ground Visibility table in FAA Order 8260.3, "United States Standard for Terminal Instrument Procedures (TERPS)" (incorporated by reference in §97.20 of this chapter). This visibility is the minimum for takeoff or landing on that runway.

* * * * *

(k) ILS components. The basic components of an ILS are the localizer, glide slope, and outer marker, and, when installed for use with Category II or Category III instrument approach procedures, an inner marker. The following means may be used to substitute for the outer marker: compass locator; precision approach radar (PAR) or airport surveillance radar (ASR);

DME, VOR, or nondirectional beacon fixes authorized in the standard instrument approach procedure; and a suitable RNAV system in conjunction with a fix identified in the standard instrument approach procedure. Applicability of, and substitution for, the inner marker for a Category II or III approach is determined by the appropriate 14 CFR part 97 approach procedure, letter of authorization, or operations specification pertinent to the operation.

18. Amend §91.177 by revising paragraph (a) to read as follows:

§91.177 Minimum altitudes for IFR operations.

(a) Operation of aircraft at minimum altitudes. Except when necessary for takeoff or landing, no person may operate an aircraft under IFR below--

(1) The applicable minimum altitudes prescribed in parts 95 and 97 of this chapter.

However, if both a MEA and a MOCA are prescribed for a particular route or route segment, a person may operate an aircraft below the MEA down to, but not below, the MOCA, provided the applicable navigation signals are available. For aircraft using VOR for navigation, this applies only when the aircraft is within 22 nautical miles of that VOR (based on the reasonable estimate by the pilot operating the aircraft of that distance); or

(2) If no applicable minimum altitude is prescribed in parts 95 and 97 of this chapter, then--

(i) In the case of operations over an area designated as a mountainous area in part 95 of this chapter, an altitude of 2,000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown; or

(ii) In any other case, an altitude of 1,000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown.

* * * * *

19. Amend §91.179 by adding introductory text to read as follows:

§91.179 IFR cruising altitude or flight level.

Unless otherwise authorized by ATC, the following rules apply—

* * * * *

§91.181 [Amended]

20. Amend §91.181 by removing the words “a Federal airway” and adding in their place the words “an ATS route” in paragraph (a).

21. Amend §91.183 by revising the heading and the introductory text to read as follows:

§91.183 IFR communications.

Unless otherwise authorized by the FAA, the pilot in command of each aircraft operated under IFR in controlled airspace must monitor the appropriate frequency and must report the following as soon as possible--

* * * * *

§91.185 [Amended]

22. Amend §91.185 heading and paragraph (a) by removing the word “radio.”

§91.189 [Amended]

23. Amend §91.189 (c) by removing the term "DH" and adding in its place the term "DA/DH" wherever it appears, and ^{amend paragraph} (d) by removing the word "pilot" and inserting the word "person."

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12/9/02

24. Amend §91.205 by revising paragraphs (d)(2) and (e) to read as follows:

**§91.205 Powered civil aircraft with standard category U.S. airworthiness certificates:
Instrument and equipment requirements.**

* * * * *

(d) * * *

(2) Two-way communication and navigation equipment suitable for the route to be flown.

* * * * *

(e) Flight at and above 18,000 feet MSL (FL 180). If VOR navigation equipment is required under paragraph (d)(2) of this section, no person may operate a U.S.-registered civil aircraft within the 50 states and the District of Columbia at or above FL 180 unless that aircraft is equipped with approved DME or a suitable RNAV system. When the DME or RNAV system required by this paragraph fails at and above FL 180, the pilot in command of the aircraft must notify ATC immediately, and then may continue operations at and above FL 180 to the next airport of intended landing where repairs or replacement of the equipment can be made.

* * * * *

§91.219 [Amended]

25. Amend §91.219 (b)(5) by removing the term “DH” and adding in its place the term “DA/DH.”

introductory text

26. Amend §91.511 by revising the heading and paragraph (a)(1) to read as follows:

§91.511 Communication and navigation equipment for over-water operations.

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(a) * * *

(1) Communication equipment appropriate to the facilities to be used that can transmit to, and receive from, at least one communication facility from any place along the route:

* * * * *

introductory text

27. Amend §91.711 by revising paragraphs (c)(1)(i), (c)(1)(ii), and (e) to read as follows:

§91.711 Special rules for foreign civil aircraft.

* * * * *

(c) * * *

(1) * * *

(i) Communication equipment.

(ii) Navigation equipment suitable for the route to be flown.

* * * * *

(e) Flight at and above FL 180. If VOR navigation equipment is required under paragraph (c)(1)(ii) of this section, no person may operate a foreign civil aircraft within the 50 States and the District of Columbia at or above FL 180, unless the aircraft is equipped with DME or an IFR-approved RNAV system. When the DME or RNAV system required by this paragraph fails at and above FL 180, the pilot in command of the aircraft must notify ATC immediately and

may then continue operations at and above FL 180 to the next airport of intended landing where repairs or replacement of the equipment can be made. A foreign civil aircraft may be operated within the 50 States and the District of Columbia at or above FL 180 without DME or an IFR-approved RNAV system when operated for the following purposes, and ATC is notified before each takeoff:

* * * * *

PART 95 – IFR ALTITUDES

28. The authority citation for part 95 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40103, 40113, and 14 CFR 11.49(b)(2).

29. Revise §95.1 to read as follows:

§95.1 Applicability.

(a) This part prescribes altitudes governing the operation of aircraft under IFR on ATS routes, or other direct routes for which an MEA is designated in this part. In addition, it designates mountainous areas and changeover points.

(b) The MAA is the highest altitude on an ATS route, or other direct route for which an MEA is designated, at which adequate reception of VOR signals is assured.

(c) The MCA applies to the operation of an aircraft proceeding to a higher minimum en route altitude when crossing specified fixes.

(d) The MEA is the minimum en route IFR altitude on an ATS route, ATS route segment, or other direct route. The MEA applies to the entire width of the ATS route, ATS route segment, or other direct route between fixes defining that route. Unless otherwise specified, an MEA prescribed for an off airway route or route segment applies to the airspace 4 nautical miles on each side of a direct course between the navigation fixes defining that route or route segment.

(e) The MOCA assures obstruction clearance on an ATS route, ATS route segment, or other direct route, and adequate reception of VOR navigation signals within 22 nautical miles of a VOR station used to define the route.

(f) The MRA applies to the operation of an aircraft over an intersection defined by ground-based navigation aids. The MRA is the lowest altitude at which the intersection can be determined using the ground-based navigation aids.

(g) The changeover point (COP) applies to operation of an aircraft along a Federal airway, jet route, or other direct route; for which an MEA is designated in this part. It is the point for transfer of the airborne navigation reference from the ground-based navigation aid behind the aircraft to the next appropriate ground-based navigation aid to ensure continuous reception of signals.

PART 97—STANDARD INSTRUMENT PROCEDURES

30. The authority citation for part 97 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40103, 40113, 40120, 44701; and 14 CFR 11.49(b)(2).

31. Revise the heading for part 97 to read as set forth above.

32. Revise §97.1 to read as follows:

§97.1 Applicability.

(a) General. This part prescribes standard instrument procedures to airports in the United States and the weather minimums that apply to takeoffs and landings under IFR at those airports.

(b) Departure procedures. This part also prescribes departure procedures (DPs) developed for aircraft operating under parts 121, 125, 129, and 135 of this chapter to avoid obstacles, and establishes weather minimums that apply for takeoff under IFR at civil airports. Where published civil takeoff weather minimums are based on a specified route, persons operating that aircraft must comply with that route unless an alternative route has been assigned by ATC.

33. Revise §97.3 to read as follows:

§97.3 Symbols and terms used in procedures.

As used in the standard instrument procedures prescribed in this part—

Aircraft approach category means a grouping of aircraft based on a speed of $1.3 V_{so}$ (at maximum certificated landing weight). V_{so} and the maximum certificated landing weight are

those values established for the aircraft by the certificating authority of the country of registry.

The categories are as follows--

- (1) Category A: Speed less than 91 knots.
- (2) Category B: Speed 91 knots or more but less than 121 knots.
- (3) Category C: Speed 121 knots or more but less than 141 knots.
- (4) Category D: Speed 141 knots or more but less than 166 knots.
- (5) Category E: Speed 166 knots or more.

Approach procedure segments for which altitudes (minimum altitudes, unless otherwise specified) and paths are prescribed in procedures, are as follows—

(1) Initial approach is the segment between the initial approach fix and the intermediate fix or the point where the aircraft is established on the intermediate course or final approach course.

(2) Initial approach altitude is the altitude (or altitudes, in high altitude procedure) prescribed for the initial approach segment of an instrument approach.

(3) Intermediate approach is the segment between the intermediate fix or point and the final approach fix.

(4) Final approach is the segment between the final approach fix or point and the runway, airport, or missed approach point.

(5) Missed approach is the segment between the missed approach point, or point of arrival at decision altitude or decision height (DA/DH), and the missed approach fix at the prescribed altitude.

Ceiling means the minimum ceiling, expressed in feet above the airport elevation, required for takeoff or required for designating an airport as an alternate airport.

Copter procedures means helicopter procedures, with applicable minimums as prescribed in §97.35. Helicopters may also use other procedures prescribed in subpart C of this part and may use the Category A minimum descent altitude (MDA), or decision altitude or decision height (DA/DH). For other than “copter-only” approaches, the required visibility minimum for Category I approaches may be reduced to one-half the published visibility minimum for Category A aircraft, but in no case may it be reduced to less than one-quarter mile prevailing visibility, or, if reported, 1,200 feet RVR. Reduction of visibility minima on Category II instrument approach procedures is prohibited.

FAF means final approach fix.

HAA means height above airport and is expressed in feet.

HAL means height above landing and is the height of the DA/MDA above a designated helicopter landing area elevation used for helicopter instrument approach procedures and is expressed in feet.

HAS means height above the surface and is the height of the DA/MDA above the highest terrain/surface within a 5,200-foot radius of the missed approach point used in helicopter instrument approach procedures and is expressed in feet AGL.

HAT means height above threshold expressed in feet.

HCH means heliport crossing height and is the computed height of the vertical guidance path above the heliport elevation at the heliport expressed in feet.

Heliport means the aiming point for the final approach course for heliports. It is normally the center point of the touchdown and lift-off area (TLOF). The heliport elevation is the highest point on the TLOF and is the same elevation as heliport elevation.

Hold in lieu of PT means a holding pattern established under applicable FAA criteria, and used in lieu of a procedure turn to execute a course reversal.

MAP means missed approach point.

More than 65 knots means an aircraft that has a stalling speed of more than 65 knots (as established in an approved flight manual) at maximum certificated landing weight with full flaps, landing gear extended, and power off.

MSA means minimum safe altitude, expressed in feet above mean sea level, depicted on an approach chart that provides at least 1,000 feet of obstacle clearance for emergency use within a certain distance from the specified navigation facility or fix.

NA means not authorized.

NOPT means no procedure turn required. Altitude prescribed applies only if procedure turn is not executed.

Procedure turn means the maneuver prescribed when it is necessary to reverse direction to establish the aircraft on an intermediate or final approach course. The outbound course, direction of turn, distance within which the turn must be completed, and minimum altitude are specified in the procedure. However, the point at which the turn may be begun, and the type and rate of turn, is left to the discretion of the pilot.

RA means radio altimeter setting height.

RVV means runway visibility value.

SIAP means standard instrument approach procedure.

65 knots or less means an aircraft that has a stalling speed of 65 knots or less (as established in an approved flight manual) at maximum certificated landing weight with full flaps, landing gear extended, and power off.

T means nonstandard takeoff minimums or specified departure routes/procedures or both.

TDZ means touchdown zone.

Visibility minimum means the minimum visibility specified for approach, landing, or takeoff, expressed in statute miles, or in feet where RVR is reported.

34. Amend §97.5 by revising the heading and paragraph (a) to read as follows:

§97.5 Bearings, courses, tracks, headings, radials, miles.

(a) All bearings, courses, tracks, headings, and radials in this part are magnetic, unless otherwise designated.

* * * * *

§97.10 [Removed and reserved]

35. Remove and reserve §97.10.

36. Revise §97.20 to read as follows:

§97.20 General.

(a) This subpart prescribes standard instrument procedures based on the criteria contained in FAA Order 8260.3, "U.S. Standard for Terminal Instrument Procedures (TERPS)" and FAA Order 8260.19, "Flight Procedures and Airspace." These standard instrument procedures and FAA Orders were approved for incorporation by reference by the Director of the Federal Register pursuant to 5 U.S.C. 552(a) and 1 CFR part 51. They may be examined at the following locations:

(1) FAA Orders 8260.3 and 8260.19 may be examined at the Federal Aviation Administration, Flight Standards Service, Flight Technologies and Procedures Division (AFS-420), 6500 S. MacArthur Blvd., Oklahoma City, OK, and at the Office of the Federal Register, 800 North Capitol Street, NW, suite 700, Washington, DC. These Orders are available for purchase from the U.S. Government Printing Office, 710 N. Capitol Street, NW, Washington, DC 20401.

(2) Standard instrument procedures may be examined at the Federal Aviation Administration, National Flight Data Center (ATA-110), 800 Independence Avenue, S.W., Washington, DC, and at the Office of the Federal Register, 800 North Capitol Street, NW, suite 700, Washington, DC.

(b) Standard instrument procedures and associated supporting data are documented on specific forms under FAA Order 8260.19 and are promulgated by the FAA through the National Flight Data Center (NFDC) as the source for aeronautical charts and avionics databases. These procedures are then portrayed on aeronautical charts and included in avionics databases prepared by the National Aeronautical Charting Office (AVN-500) and other publishers of aeronautical data for use by pilots using the NFDC source data. The terminal aeronautical charts published by the U.S. Government may be examined at the Federal Aviation Administration, National Flight Data Center (ATA-110), 800 Independence Avenue, SW., Washington, DC, and at the Office of the Federal Register, 800 North Capitol Street, NW, suite 700, Washington, DC. These charts are available for purchase from the FAA National Aeronautical Charting Office, Distribution Division AVN-530, 6303 Ivy Lane, Suite 400, Greenbelt, MD 20770.

PART 121 -- OPERATING REQUIREMENTS: DOMESTIC, FLAG, AND

SUPPLEMENTAL OPERATIONS

37. The authority citation for part 121 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 40119, 41706, 44101, 44701-44702, 44705, 44709-44711, 44713, 44716-44717, 44722, 44901, 44903-44904, 44912, 46105.

38. Amend §121.99 by revising paragraph (a) to read as follows:

§121.99 Communications facilities.

(a) Each certificate holder conducting domestic or flag operations must show that a two-way communication system, or other means of communication approved by the FAA, is available over the entire route under normal operating conditions. The communications may be direct links or via an approved communication link that will provide reliable and rapid communications under normal operating conditions between each airplane and the appropriate dispatch office, and between each airplane and the appropriate air traffic control unit, except as specified in §121.351 (c). For non-normal and emergency operation conditions, the communication system for use between each airplane and the appropriate dispatch office and between each airplane and the appropriate ATC unit must have two-way voice communication capability. For the purpose of communications between the airplane and the dispatch office under this section, the term "rapid communications" means that the caller must be able to establish communications with the called party in less than four minutes.

* * * * *

39. Revise §121.103 to read as follows:

§121.103 En route navigation systems.

(a) Except as provided in paragraph (b) of this section, each certificate holder conducting domestic or flag operations must show, for each proposed route (including to any regular, provisional, refueling or alternate airports), that suitable navigation aids are available over the route to navigate the airplane along the route with the required accuracy. Navigation aids required for approval of routes outside of controlled airspace are listed in the certificate holder's operations specifications except for those aids required for routes to alternate airports.

(b) Navigation aids are not required for any of the following operations--

(1) Day VFR operations that the certificate holder shows can be conducted safely by pilotage because of the characteristics of the terrain;

(2) Night VFR operations on routes that the certificate holder shows have reliably lighted landmarks adequate for safe operation; and

(3) Other operations approved by the FAA.

40. Revise §121.121 to read as follows:

§121.121 En route navigation systems.

(a) Except as provided in paragraph (b) of this section, no certificate holder conducting supplemental operations may conduct any operation over a route (including to any destination, refueling or alternate airports) unless suitable navigation aids are available over the route to navigate the airplane along the route with the required accuracy. Navigation aids required for routes outside of controlled airspace are listed in the certificate holder's operations specifications except for those aids required for routes to alternate airports.

(b) Navigation aids are not required for any of the following operations--

(1) Day VFR operations that the certificate holder shows can be conducted safely by pilotage because of the characteristics of the terrain;

(2) Night VFR operations on routes that the certificate holder shows have reliably lighted landmarks adequate for safe operation; and

(3) Other operations approved by the FAA.

§121.344 [Amended]

41. Amend §121.344 by removing the words “decision height” and adding in their place the words “decision altitude/decision height” in paragraph (a)(54).

§121.345 [Amended]

42. Amend §121.345 by removing the word “radio” in the heading and in paragraphs (a) and (b) and adding in its place the word “communication.”

43. Amend §121.347 by revising the heading, paragraphs (a) introductory text, (a)(1), (a)(2), and (b) to read as follows:

§121.347 Communication and navigation equipment for operations under VFR over routes navigated by pilotage.

(a) No person may operate an airplane under VFR over routes that can be navigated by pilotage unless the airplane is equipped with the communication equipment necessary under normal operating conditions to fulfill the following:

(1) Communicate with at least one appropriate station from any point on the route; and

(2) Communicate with appropriate air traffic control facilities from any point within Class B, Class C, or Class D airspace, or within a Class E airspace surface area designated for an airport in which flights are intended.

* * * * *

(b) No person may operate an airplane at night under VFR over routes that can be navigated by pilotage unless that airplane is equipped with—

(1) Communication equipment necessary under normal operating conditions to fulfill the functions specified in paragraph (a) of this section; and

(2) Navigation equipment suitable for the route to be flown.

44. Revise §121.349 to read as follows:

§121.349 Communication and navigation equipment for operations under VFR over routes not navigated by pilotage or for operations under IFR or over the top.

(a) Navigation equipment requirements. Except as provided in paragraph (c) of this section, no person may conduct operations under VFR over routes that cannot be navigated by pilotage, or operations conducted under IFR or over the top, unless the airplane used in those operations is equipped with at least two approved independent navigation systems suitable for the route to be flown and authorized in the certificate holder's operations specifications.

However, only one navigation system need be provided for precision approach and APV operations. Equipment used to receive signals en route also may be used to receive signals on approach, if it is capable of receiving both signals.

(b) Communication equipment requirements. No person may operate an airplane under VFR over routes that cannot be navigated by pilotage, and no person may operate an airplane under IFR or over the top, unless the airplane is equipped with--

(1) For normal operating conditions, at least two independent communication systems that fulfill the functions specified in §121.347 (a); and

(2) Except as required in §121.99, for non-normal and emergency operating conditions, at least one of the two independent communication systems that fulfills the functions specified in §121.347 (a), and has two-way voice communication capability.

(c) Use of a single independent navigation system. Notwithstanding the requirements in paragraph (a) of this section, the airplane may be equipped with a single independent navigation system suitable for the route to be flown if:

(1) The airplane is equipped with at least one other independent navigation system suitable, in the event of loss of the navigation capability of the single system at any point along the route, for navigating safely to a suitable airport and completing an instrument approach;

(2) Both navigation systems are authorized by the FAA in the certificate holder's operations specifications; and

(3) The airplane has sufficient fuel so that the flight may proceed safely to a suitable airport by use of the remaining navigation system, and complete an instrument approach and land.

(d) Use of VOR navigation equipment. If VOR navigation equipment is used to comply with paragraph (a) or (c) of this section, no person may operate an airplane unless it is equipped with at least one approved DME or suitable IFR approved RNAV system.

(e) Additional communication system equipment requirements. In addition to the requirements in paragraph (b) of this section, no person may operate an airplane having a passenger seat configuration of 10 to 30 seats, excluding each crewmember seat, and a maximum payload capacity of 7,500 pounds or less, under IFR, over the top, or in extended over-water operations unless it is equipped with at least--

- (1) Two microphones; and
- (2) Two headsets, or one headset and one speaker.

45. Amend §121.351 by revising paragraphs (a), (c)(1), and (c)(3) to read as follows:

§121.351 Communication and navigation equipment for extended over-water operations and for certain other operations.

(a) Except as provided in paragraph (c) of this section, no person may conduct an extended over-water operation unless the airplane is equipped with at least two independent communication systems that meet the following requirements--

the heading and

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(1) The communication equipment necessary under normal operating conditions to communicate with at least one appropriate station from any point on the route;

(2) The communication equipment necessary under normal operating conditions to receive meteorological information from any point on the route by either of two independent communication systems. One of the communication systems used to comply with this paragraph may be used to comply with paragraphs (a)(1) and (a)(3) of this section;

(3) For non-normal and emergency operating conditions, one communication system having two way voice communication capability; and

(4) Two LRNSs when VOR or ADF radio navigation equipment is unusable along a portion of the route.

* * * * *

(c) * * *

(1) The ability of the flightcrew to navigate the airplane along the route with the required accuracy,

* * * * *

(3) The duration of the very high frequency communications gap, if only very high frequency communication equipment is installed.

§121.419 [Amended]

46. Amend §121.419 (a)(1)(vii) by removing the term “DH” and adding in its place the term “DA/DH”.

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12/9/02

§121.559 [Amended]

47. Amend §121.559 (c) by removing the words “ground radio station” and adding in their place the words “communication facility”.

~~§121.561 [Amended]~~

48. Amend §121.561 by revising the heading to read *as set forth below* ~~“Reporting potentially hazardous meteorological conditions and irregularities of ground facilities or navigation aids”~~ and by amending paragraph (a) by removing the words “ground or navigational facility” and add in their place the words “ground facility or navigation aid”.

§121.561 *Reporting potentially hazardous meteorological conditions and irregularities of ground facilities or navigation aids.*
* * * * *

§121.565 [Amended]

49. Amend §121.565 (c) by removing the words “ground radio station” and adding in their place the words “communication facility” and by removing the word “station” and adding in its place the word “facility”.

§121.579 [Amended]

50. Amend §121.579 (b) introductory text by removing the words “decision height” and adding in their place the term “DA/DH” and amend ^{paragraphs} (b)(1) and (b)(2) by removing the term “ILS” and adding in its place the word “precision”.

51. Amend §121.651 by replacing the term “DH” with the term “DA/DH” wherever it appears in paragraph (c) and by revising paragraph (d) introductory text to read as follows:

§121.651 Takeoff and landing weather minimums: IFR: All certificate holders.

* * * * *

(d) A pilot may begin the final approach segment of a Category I precision approach procedure at an airport when the visibility is less than the visibility minimums prescribed for that procedure if that airport is served by an operative PAR and another operative precision instrument approach system, and both the PAR and the precision approach are used by the pilot.

However, no person may continue an approach below the authorized DA, unless--

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§121.652 [Amended]

52. Amend §121.652 (a) by removing the term "DH" and adding in its place the term "DA/DH".

wherever it appears

Appendix M *to part 121* **[Amended]**

53. Amend Appendix M by removing the words "Selected decision height" and adding in their place the words "Selected decision altitude/decision height" in Parameter number 54.

PART 125 – CERTIFICATION AND OPERATIONS: AIRPLANES HAVING A SEATING CAPACITY OF 20 OR MORE PASSENGERS OR A MAXIMUM PAYLOAD CAPACITY OF 6,000 POUNDS OR MORE; AND RULES GOVERNING PERSONS ON BOARD SUCH AIRCRAFT

54. The authority citation for part 125 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701-44702, 44705, 44710-44711, 44713, 44716-44717, 44722.

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12/9/02

~~§125.51 [Amended]~~

55. Amend §125.51 (a) and (b) by revising the heading to read "En route navigation aids" and by removing the words "nonvisual ground aids" and adding in their place the words "navigation aids".

as set forth below
amend paragraphs (a) and (b)
§125.51 En route navigation aids.

* * * * *
56. Revise §125.203 to read as follows:

§125.203 Communication and navigation equipment.

(a) No person may operate an airplane unless it has two-way communication equipment able, at least in flight, to transmit to, and receive from, appropriate facilities 22 nautical miles away.

(b) No person may operate an airplane over the top unless it has navigation equipment suitable for the route to be flown.

(c) No person may operate an airplane carrying passengers under IFR or in extended over-water operations unless the airplane has at least the following equipment:

(1) Two transmitters;

(2) Two microphones;

(3) Two headsets or one headset and one speaker;

(4) Two independent communication systems, one of which must have two-way voice communication capability, capable of transmitting to, and receiving from, at least one appropriate facility from any place on the route to be flown; and

(5) Two approved independent navigation systems suitable for the route to be flown and authorized in the certificate holder's operations specifications. However, only one navigation system need be provided for precision approach and APV operations. Equipment used to receive signals en route also may be used to receive signals on approach, if it is capable of receiving both signals.

(d) Use of a single independent navigation system. Notwithstanding the requirements in paragraph (c) of this section, the airplane may be equipped with a single independent navigation system suitable for the route to be flown if—

(1) The airplane is equipped with at least one other independent navigation system suitable, in the event of loss of the navigation capability of the single system at any point along the route, for navigating safely to a suitable airport and completing an instrument approach;

(2) Both navigation systems are authorized by the FAA in the certificate holder's operations specifications; and

(3) The airplane has sufficient fuel so that the flight may proceed safely to a suitable airport by use of the remaining navigation system, and complete an instrument approach and land.

(e) Use of VOR navigation equipment. If VOR navigation equipment is required by paragraph (c) or (d) of this section, no person may operate an airplane unless it is equipped with at least one approved DME or a suitable IFR approved RNAV system.

(f) Notwithstanding the requirements of paragraph (c) of this section, installation and use of a single LRNS and a single LRCS for extended over-water operations in certain geographic areas may be authorized by the Administrator and approved in the certificate holder's operations specifications. The following are among the operational factors the Administrator may consider in granting an authorization:

(1) The ability of the flight crew to navigate the airplane along the route with the required accuracy;

(2) The length of the route being flown with a single navigation or communication system; and

(3) The duration of the very high frequency communications gap, if only very high frequency communication equipment is installed.

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~~§125.321 [Amended]~~

as set forth below

57. Amend §125.321 by revising the heading to read ~~"Reporting potentially hazardous meteorological conditions and irregularities of ground facilities or navigation aids"~~ and by removing the words "ground or navigational facility" and adding in their place the words "ground facility or navigation aid."

§ Reporting potentially hazardous meteorological conditions and irregularities of ground facilities or navigation aids.

* * * * *
§125.379 [Amended]

58. Amend §125.379 (a) by removing the term "DH" wherever it appears and adding in its place the term "DA/DH".

59. Amend §125.381 (a) and (b) by removing the word "pilot" and adding in its place the word "person", and by revising paragraph (c) to read as follows:

§125.381 Takeoff and landing weather minimums: IFR.

* * * * *

(c) If a pilot initiates an instrument approach procedure based on a weather report that indicates that the specified visibility minimums exist and subsequently receives another weather report that indicates that conditions have worsened to below the minimum requirements, then the pilot may continue with the approach and landing only if both of the following conditions are met--

(1) The later weather report is received when the airplane is in one of the following landing phases:

(i) The airplane is on a precision approach or APV and has passed the precision final approach fix.

(ii) The airplane is on the final approach segment using a nonprecision approach procedure.

(iii) The airplane is on a PAR final approach and has been turned over to the final approach controller.

(2) The pilot in command finds, on reaching the authorized MAP or DA/DH, that the actual weather conditions are at or above the minimums prescribed in the certificate holder's operations specifications.

PART 129 – OPERATIONS: FOREIGN AIR CARRIERS AND FOREIGN OPERATORS OF U.S.-REGISTERED AIRCRAFT ENGAGED IN COMMON CARRIAGE

60. The authority citation for part 129 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40104-40105, 40113, 40119, 41706, 44701-44702, 44712, 44716-44717, 44722, 44901-44904, 44906.

61. Add §129.16 to read as follows:

§129.16 Communication and navigation equipment for rotorcraft operations under VFR over routes navigated by pilotage.

(a) No person may operate a rotorcraft under VFR over routes that can be navigated by pilotage unless the rotorcraft is equipped with the communication equipment necessary under normal operating conditions to fulfill the following:

(1) Communicate with at least one appropriate station from any point on the route;

(2) Communicate with appropriate air traffic control facilities from any point within Class B, Class C, or Class D airspace, or within a Class E airspace surface area designated for an airport in which flights are intended; and

(3) Receive meteorological information from any point en route.

(b) No person may operate a rotorcraft at night under VFR over routes that can be navigated by pilotage unless that rotorcraft is equipped with--

(1) Communication equipment necessary under normal operating conditions to fulfill the functions specified in paragraph (a) of this section; and

(2) Navigation equipment suitable for the route to be flown.

62. Revise §129.17 to read as follows:

§129.17 Aircraft communication and navigation equipment for operations under IFR or over the top.

(a) Aircraft navigation equipment requirements. No person may conduct operations under IFR or over the top unless the aircraft used in those operations is equipped with at least two approved independent navigation systems suitable for the route to be flown and authorized in the certificate holder's operations specifications. However, only one navigation system needs to be provided for precision approach and APV operations. Equipment used to receive signals en route also may be used to receive signals on approach, if it is capable of receiving both signals.

(b) Aircraft communication equipment requirements. No person may operate an aircraft under IFR or over the top, unless it is equipped with--

(1) For normal operating conditions, at least two independent communication systems that fulfill the functions specified in §121.347 (a) of this chapter; and

(2) For non-normal and emergency operating conditions, at least one of the two independent communication systems that fulfills the functions specified in §121.347 (a) of this chapter must have two-way voice communication capability.

(c) Use of a single independent navigation system. Notwithstanding the requirements in paragraph (a) of this section, the aircraft may be equipped with a single independent navigation system suitable for the route to be flown if—

(1) The aircraft is equipped with at least one other independent navigation system suitable, in the event of loss of the navigation capability of the single system at any point along the route, for navigating safely to a suitable airport and completing an instrument approach.

(2) Both navigation systems are authorized by the FAA in the certificate holder's operations specifications; and

(3) The aircraft has sufficient fuel so that the flight may proceed safely to a suitable airport by use of the remaining navigation system, and complete an instrument approach and land.

(d) VOR navigation equipment. If VOR navigation equipment is required by paragraph (a) or (c) of this section, no person may operate an aircraft unless it is equipped with at least one approved DME or suitable IFR approved RNAV system.

63. Revise §129.21 to read as follows:

§129.21 Control of traffic.

(a) Subject to applicable immigration laws and regulations, each foreign air carrier must furnish sufficient personnel necessary to provide two-way communications between its aircraft and stations at places where the FAA finds that communication is necessary but cannot be maintained in a language with which station operators are familiar.

(b) Each person furnished by a foreign air carrier under paragraph (a) of this section must be able to speak English and the language necessary to maintain communications with its aircraft and must assist station operators in directing traffic.

64. Amend Appendix A to part 129 by revising paragraph (b), Section IV, to read as follows:

Appendix A to Part 129-Application for Operations Specifications by Foreign Air Carriers

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* * * * *
(b) * * *

BF
12/9/02

Sec. IV. Communications facilities. List all communication facilities to be used by the applicant in the conduct of the proposed operations within the United States and over that portion of the route between the last point of foreign departure and the United States.

PART 135 -- OPERATING REQUIREMENTS: COMMUTER AND ON DEMAND OPERATIONS AND RULES GOVERNING PERSONS ON BOARD SUCH AIRCRAFT

65. The authority citation for part 135 continues to read as follows:

Authority: 49 U.S.C. 106(g), 41706, 44113, 44701-44702, 44705, 44709, 44711-44713, 44715-44717, 44722.

BF 12/9/02

§135.67 [Amended]

66. Amend §135.67 by revising the heading to read *as set forth below* "~~Reporting potentially hazardous~~
~~meteorological conditions and irregularities of ground facilities or navigation aids~~" and by
removing the words "ground ^{communications} for navigational facility" and adding in their place the words
"ground facility or navigation aid."

§ 135.67 Reporting potentially hazardous meteorological conditions and irregularities of ground facilities or navigation aids.

* * * * *
67. Add §135.78 to read as follows:

§135.78 Instrument approach procedures and IFR landing minimums.

No person may make an instrument approach at an airport except in accordance with IFR weather minimums and instrument approach procedures set forth in the certificate holder's operations specifications.

§135.79 [Amended]

68. Amend §135.79 (a)(3) by removing the words "radio or telephone communications" and adding in their place the word "communications".

§135.93 [Amended]

69. Amend §135.93 (b) by removing the words "When using an instrument approach facility other than ILS," and adding in their place the words "For other than precision

BF
12/9/02

approaches,” ^{and} Amend ~~§135.93~~ ^a (c) ^{paragraph} by removing the words “For ILS approaches,” and adding in their place the words “For precision approaches.”

§135.152 [Amended]

70. Amend §135.152 (h)(54) by removing the words “decision height” and adding in their place the words “decision altitude/decision height”.

71. Revise §135.161 to read as follows:

§135.161 Communication and navigation equipment for aircraft operations under VFR over routes navigated by pilotage.

(a) No person may operate an aircraft under VFR over routes that can be navigated by pilotage unless the aircraft is equipped with the communication equipment necessary under normal operating conditions to fulfill the following:

- (1) Communicate with at least one appropriate station from any point on the route.
- (2) Communicate with appropriate air traffic control facilities from any point within Class B, Class C, or Class D airspace, or within a Class E airspace surface area designated for an airport in which flights are intended.
- (3) Receive meteorological information from any point en route.

(b) No person may operate an aircraft at night under VFR over routes that can be navigated by pilotage unless that aircraft is equipped with—

- (1) Communication equipment necessary under normal operating conditions to fulfill the functions specified in paragraph (a) of this section; and

- (2) Navigation equipment suitable for the route to be flown.

72. Revise §135.165 to read as follows:

§135.165 Communication and navigation equipment: Extended over-water or IFR operations.

(a) Aircraft navigation equipment requirements. No person may conduct operations under IFR or extended over-water unless the aircraft used in those operations is equipped with at least two approved independent navigation systems suitable for the route to be flown and authorized in the certificate holder's operations specifications. However, only one navigation system need be provided for precision approach and APV operations. Equipment used to receive signals en route also may be used to receive signals on approach, if it is capable of receiving both signals.

(b) Use of a single independent navigation system. Notwithstanding the requirements in paragraph (a) of this section, the aircraft may be equipped with a single independent navigation system suitable for the route to be flown if:

- (1) The aircraft is equipped with at least one other independent navigation system suitable, in the event of loss of the navigation capability of the single system at any point along the route, for navigating safely to a suitable airport and completing an instrument approach;

- (2) Both navigation systems are authorized by the FAA in the certificate holder's operations specifications; and

(3) The aircraft has sufficient fuel so that the flight may proceed safely to a suitable airport by use of the remaining navigation system, and complete an instrument approach and land.

(c) VOR navigation equipment. Whenever VOR navigation equipment is required by paragraph (a) or (b) of this section, no person may operate an aircraft unless it is equipped with at least one approved DME or suitable IFR approved RNAV system.

(d) Aircraft communication equipment requirements. Except as permitted in paragraph (e) of this section, no person may operate a turbojet airplane having a passenger seat configuration, excluding any pilot seat, of 10 seats or more, or a multiengine airplane in a commuter operation, as defined in part 119 of this chapter, under IFR or in extended over-water operations unless it is equipped with--

(1) For normal operating conditions, at least two independent communication systems that fulfill the functions specified in §121.347 (a) of this chapter; and

(2) For non-normal and emergency operating conditions, at least one of the two independent communication systems that fulfills the functions specified in §121.347 (a) of this chapter must have two-way voice communication capability.

(e) IFR or extended over-water communications equipment requirements. A person may operate an aircraft other than that specified in paragraph (d) of this section under IFR or in

extended over-water operations if it meets all of the requirements of this section, with the exception that only one communication system transmitter is required for operations other than extended over-water operations.

(f) Additional aircraft communication equipment requirements. In addition to the requirements in paragraphs (d) and (e) of this section, no person may operate an aircraft under IFR or in extended over-water operations unless it is equipped with at least:

- (1) Two microphones; and
- (2) Two headsets or one headset and one speaker.

(g) Extended over-water exceptions. Notwithstanding the requirements of paragraphs (a), (b), (d) and (e) of this section, installation and use of a single LRNS and a single LRCS for extended over-water operations in certain geographic areas may be authorized by the Administrator and approved in the certificate holder's operations specifications. The following are among the operational factors the Administrator may consider in granting an authorization:

- (1) The ability of the flight crew to navigate the airplane along the route with the required accuracy,
- (2) The length of the route being flown with a single navigation or communication system; and

(3) The duration of the very high frequency communications gap, if very high frequency communications equipment is installed.

73. Amend §135.225 (a), (b), (e), (f), and (g) by removing the word “pilot” and adding in its place the word “person”, and by revising paragraphs (c)(1), (c)(3) introductory text, (c)(3)(ii), and (d) to read as follows:

§135.225 IFR: Takeoff, approach and landing minimums.

* * * * *

(c) * * *

(1) On a precision or APV approach and has passed the precision final approach fix; or

* * * * *

(3) On a nonprecision final approach; and the aircraft –

* * * * *

(ii) Where a final approach fix is not specified, has completed the procedure turn and is established inbound toward the airport on the final approach course within the distance prescribed in the procedure. The approach may be continued, and a landing made, if the pilot finds, upon reaching the authorized MDA or DA/DH, that actual weather conditions are at or above the minimums prescribed for the procedure.

(d) For each pilot in command of a turbine-powered airplane who has not served at least 100 hours as pilot in command in that type of airplane, the MDA or DA/DH and visibility landing minimums prescribed in part 97 of this chapter or in the certificate holder's operations

specifications for a particular approach must be increased by 100 feet and one half statute mile, respectively, but not to exceed the ceiling and visibility minimums for that approach when used as an alternate airport.

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§135.345 [Amended]

74. Amend §135.345 (a)(7) by removing the term “DH” and adding in its place the term “DA/DH”.

§135.371 [Amended]

75. Amend §135.371 (c)(2) by removing the word “radio”.

§135.381 [Amended]

76. Amend §135.381 (b)(2) by removing the word “radio”.

BF 12/9/02

Appendix F [Amended]

to part 135

77. Amend Appendix F by removing the words “Selected decision height” and adding in their place the words “Selected DA/DH” in Parameter number 54.

Issued in Washington, DC on December 3, 2002.



Louis C. Cusimano
Acting Director,
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Certified to be a True Copy


Bonnie Fritts