

routes without reference to the ground based navigational aids that defines those routes.

14 CFR 91.181. Course to be flown. Section 91.181 defines courses to be flown along Federal airways that are only referenced to station referenced navigational aids or fixes defining that route. This SFAR would allow courses to be flown on Federal airways and other published routes that are defined by waypoints or fixes contained in a GPS WAAS navigation system that is certified for IFR navigation.

14 CFR 91.205(d)(2). Powered civil aircraft with standard category U.S. airworthiness certificates: Instrument and equipment requirements. Section 91.205(d)(2) states that navigational equipment appropriate to the ground facilities to be used is required for IFR operations and does not include RNAV equipment. Under this SFAR, operations can be conducted using navigation equipment that is not dependent on navigating only to and from ground-based radio navigation stations.

14 CFR 91.711(c)(1)(ii) and 91.711(e). Special rules for foreign civil aircraft. Section 91.711(c)(1)(ii) requires foreign civil aircraft operating within the United States and conducting IFR operations to be equipped with radio navigational equipment appropriate to the navigational signals to be used and does not accommodate the use of RNAV systems for instrument flight rules operations. Section 91.711(e) states that no person may operate a foreign civil aircraft within the 50 states and the District of Columbia at or above flight level (FL) 240 unless the aircraft is equipped with distance measuring equipment (DME) capable of receiving and indicating distance information from the VORTAC facilities to be used. Although an IFR approved RNAV system provides distance information, this section does not allow the use of an RNAV system in lieu of DME.

14 CFR 95.1. Applicability. Part 95 prescribes altitudes governing the operation of aircraft under IFR on Federal airways, jet routes, area navigation low or high routes, or other direct routes for which a minimum enroute altitude (MEA) is designated. In addition, it designates mountainous areas and changeover points. In general, the IFR altitudes prescribed in this section are determined by a route analysis based on the following factors: (1) An obstacle clearance assessment; (2) the lowest altitude at which the aircraft radio navigation receivers are able to receive the ground-based radio navigation fixes defining the airway, segment or route; and (3) the lowest

altitude at which two-way voice communication between the aircraft and the air traffic control unit can be maintained. No accommodation is made for IFR altitudes determined by the above route analysis factors over routes that may be defined by fixes other than ground-based navigation aid fixes. Under this SFAR, operators using IFR certified GPS/WAAS RNAV systems would be permitted to conduct operations over routes in Alaska at the lowest minimum en route altitude based only on route obstacle assessments and ATC two-way voice communication capability. This MEA is defined as the "special MEA" for purposes of this SFAR to distinguish it from MEAs established under part 95.

14 CFR 121.349(a). Radio equipment for operations under VFR over routes not navigated by pilotage or for operations under IFR or over-the-top. Section 121.349(a) requires airplanes to be equipped with two independent radio navigation systems that are able to receive radio navigational signals from all primary en route and approach navigational facilities intended to be used. This section does not allow, nor does any other section of part 121, allow the use of RNAV GNSS for IFR navigation on Federal airways and other routes. This SFAR allows the use of IFR-certified RNAV GPS/WAAS systems for IFR navigation.

14 CFR 125.203(b) and (c). Radio and navigational equipment. These sections state that no person may operate an airplane over-the-top or under IFR unless it has two independent receivers for navigation that are able to receive radio signals from the ground facilities to be used and which are capable of transmitting to, and receiving from, at any place on the route to be flown, at least one ground facility. These sections do not allow the use of RNAV GNSS for IFR navigation for any airplanes conducting IFR operations under part 125 in the NAS. This SFAR would allow for the use of IFR-certified RNAV GPS/WAAS systems for IFR navigation.

14 CFR 129.17(a) and (b). Radio Equipment. Sections 129.17(a) and (b) state that subject to the applicable laws and regulations governing ownership and operation of radio equipment, each foreign air carrier shall equip its aircraft with such radio equipment as is necessary to properly use the air navigation facilities. This section does not include or allow IFR RNAV GNSS to be used for air navigation on Federal airways or other published routes. This SFAR would allow the use of IFR-certified RNAV GPS/WAAS systems for air navigation on Federal airways or other published routes.

14 CFR 135.165. Radio and navigational equipment: Extended overwater or IFR operations. Section 135.165 excludes turbojet airplanes with 10 or more passenger seats, multiengine airplanes in a commuter operations, as defined under 14 CFR part 119, and other aircraft from conducting IFR or extended overwater operations unless they have a minimum of two independent receivers for navigation appropriate to the facilities to be used that are capable of transmitting to, and receiving from, at any place on the route to be flown, at least one ground facility. Since IFR-certified RNAV GPS/WAAS systems do not receive navigation position information from ground facilities, they would not be acceptable for navigation based on this section. This SFAR would allow the use of IFR-certified RNAV GPS/WAAS systems in lieu of aircraft navigation equipment that is used to navigate to and from ground-based navigation facilities.

Section-by-Section Discussion of the Proposal

SFAR No. 97—Special Operating Rules for the Conduct of Instrument Flight Rules (IFR) Area Navigation (RNAV) Operations Using Global Positioning Systems (GPS) in Alaska

Section 1. Purpose, use and limitations. The purpose of Section 1 is to define the specific GNSS equipment that is authorized for IFR RNAV operations on Federal airways and other published routes in the airspace in the state of Alaska. This section also states that the SFAR can be used for U.S. and foreign operations conducted under part 91 over Alaska, as well as operations conducted by part 119 or part 125 certificate holders and part 129 operations specifications holders, commercial, and certificated air carrier operators.

Section 2. Definitions and abbreviations. The purpose of Section 2 is to define specific terms that are used in this SFAR. These definitions and abbreviations are specific to this SFAR. Some of these definitions may not be defined or consistent with similar definitions in the current Federal Aviation Regulations.

For the purposes of this SFAR, the definition of "area navigation (RNAV)" is 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)).