



Federal Aviation Administration

Memorandum

Date: AUG 04 2014

To: Abigail Smith, Director, Aeronautical Navigation (AeroNav) Products, AJV-3

From: Bruce DeCleene, Manager, Flight Technologies and Procedures Division, AFS-400

Subject: Waivers to FAA Order 8260.58, US Standard for Performance Based Navigation (PBN) on Required Navigation Performance (RNP) Value Changes, RNP Visual Obstacle Identification Surface (OIS), Minimum Radius-To-Fix (RF) Segment Length and Terminal Arrival Area (TAA) Turn Calculation Assumptions

Purpose: This memorandum authorizes waivers to: (a) RNP Authorization Required (AR) criteria related to RNP value change, (b) RNP Visual OIS requirements, (c) minimum RF segment length, and (d) clarifies TAA turn calculation assumptions.

Discussion:

- a. FAA Order 8260.58, Volume 5, table 1-1, *Note* restricts RNP AR approaches by stating that RNP changes prior to the final approach segment may only be to a smaller value. This note was derived from the original concept for RNP AR but is no longer necessary given flight operations guidance and navigation system performance requirements. Volume 5, paragraph 1.4 and Volume 6 paragraph 1.2 specifies a 20-degree maximum bank angle for turns where the RNP value is less than 1.0. This limitation was intended to minimize the risk of aircraft exceeding the containment of smaller obstacle evaluation areas (OEs) under adverse conditions. It was not intended that concurrent application of these requirements result in an impediment to achieving the optimum flight track. This memorandum does not change the RNP AR bank limitations, but provides options in achieving optimized procedure design.
- b. Volume 5, paragraph 3.6 specifies a visual OIS evaluation specific to RNP AR procedures in addition to the visual portion of final specified under Order 8260.3, Volume 1, paragraph 3.3.2.c. The Performance Based Aviation Rulemaking Committee has concurred that this additional evaluation is not necessary and agreed with our recommendation to delete it.
- c. Volume 5, paragraph 2.3, states the minimum length of an RF leg in a terminal instrument flight procedure (IFP) segment is 2 x RNP. However, this limitation was not intended to result in an impediment to achieving optimum flight tracks. The intent is that the minimum length of Track-to-Fix (TF) and RF legs are fundamentally the same except for Distance of Turn Anticipation (DTA).

Clarifying the minimum RF segment leg length as outlined in Volume 5, paragraph 2.3, will aid procedure designers in achieving optimized flight paths.

- d. Order 8260.58, Volume 4, Table 1-1 makes reference to a "Free Flight" concept, and paragraphs 1.1.1 through 1.2.3 implies that turn and leg length calculations must be based on an assumed 45 degree turn. This assumption is inconsistent with flight operations and air traffic control (ATC) guidance.

Action:

- a. For RNP AR procedures, where use of a bank angle greater than 20-degrees is needed to achieve the desired flight track, the RNP value of a leg/segment prior to the PFAF may be increased to RNP 1.0 in a subsequent leg/segment without the need for a waiver. Continue to chart any RNP value less than standard for the segment in accordance with Order 8260.19F paragraph 4-7-10(i).
- b. All requirements associated with Order 8260.58, Volume 5, paragraph 3.6 are waived pending revision to this directive.
- c. Minimum RNP AR RF leg length is the lesser of 2 x RNP or 1 NM. **Exception:** For any waypoints between the initial approach fix and missed approach point, RNP AR leg length may be reduced to not less than 0.2 NM (regardless of the RNP value) when there are no more than three waypoints within 1 NM along-track distance **and** there is no leg shorter than 1 NM prior to a change in RF turn direction. **Note:** Multiple close-proximity waypoints may impact chart/display readability.
- d. For TAAs that accommodate ATC direct-to-fix clearances with up to a 90 degree intercept angle, turn and leg length calculations may assume a 90 degree turn at the initial approach fix or intermediate fix. Note that this will result in lengths longer than the minimum initial segment lengths specified in Table 1-1.

Summary: This memorandum rescinds AFS-400 memorandum, *Waivers to Order 8260.58. US Standard for Performance Based Navigation (PBN) on Required Navigation Performance (RNP) Value Changes and RNP Visual Obstacle Identification Surface (OIS) Requirements*, February 19, 2014. No further approval is required from Flight Standards Service to apply these waivers. These waiver changes have been vetted through the Procedures Review Board and will be incorporated into the next revision to FAA Order 8260.58. If you have any questions, please contact Mr. Rick Dunham, Manager, Flight Procedure Standards Branch, AFS-420, at (405) 954-4164.