

July 23, 2018

Mr. Ali Bahrami
Associate Administrator for Aviation Safety
Federal Aviation Administration
800 Independence Avenue, SW
Washington, D.C. 20591

Dear Ali,

The Performance Based Operations Aviation Rulemaking Committee (PARC) is pleased to submit the following recommendation for your consideration. The PARC Navigation Working Group (NAV WG) completed an analysis addressing the intermediate segment length criteria and design for instrument approach procedures. This recommendation allows for a broader consideration that will result in better designs and incent use of RNAV procedures with this design at more locations. The recommendation is brief and attached below. Thanks to the Navigation WG and their subject matter experts from FAA and industry to collaborated on this recommendation.

The PARC appreciates your continued support of our activities and I personally commend the many participants across all lines of business who address a multitude issues, both technical and conceptual to foster progress of NextGen. The PARC also respectfully requests the FAA to provide us with a formal response to these recommendations.

Please call me if you have any questions or would like to set up a discussion.

Sincerely,



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Cc: Mark Steinbicker
Mike Cramer
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Merrill Armstrong
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Problem Statement

When designing PBN approaches with downwind legs followed by an RF to final, limiting the length of the intermediate segment to 15 NM can interfere with achieving a good design. There is a requirement for a straight leg following the IF to support ATC 90-degree direct clearances, however, the length of this straight segment added to the track flown around the RF can easily exceed 15 NM. Keeping the intermediate segment within 15 NM of the airport grants more accurate terrain clearance while the aircraft is on the intermediate segment with a 500' ROC than does the limit to total length. This is limiting the ability to design intermediate segments for terrain or obstacle avoidance where the segment length needs to be greater than 15 NM.

Recommendation

The Navigation WG recommends that 8260.58A take exception to the sentence related to intermediate segment length in 8260.3C, Section 2-5-3, item (b) (1). 8260.58A should be changed to add the following text:

1. "The intermediate segment length may not be greater than 15 NM unless the nominal track of the entire segment is within 15 NM of the airport reference point. If the intermediate segment requires a stepdown fix, increase the segment ROC for the segment preceding (as flown) the stepdown fix by 5' per tenth of a track mile between the stepdown fix and the final approach fix. The maximum distance from the stepdown fix to the final approach fix is 15 NM."

Discussion / Reasoning

Working Group discussion focused on why the requirement might have been limited to a total segment length of 15 NM. Since the standard ROC for the intermediate is 500', it appears that the segment length limit was a way to limit the errors in barometric altitude that could result from the aircraft being an excessive distance from the altimetry source. In cases where a remote altimetry source is used, the intermediate segment ROC is increased from 500' by an amount governed by distance between the source and the procedure airport, as well as by an amount that reflects the elevation difference. The group concluded that the segment length was an attempt to limit the distance from the airport where the airplane is only protected by the 500' ROC. The revision to the requirement that the WG is recommending solves this problem while simultaneously allowing the segment to have a total length more than 15 NM where needed, as long as the entire path is within 15 NM of the airport. Further, to limit exposure to the smaller 500' ROC when a stepdown fix is employed inside the intermediate segment, the recommendation employs an additive to the segment ROC prior to the stepdown that depends on distance from (elevation above) the final approach fix.