November 30, 2016

Ms. Peggy Gilligan
Associate Administrator for Aviation Safety
Federal Aviation Administration
800 Independence Avenue, S.W.
Washington, D.C. 20591

Dear Peggy:

The Performance-based Operations Aviation Rulemaking Committee (PARC) is pleased to submit the following recommendation of the Navigation Working Group's RF Display Action Team in the attached report.

The PARC Steering Group (SG) setup the RF Display Action Team under the Navigation Working Group (Nav WG) at the request of industry to investigate systems that cannot (and will not in the future) be able to display the RF path terminator on the moving MAP for the system. The Terms of Reference stated: "There is a large population of both regional and business aircraft that either cannot compute the track for an RF leg or cannot display it, which may restrict their operation into NSG1 or NSG2 airports as defined in the PBN Strategy. The action team is asked to propose possible ways of assuring that these aircraft are not excluded from NSG1 and 2 airports as the PBN Strategy is implemented."

The Action Team consisted of Subject Matter Experts (SMEs) that resulted in a thorough analysis, leading to their recommendations on 28 October, which were subsequently supported by the PARC Steering Group during our November discussions. This activity further validates the effectiveness of a forward leaning technical team comprised of operators, manufacturers, and the FAA.

It is the request of the PARC SG, as always, that we be provided a formal response.

The PARC appreciates your continued support of our activities and invites you to join us in a discussion of these recommendations at any time at your convenience. Please call me if you have any questions or would like to set up a discussion.

Sincerely,

Mark Bradley
Chairman, PARC
404-915-2144

Cc : B. DeCleene
M. Steinbicker
L. Volchansky
M. Cramer

NAV WG RECOMMENDATION RF MAP DISPLAY

The PARC SG set up the RF Display Action Team under the Navigation Working Group (NavWG) at the request of NBAA to investigate systems that cannot (and will not in the future) be able to display the RF path terminator on the moving MAP for the system. The Terms of Reference stated: "There is a large population of both regional and business aircraft that either cannot compute the track for an RF leg or cannot display it, which may restrict their operation into NSG1 or NSG2 airports as defined in the PBN Strategy. The action team is asked to propose possible ways of assuring that these aircraft are not excluded from NSG1 and 2 airports as the PBN Strategy is implemented."

The action team has typically met concurrently with the full Nav WG and has reached initial conclusions and recommendations which have now been reviewed and agreed to by the entire Nav WG.

RF Display Recommendations:

The AT and Nav WG members agreed that the context for their recommendations are systems that are RNP-1 capable and can construct an RF as part of a path on an arrival, departure, or the initial, intermediate and missed approach segments of an IAP. The recommendations do not depend on other aspects of A-RNP such as scalable RNP or other, so for a system to be included in the group who could qualify for non-displayed RF ops it does not have to have an A-RNP qualification, RNP-1 is sufficient.

The WG agrees that operation on an RNP-1 path containing an RF without displaying it on the map should be allowed if the aircraft systems and the operator meet a set of preconditions. These preconditions form the recommendation:

1. Recommend that systems / avionics / operators be allowed to operate on paths containing RF without displaying the arc on the MAP if the following conditions are met:
    a. The OEM / aircraft manufacturer demonstrates and documents the RF turn performance of the RNP system using the templates in AC20-138D Appendix 7,
    b. The system has an indication of lateral deviation from the path (CDI or equivalent) while operating on the RNAV / RNP RF portion of the lateral path. This instrument should continuously provide course deviation information relative to the aircraft position on the RF leg.
    c. At a minimum, the system must have either a flight director system providing continuous roll steering commands from the navigation system or a coupled roll steering autopilot,
    d. There must be a moving map display that, at a minimum, displays the aircraft location relative to the start and end points of the RF while traversing the RF,
    e. The navigation system software is at least DO-178 Level C compliant,
    f. The navigation data integrity is controlled by a Type 2 LOA.
2. Recommend that additional guidance on RF operations be included in the AIM and/or pilot handbooks.

October 28, 2016