August 30, 2005

Mr. Nicholas Sabatini
Associate Administrator for Regulation and Certification
Federal Aviation Administration
800 Independence Avenue, S.W.
Washington, D.C. 20591

Dear Nick:

The PARC is pleased to submit the enclosed government/industry consensus recommendations for critical high level policy decisions necessary for the implementation of a Performance based NAS. These recommendations are based upon a review of the document entitled "Concept for a Performance-based National Airspace System" that you sent to PARC.

PARC supports the need for the future NAS to eventually include performance-based navigation, surveillance, and communication concepts. However, at this point, performance-based navigation concepts and capabilities are the most mature. As a result, these PARC recommendations are focused solely on performance-based navigation concepts and capabilities.

PARC tasked its Critical Decisions Working Group (CDWG) to develop recommendations that could be used as the basis for developing a government/industry consensus on the critical high-level policy decisions FAA needs to make to implement the route-to-route separation and obstacle clearance separation standards that are needed to meet system throughout and safety demands in the Performance-based NAS over the next 15 to 20 years. The CDWG was also tasked to provide recommendations on a strategy for transitioning to the Performance-based NAS and the high-level total system navigation performance requirements (accuracy, redundancy, integrity, and availability) required to support the route-to-route separation and obstacle clearance standards that are needed in such a NAS.

The CDWG recommendations were reviewed in detail and a government/industry consensus on those recommendations was developed during the PARC Face-to-Face meetings on 25 – 26 May and 18 – 19 July 2005. This letter outlines PARC recommendations related to the critical decisions the FAA needs to make regarding the performance-based instrument flight operations that are needed and the principles that should be used to transition from current NAS concepts to operations in the Performance-based NAS.

The report represents a significant milestone in the continued implementation of a Performance based NAS. It's positive impact on implementation choices and decisions are due to the efforts of Jerry Davis, and the other members of the Critical Decisions Working Group.

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

Sincerely,

Dave Nakamura
Chairman
Performance-based operations Aviation
Rulemaking Committee

Cc: PARC Members
J. Davis
J. McGraw
J. Williams

Attachment

TYPES OF PERFORMANCE-BASED INSTRUMENT FLIGHT OPERATIONS

PARC recommends that FAA use a "total system performance" concept to establish performance-based instrument flight operations, instead of continuing to use the traditional "equipment that qualifies" concept. This means that any navigation system that meets the total system performance requirements for operations within a certain area or segment of airspace can be authorized to conduct operations therein, regardless of the type of navigation equipment or the navigation sensors used. PARC recommends that FAA establish two types of instrument flight operations in the Performance-based NAS.

1. "RNAV" Operations

The first type of IFR operation is area navigation that is coordinate-referenced and performance-based. These operations should be designated as "RNAV" and the term "RNAV" should be re-defined to reflect this type of operation.

PARC recommends that FAA re-define "RNAV" to reflect the principles that these operations are coordinate-referenced; the key navigation performance parameter is a 95% accuracy requirement; and containment monitoring and alerting is not required. It is also recommended that FAA recognize that operational mitigations, such as Radar monitoring, may be required for certain "RNAV" operations.

PARC recommends that FAA state that the following equipment fits are generally expected to meet, where coverage is adequate, the performance requirements for "RNAV" operations.

- FMS with DME/DME (or equivalent navigation equipment).
- FMS with DME/DME/IRU (or equivalent navigation equipment), including operations where small gaps in coverage are shown to be acceptable.

2. "RNP" and "RNP SAAAR" Operations

The second type of IFR operations is area navigation that is coordinate-referenced and containment-based. These operations should be designated as Required Navigation Performance ("RNP"), with a subset designated as RNP Special Aircraft and Aircrew Authorization Required ("RNP SAAAR"), and these terms should be appropriately defined to reflect these types of operations.

a. "RNP" Operations

PARC recommends that FAA define "RNP" to reflect the principles that these operations are coordinate-referenced and the key parameters for "RNP" operations are a navigation performance requirement for 95% accuracy and monitoring that the system is within twice the "RNP" value specified for any particular phase of flight (i.e., containment achieved). It is recommended that FAA also base implementation of "RNP" operations on the functional characteristics of TSO-C129A and TSO-C146a systems. It is further recommended that FAA state that certain advanced features, (such as the capability to fly RF legs or conduct Time of Arrival control) are not required for "RNP" operations.

PARC recommends that FAA state that the following equipment fits are generally expected to meet the performance requirements for all "RNP" operations.

- GPS (TSO-C129 Class A) and WAAS (TSO-C146a) panel-mount systems (except for all "RNP SAAAR" operations).
- FMS (or equivalent) with TSO-C129A or TSO-C146a sensors that are installed in accordance with AC 20-130 (except for some "RNP SAAAR" operations).
- Current production Airbus, Boeing, Gulfstream and similarly equipped aircraft with FMS/GPS/IRS (or equivalent).
- Some FMS's without "RNP" alerting may also be able to qualify for limited "RNP" operations depending on an evaluation of the capability of the FMS and an examination of the specific facilities that are available.

b. "RNP SAAAR" Operations

PARC recommends that FAA define "RNP SAAAR" to reflect the principles that these operations are coordinate-referenced and the key parameters for "RNP SAAAR" operations are navigation performance requirement for 95% accuracy and monitoring that the system is within twice the "RNP" value specified for any particular phase of flight (i.e., containment achieved). It is recommended that FAA also establish that special aircraft and aircrew authorization is required before an operator can conduct these operations due to certain advanced features (such as the capability to fly RF legs or conduct Time of Arrival control) and the special training/qualification that may be required for these operations.

PARC recommends that FAA state that the following equipment fits are generally expected to meet the performance requirements for "RNP SAAAR" operations.

- Current production Airbus, Boeing, Gulfstream and similarly equipped aircraft with FMS/GPS/IRS (or equivalent).

TRANSFORMATION CONCEPTS

To facilitate and expedite implementation of the Performance-based NAS, PARC recommends that FAA establish or amend its national policies, guidance, direction, and rules, as appropriate, to:

- Recognize that ICAO "RNP-10" and "RNP-4" operations will not change in the foreseeable future, even in nomenclature.
- Assure that no operator loses, during the transition period, an operation that is conducted under IFR today.
- Accommodate the fact that VOR, DME, and ILS systems will used for a long time.
- Implement in the near term, "RNAV everywhere" recognizing that operational mitigations may be required.
- Implement in the near term, "RNP where beneficial" and, as the fleet matures in the mid term, transition to "RNP everywhere."
- Implement "RNP SAAAR where beneficial" through the transformation to a Performance-based NAS. This includes concepts to permit:

- ILS / “RNP SAAAR” Simultaneous Independent Parallel and Simultaneous Independent Converging Approach operations for mixed fleets.
- “RNP SAAAR” / “RNP SAAAR” Simultaneous Independent Parallel and Simultaneous Independent Converging Approach operations for properly equipped fleets when “RNP SAAAR” capabilities become dominant at an airport.

- Base all new operations in the Performance-based NAS on an airspace or route "Containment" concept.
- Base aircraft separation standards and instrument flight procedures (obstacle clearance standards) on “Containment” concepts and “RNP” or “RNP SAAAR” capabilities.
  - Base route-to-route separation standards on 4 x RNAV, with an operational mitigation such as Radar, or 4 x RNP (without an operational mitigation), as appropriate.
  - Base obstacle clearance criteria on ± 2 x RNAV, with an operational mitigation such as Radar, or ± 2 x RNP (without an operational mitigation), as appropriate.

1. Interoperability Recommendations

PARC recommends that FAA implement “RNAV” operations so that all “RNP” and “RNP SAAAR” operators can also conduct those operations. PARC further recommends that FAA implement all “RNP” operations so that any “RNP SAAAR” aircraft can also conduct those operations. Implementing these recommendations will provide the following Performance-based NAS interoperability.

- Operators with “RNAV” approvals can only conduct “RNAV” operations.
- Operators with “RNP” approvals can fly all “RNAV” and all “RNP” operations (except for “RNP SAAAR”)
- Operators with “RNP SAAAR” approvals can conduct all “RNAV”, “RNP”, and authorized “RNP SAAAR” operations.

2. “Public” and “Special” Instrument Flight Procedures

PARC recommends that FAA issue performance-based instrument flight procedures for “RNAV’, “RNP”, and “RNP SAAAR” as “Public” procedures. PARC also recommends that FAA continue to permit operators to retain the option to develop “Special” procedures for unique situations where the “Public” criteria do not meet the operational and safety needs of an operator or group of operators.

RECOMMENDED OPERATIONAL CAPABILITIES AND CHARACTERISTICS

PARC recommends that FAA make the critical high-level policy decisions required to implement the following route-to-route separation and obstacle clearance separation standards that are needed to meet system throughout and safety demands in the Performance-based NAS over the next 15 to 20 years. It is also recommended that FAA

implement the associated high-level total system navigation performance requirements (accuracy, redundancy, integrity, and availability) required to support these route-to-route separation and obstacle clearance standards.

1. Oceanic and Remote Areas

In Oceanic and Remote Areas, PARC recommends that FAA continue implementation of 50 nm route-to-route separation criteria and ± 20 nm obstacle clearance criteria for operators that are approved to conduct these operations with equipment that meets the "ICAO RNP-10" navigation performance requirement (which under the PARC endorsed concepts would normally be classified as "RNAV-10"). PARC recommends that FAA retain the "ICAO RNP-10" nomenclature for these operations to assure international harmonization.

- PARC notes that FAA has not yet developed obstacle clearance criteria for this operation and has tasked its CDWG to develop recommendations for the priority of this work.

In the near term, PARC recommends that FAA implement 30 nm composite route-to-route separation criteria and ± 8 nm obstacle clearance criteria for operators that are approved to conduct these operations with equipment that meets the "ICAO RNP-4" navigation performance requirement (which under the PARC endorsed concepts would normally be classified as "RNAV-4"). PARC recommends that FAA retain the "ICAO RNP-4" nomenclature for these operations to assure international harmonization.

- PARC notes that FAA has not yet finalized policies and criteria for this operation and has tasked its CDWG to develop recommendations for the priority of this work.

In the far term, PARC recommends that FAA implement 16 nm composite route-to-route separation criteria and ± 8 nm obstacle clearance criteria "where beneficial" for operators that are approved to conduct these operations with equipment that meets the RNP-4 navigation performance requirement.

2. U.S. Domestic En Route

For U.S. Domestic En Route operations, PARC recommends that FAA continue implementation of an effort to achieve 8 nm (4 x RNAV) route-to-route separation and ± 4 nm (± 2 x RNAV) obstacle clearance criteria for operators that are approved for these operations with equipment that meets a RNAV-2 navigation performance requirement over those routes. PARC recommends that FAA use Radar as an operational mitigation to assure containment for these operations.

- PARC notes that FAA has not yet established a minimum route-to-route separation of 8 nm and ± 4 nm obstacle clearance criteria for these operations and has tasked its CDWG to develop recommendations for the priority of this work.

In the near term, PARC recommends that FAA implement 8 nm (4 x RNP) route-to-route separation and ± 4 nm (± 2 x RNP) obstacle clearance criteria "everywhere" for operators that are approved for these operations with equipment that meets a RNP-2 navigation performance requirement over those routes. PARC recommends that FAA should not require Radar as an operational mitigation to assure containment for these operations.

- PARC notes that FAA has not yet established a minimum route-to-route separation of 8 nm and ± 4 nm obstacle clearance criteria for these operations and has tasked its CDWG to develop recommendations for the priority of this work.

In the far term, PARC recommends that FAA implement 4 nm (4 x RNP) route-to-route separation and ± 2 nm (± 2 x RNP) obstacle clearance criteria "where warrented" for operators that are approved for these operations with equipment that meets a RNP-1 navigation performance requirement over those routes. PARC recommends that FAA should not require Radar as an operational mitigation to assure containment for these operations.

3. U.S. Terminal Areas

For U.S. Terminal Areas, PARC recommends that FAA continue implementation of an effort to achieve 8 nm (4 x RNAV) route-to-route separation and ± 4 nm (± 2 x RNAV) obstacle clearance criteria for transiting Terminal Airspace including Class B Airspace for operators that are approved for these operations with equipment that meets a RNAV-2 navigation performance requirement over those routes. PARC recommends that FAA use Radar as an operational mitigation to assure containment for these operations.

- PARC notes that FAA has not yet developed obstacle clearance criteria for this operation and has tasked its CDWG to develop recommendations for the priority of this work.

In the near term, PARC recommends that FAA implement 4 nm (4 x RNAV) route-to-route separation and ± 2 nm (± 2 x RNAV) obstacle clearance criteria "everywhere" for operators that are approved for these operations with equipment that meets a RNAV-1 navigation performance requirement over those routes. PARC recommends that FAA use Radar as an operational mitigation to assure containment for these operations.

- PARC notes that FAA has not yet established a minimum route-to-route separation of 4 nm and ± 2 nm obstacle clearance criteria for these operations and has tasked its CDWG to develop recommendations for the priority of this work.

In the mid term, PARC recommends that FAA implement 4 nm (4 x RNP) route-to-route separation and ± 2 nm (± 2 x RNP) obstacle clearance criteria "everywhere"" for operators that are approved for these operations with equipment that meets a RNP-1 navigation performance requirement over those routes. PARC recommends that FAA should not require Radar as an operational mitigation to assure containment for these operations.

4. "RNAV" and "RNP" Departures

PARC recommends that FAA establish three types of performance-based area navigation departure operations; "RNAV", "RNP", and "RNP SAAAR." It is recommended that FAA adopt a policy for the near term to implement "RNAV" departures "everywhere" and to implement "RNP" departures and "RNP SAAAR" departures "where beneficial". PARC further recommends that FAA adopt a policy for the mid term, as the "RNP" fleet matures, to implement "RNP" departures "everywhere" and continue to implement "RNP SAAAR" departures "where beneficial." It is further recommended that FAA establish the required navigation performance for the various segments of the departure and subsequent

transition to the Terminal Area and En Route environment as the maximum value that provides the desired route-to-route spacing and operating minima.

a. "RNAV" Departures "Everywhere"

In the near term, PARC recommends that FAA implement RNAV-1 and RNAV-2 departures "everywhere" using route-to-route separation that splays from the runway environment to 4 x RNAV and obstacle clearance criteria that splays from the runway environment to ± 2 x RNAV before transitioning to the Terminal Area and En Route route-to-route separation and obstacle clearance standards. It is recommended that these instrument flight procedures be issued as "Public" procedures. PARC recommends that FAA use Radar as an operational mitigation to assure containment for these operations.

b. "RNP" Departures - Near Term "Where Beneficial"; Mid Term "Everywhere".

In the near term, PARC recommends that FAA implement RNP-1 and RNP-2 departures "where beneficial" using route-to-route separation that splays from the runway environment to 4 x RNP and obstacle clearance criteria that splays from the runway environment to ± 2 x RNP before transitioning to the Terminal Area and En Route route-to-route separation and obstacle clearance "RNP" standards. In the mid term, as the "RNP" fleet matures, PARC recommends that FAA implement "RNP" Departures "everywhere" using these route-to-route and obstacle clearance principles and a navigation performance requirement of RNP-1.

It is recommended that these instrument flight procedures be issued as "Public" procedures. PARC also recommends that FAA should not require Radar as an operational mitigation to assure containment for these operations.

c. "RNP SAAAR" Departures "Where Beneficial".

In the near term, PARC recommends that FAA implement "RNP SAAAR" departures "where beneficial" using a maximum navigation performance requirement of RNP-0.3 and a minimum requirement of RNP-0.1. It is recommended that FAA incorporate, as appropriate, early turns using "RF" legs in the departure segment of the procedure. It is also recommended that these departures use a route-to-route separation that splays from the runway environment to 4 x RNP and obstacle clearance criteria that splays from the runway environment to ± 2 x RNP before transitioning to the Terminal Area and En Route separation and obstacle clearance "RNP" standards.

It is recommended that these instrument flight procedures be issued as "Public" procedures. PARC recommends that FAA should not require Radar as an operational mitigation to assure containment for these operations.

- PARC recognizes that it is likely that dual equipment fits will be required to conduct many of these operations.

5. "RNP" Approaches and Missed Approaches "Everywhere"

PARC recommends that, in the near term, FAA implement "RNP" approaches and missed approaches "everywhere" using the following route-to-route separation and obstacle clearance criteria for operators that are equipped with equipment that meets the navigation performance requirements specified for the various segments of the approach and missed approach.

- Initial Approach Segment: route-to route separation of 4 nm (4 x RNP) and ± 2 nm (± 2 x RNP) as the obstacle clearance criteria.
- For the Intermediate Approach Segment, these values are 4 nm and ± 2 nm, respectively.
- For the Final Approach Segment, these values are 1.2 nm and ± 0.6 nm, respectively.
- For the Missed Approach Segment, the minimum values are 4 nm and ± 2 nm, respectively.

PARC also recommends that, in the near term, FAA continue implementation of "ILS" and "ILS-like" route-to-route separation and obstacle clearance criteria "everywhere" for ILS and SBAS (WAAS) systems and begin implementation of GBAS operations in the far term.

6. "RNP SAAAR" Approaches and Missed Approaches "Where Beneficial"

PARC recommends that FAA continue implementation of "RNP SAAAR" approaches "where beneficial" and, in the near term, expand implementation to include the following performance levels for these operations. It is recommended that FAA incorporate, as appropriate, "RF" legs in the Final Approach Segment with Decision Altitudes at or near 200 feet above the controlling obstacles and early turns using "RF" legs in the Missed Approach Segment. It is further recommended that FAA establish the required navigation performance for the various segments of these approaches and missed approaches as the maximum value that provides the desired route-to-route spacing and operating minima.

- PARC recognizes that it is likely that dual equipment fits will be required to conduct many of these operations.

a. RNP-0.3 for All Approach Segments

PARC recommends that, in the near term, FAA implement "RNP SAAAR" approaches and missed approaches using 1.2 nm (4 x RNP) route-to-route separation and ± 0.6 nm (± 2 x RNP) obstacle clearance criteria for operators that are equipped with navigation systems that meet a navigation performance requirement of RNP-0.3 for all segments of the approach and missed approach. PARC recommends that FAA should not require Radar as an operational mitigation for these operations.

It is also recommended that FAA establish, where possible, an additional set of operating minima that is based on a RNP-1 level of navigation performance in the Missed Approach Segment. This would permit these operations to be conducted by "RNP SAAAR" operators with single equipment fits and provide a MEL dispatch option for operators with dual equipage. FAA should not require Radar as an operational mitigation for these operations.

b. RNP-0.1 for Single Equipment Fits and MEL Dispatch

PARC recommends that, in the near term, FAA implement "RNP SAAAR" approaches and missed approaches using the following route-to-route separation and obstacle clearance criteria for operators that are equipped with equipment that meets the navigation performance requirements specified below for the various segments of the approach and

missed approach. Using these criteria will permit RNP-0.1 operations to be conducted by "RNP SAAAR" operators with single equipment fits and provide a MEL dispatch option for operators with dual equipage. PARC recommends that FAA should not require Radar as an operational mitigation for these operations.

- For the Initial Approach, Intermediate Approach, and Final Approach Segments: route-to route separation of 2400 feet (4 x RNP) and ± 1200 feet (± 2 x RNP) as the obstacle clearance criteria for operators that are equipped with navigation systems that meet a navigation performance requirement of RNP-0.1 over these approach segments.
- For the Missed Approach Segment, the minimum values for route-to-route separation and obstacle clearance criteria are 4 nm and ± 2 nm, respectively.

c. RNP-0.1 for All Approach and Missed Approach Segments

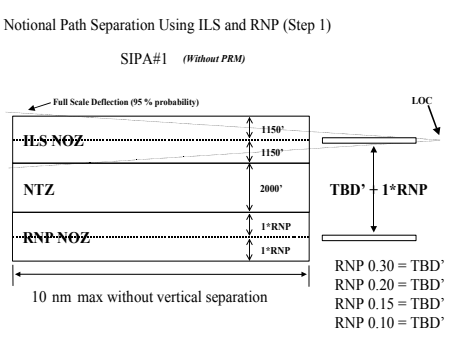
PARC recommends that, in the near term, FAA implement "RNP SAAAR" approaches and missed approaches using 2400 feet (4 x RNP) route-to-route separation and ± 1200 feet (± 2 x RNP) obstacle clearance criteria for operators that are equipped with navigation systems that meet a navigation performance requirement of RNP-0.1 for all segments of the approach and missed approach. PARC recommends that FAA should not require Radar as an operational mitigation for these operations.

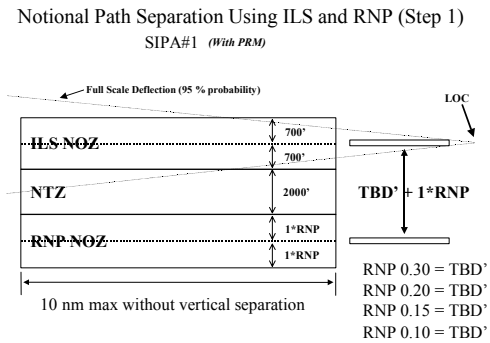
7. Simultaneous Independent Parallel Approaches (SIPA) "Where Beneficial"

PARC recommends, in the near term, that FAA conduct the operationally oriented testing and analysis that is required to begin, as expeditiously as possible, implementation of ILS/"RNP SAAAR" and "RNP SAAAR"/"RNP SAAAR" Simultaneous Independent Parallel Approaches (SIPA). PARC further recommends that FAA adopt a policy to develop a new set of blunder assumptions that are based on actual operational data and, based on the results of that testing and analysis, expeditiously implement ILS / "RNP SAAAR" and ILS / ILS SIPA "where beneficial." As the "RNP SAAAR" fleet becomes dominate at a particular airport, it is recommended that FAA expeditiously implement "RNP SAAAR" / "RNP SAAAR" SIPA to increase operating efficiency and schedule reliability.

a. ILS / "RNP SAAAR" SIPA Using the Existing Blunder Assumptions

PARC recommends that FAA adopt a policy to expeditiously implement ILS / "RNP SAAAR" SIPA approaches "where beneficial" to provide a viable transition strategy for the mixed equipage that will persist in the U.S. fleet until at least the mid term and to improve operating efficiency, increase access to airports, and increase schedule reliability. It is recommended that FAA adopt a policy to first implement ILS / "RNP SAAAR" SIPA, both with and without the use of Precision Runway Monitor (PRM), using the existing blunder assumptions.



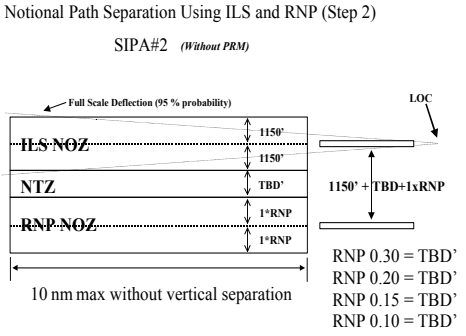


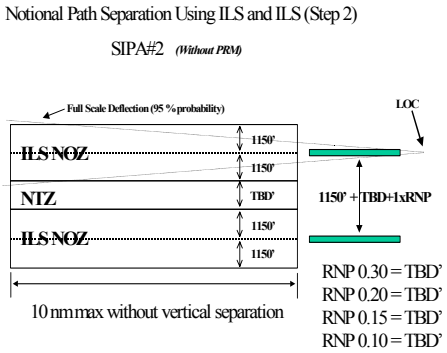
- PARC recognizes that a limited amount of analysis will likely be required to establish the minimum runway spacings that can be used for these operations and recommends that this analysis and evaluation begin as expeditiously as possible.

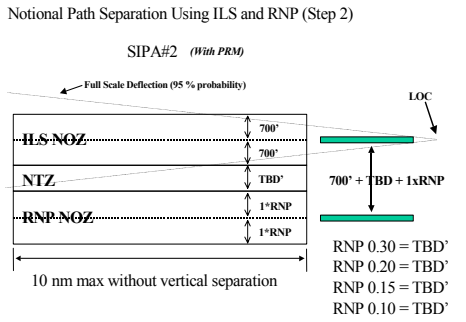
b. ILS / "RNP SAAAR" and ILS / ILS SIPA Using New Blunder Assumptions

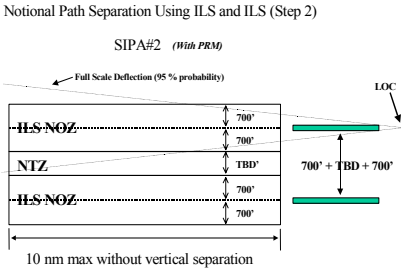
PARC further recommends that FAA adopt a policy to develop a new set of blunder assumptions that are based on actual operational data and, based on the results of that testing and analysis, expeditiously implement ILS / "RNP SAAAR" and ILS / ILS SIPA "where beneficial", both with and without PRM.

- PARC recognizes that operationally oriented testing and data collection is required to establish the characteristics of a blunder in modern "RNP SAAAR" aircraft and determine the minimum runway spacings that can be used for these operations. Therefore, PARC recommends that the operational testing, analysis, and evaluation begin as expeditiously as possible to permit these approaches to be implemented "where beneficial" by the end of the near term.





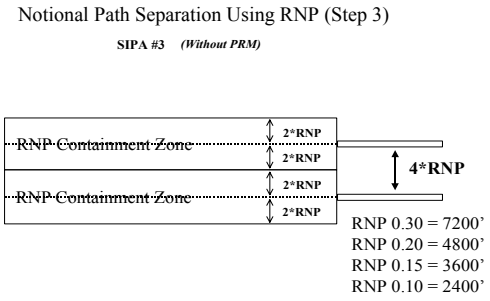




c. RNP SAAAR / "RNP SAAAR" SIPA Using Containment Principles

As the "RNP SAAAR" fleet becomes dominate at a particular airport, it is recommended that FAA expeditiously implement Containment-based "RNP SAAAR" / "RNP SAAAR" SIPA to increase operating efficiency and schedule reliability.

- PARC recommends that FAA establish a high priority for implementing "RNP SAAAR" / "RNP SAAAR" SIPA and expeditiously conduct the operationally oriented testing and evaluation required to determine the minimum runway spacing for these operations, which could be at or very close to the current "Wake Vortex" limits.



8. Simultaneous Independent Converging Approaches (SICA) "Where Beneficial"

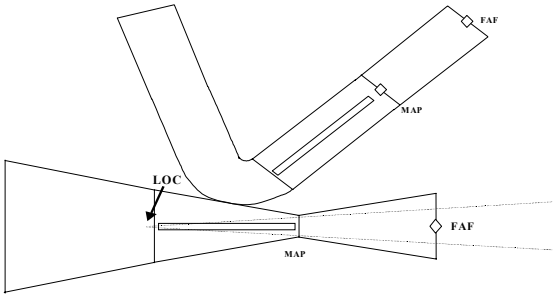
PARC recommends, in the near term, that FAA conduct the operationally oriented testing and analysis that is required to begin implementation of ILS / "RNP SAAAR" and "RNP SAAAR" / "RNP SAAAR" Simultaneous Independent Converging Approaches (SICA) as expeditiously as possible. PARC further recommends that FAA expeditiously re-examine the need for the current 3 nm restriction between the missed approach points on the two converging approaches and begin the operationally oriented testing and analysis required to implement ILS / "RNP SAAAR" and ILS / ILS SICA "where beneficial." As the "RNP SAAAR" fleet becomes dominate at a particular airport, it is recommended that FAA expeditiously implement "RNP SAAAR" / "RNP SAAAR" SICA to increase operating efficiency and schedule reliability.

- PARC recognizes that implementation of ILS / "RNP SAAAR" and "RNP SAAAR" / "RNP SAAAR" SICA operations have fewer runway combinations where these capabilities could be implemented and therefore, the NAS-wide impact of the increased operating efficiency, improved airport access, and increased schedule reliability is less significant that implementation of SIPA approaches, which can be implemented at many more airports. Nevertheless, PARC recognizes that implementation of SICA operations can have a major positive effect on operations at a number of capacity constrained airports, such as ORD, DFW, and PHL.

a. ILS / "RNP SAAAR" SICA Without the Current 3 nm Restriction

PARC recommends that FAA adopt a policy to implement ILS / "RNP SAAAR" SICA approaches "where beneficial" to provide a viable transition strategy for the mixed equipage that will persist in the U.S. fleet until at least the mid term and to improve operating efficiency, increase access to airports, and increase schedule reliability at certain capacity constrained airports.

Notional Simultaneous Independent Converging Approaches
Mixed Fleet - ILS / RNP



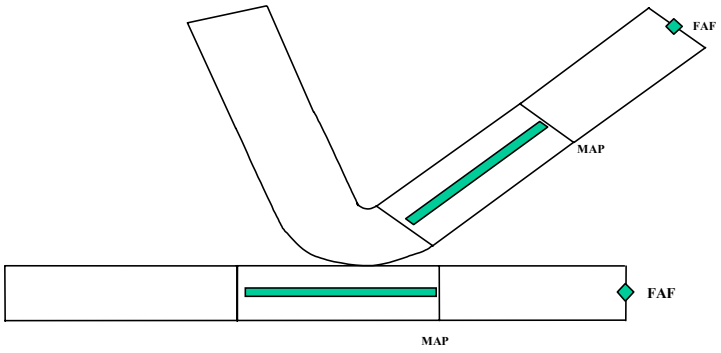
- PARC recognizes that the current 3 nm restriction between the two missed approach point is the largest constraint to implementing converging approaches and recommends that operationally oriented evaluation and testing and analysis be completed expeditiously to eliminate this restraint.

b. RNP SAAAR / "RNP SAAAR" SICA Using Containment Principles

As the "RNP SAAAR" fleet becomes dominate at a particular airport, PARC recommends that FAA expeditiously implement Containment-based "RNP SAAAR"/"RNP SAAAR" SICA "where beneficial" to increase operating efficiency and schedule reliability.

- PARC recommends that FAA undertake the operationally oriented evaluation and testing and analysis required to implement "RNP SAAAR" / "RNP SAAAR" SICA.

Notional Simultaneous Independent Converging Approaches
(RNP SAAAR Fleet)



SUMMARY

The Performance-based Operations Aviation Rulemaking Committee (PARC) has completed its review of the document entitled "Concept for a Performance-based National Airspace System". This letter forwards a number of recommendations that resulted from the government/industry consensus developed during this review.

PARC has developed a government/industry consensus on the critical high-level policy decisions FAA needs to make to implement the route-to-route separation and obstacle clearance separation standards that are needed to meet system throughout and safety demands in the Performance-based NAS over the next 15 to 20 years. PARC has also developed a consensus on a strategy for transitioning to the Performance-based NAS and the high-level total system navigation performance requirements (accuracy, redundancy, integrity, and availability) required to support the route-to-route separation and obstacle clearance standards that are needed in such a NAS.

PARC recognizes the need for the future NAS to eventually be based on performance-based navigation, surveillance, and communication concepts. However, at this point, performance-based navigation concepts and capabilities are the most mature. As a result, these PARC recommendations are focused solely on performance-based navigation concepts and capabilities.

PARC recommends that FAA adopt the transformation concepts, operational capabilities and associated principles identified herein. PARC further recommends that FAA establish all performance-based operations as RNAV, RNP, or "RNP SAAAR" and re-define these terms as performance-based.

There is a PARC consensus that, in the near term, FAA should implement "RNAV everywhere" and "RNP" and "RNP SAAAR" "where beneficial" and, in the mid term, the implementation should transition to "RNP everywhere" and "RNP SAAAR where beneficial".

To facilitate implementation of the Performance-based National Airspace System, PARC recommends that FAA:

- Designate FMS/DME/DME and FMS/DME/DME/IRU as "RNAV" systems.
- Designate TSO-C129A and TSO-C146A systems as "RNP" systems.
- Designate systems meeting Draft AC 90-RNP SAAAR as "RNP SAAAR" systems.
- Base all new operations in the Performance-based NAS on an airspace or route "Containment" concept.
- Base aircraft separation standards and instrument flight procedures (obstacle clearance standards) on "Containment" concepts and "RNP" or "RNP SAAAR" capabilities.
    - Base route-to-route separation standards on 4 x RNAV, with an operational mitigation such as Radar, or 4 x RNP (without an operational mitigation), as appropriate.
    - Base obstacle clearance criteria on ± 2 x RNAV, with an operational mitigation such as Radar, or ± 2 x RNP (without an operational mitigation), as appropriate.
- Implement "RNAV" operations so that all "RNP" and "RNP SAAAR" operators can also conduct those operations.

- Implement all "RNP" operations so that any "RNP SAAAR" aircraft can also conduct those operations.
- Implement all Performance-based operations so that operators with "RNP SAAAR" approvals can conduct all "RNAV", "RNP", and authorized "RNP SAAAR" operations.
- Issue performance-based instrument flight procedures for "RNAV', "RNP", and "RNP SAAAR" as "Public" procedures and continue to permit operators to retain the option to develop "Special" procedures for unique situations where the "Public" criteria do not meet the operational and safety needs of an operator or group of operators.
- Significantly increase the production rate for Performance-based instrument flight procedures so it is easier for operators to develop a business case for retrofitting Performance-based navigation systems and to rapidly improve operating efficiency, increase airport access, increase schedule reliability, improve system throughput throughout the NAS, and further enhance aviation safety.

FOLLOW ON WORK

PARC hereby informs FAA that it has also tasked the Critical Decisions Working Group to develop implementation priorities for the capabilities discussed herein and to continue to complete the work specified in its TOR. It is expected that a PARC consensus on these priorities will be developed at or prior to the next PARC Face-to-Face meeting in November 2005.

For its future work on these tasks, PARC intends (with FAA concurrence) to begin tasking implementation teams to develop detailed implementation plans for each "needed capability" once consensus on priorities is reached. The tasks envisioned for the implementation teams are to identify any operational oriented testing that is needed and develop recommended implementation policies, procedures, practices, and guidance for manufacturers, operators, inspectors, controllers, and airmen that are needed to expedite implementation of the capabilities identified herein.