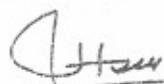


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The following Circular is issued for information, guidance, and compliance.


H.S. KHOLA**Director General of Civil Aviation**

**REVISED ATS ROUTE STRUCTURE ASIA TO MIDDLE
EAST/EUROPE SOUTH OF THE HIMALAYAS [EMARSSH
PROJECT] AND RELATED RNAV AND RNP ISSUES FOR
ENROUTE AIRSPACE**

1 INTRODUCTION

- 1.1 The revised ATS route structure - Asia to Middle East/Europe, South of the Himalayas [EMARSSH] Project, is an initiative of participating States and international organizations, which has been recognized and endorsed by ICAO as a significant development in the interests of safety, efficiency and capacity enhancements.
- 1.2 The EMARSSH project in cooperation with States, ICAO Regional Offices [Asia/Pacific, Middle East and Europe/North Atlantic] and IATA has developed plans for a revised ATS route structure that will take advantage of existing and on-going CNS/ATM technologies.

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- 1.3 The revised route structure within Indian FIRs is currently being finished and will be published by AIP Supplement. The target date for implementation is 28th November 2002.
- 1.4 India in conjunction with other States, is progressing in implementation of RNP 10 on the designated airspace in order to provide
- a. improved utilization of airspace through the application of reduced lateral separation;
 - b. operational benefits achieved by fewer restrictions on cruise speed;
 - c. standardization through the adoption of an ICAO endorsed navigation requirement.

REQUIRED NAVIGATION PERFORMANCE [RNP10]

- 2.1 RNP is defined as a statement of the navigation performance accuracy necessary for operation within a defined airspace and is based on a navigation performance accuracy value which is expected to be achieved at least 95% of the time by the population of aircraft operating within the airspace.
- 2.2 Aircraft flying RNP 10 beyond NAVAID use limitations are required to be equipped with at least two independent and serviceable Long Range Navigation systems [LRNSs] comprising INS, IRS/FMS or GPS.
- 2.3 Aircraft with RNP 10 operational must meet a cross track keeping accuracy and along track positioning accuracy no greater than +/- 10NM for 95% of the total flight time in RNP 10 airspace. The total system error

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[TSE] in each dimension includes positioning error, flight technical error [FTE], path definition error and display error.

2.4 Further information on RNP, including the approval process, is contained within ICAO Document 9613—AN/937, Manual On Required Navigation Performance [RNP], Additional information can be found in ICAO Annex II and Regional Supplementary Procedures [Doc. 7030].

3. RNP10 AND RNAV OPERATIONS ON EMARSSH ROUTES

3.1 Many EMARSSH routes will be allocated an RNAV route designator, and carry an RNP10 requirement.

4. NON—COMPLIANT AIRCRAFT

ATC will endeavour to accommodate aircraft not meeting RNP 10 criteria within the designated airspace/route

5. IMPLEMENTATION PROGRESS

Details of the implementation process will be notified separately.

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[K RAMALINGAM]
MEMBER [PLANNING]