



5.2 Aircraft may track via a flight plan preferred track between these gates. Prior to entering or after exiting the AORRA at a particular gate, aircraft are to comply with the fixed route structure associated with that particular entry or exit point or as instructed by ATC, and are required to flight plan accordingly.

5.3 Prior to entering or after exiting the AORRA from/to Angolan Oceanic airspace, operators are to flight plan so as to cross the Angolan Oceanic FIR boundary at the significant point established on the FIR boundary and which is associated with the fixed route on which they intended operating while in that airspace.

6 RNAV / RNP ROUTE STRUCTURE WITHIN SOUTH AFRICAN AIRSPACE

6.1 The South-African Civil Aviation Authority (CAA) and Air Traffic and Navigation Services Company (ATNS) have concluded the trial period of the RNAV/RNP Routes.

6.2 The following RNAV/RNP routes are now permanently operational:

- a. Johannesburg to Cape Town
- b. Johannesburg to Durban
- c. Durban to Cape Town
- d. Johannesburg to East London
- e. Johannesburg to George
- f. Johannesburg to Port Elizabeth
- g. Durban to Port Elizabeth and Cape Town
- h. Cape Town across the Atlantic Ocean to destination (Oceanic)
- i. Johannesburg across the Atlantic Ocean to destination (Oceanic)
- j. Johannesburg to Zimbabwe and Botswana
- k. Johannesburg to Mozambique and the Middle East
- l. Johannesburg to Mozambique and the Far East
- m. Johannesburg to Eswatini
- n. Johannesburg to Richards Bay

6.3 Operators are to take note that non-compulsory reporting points (waypoints) have been included in the vicinity of crossing points to assist ATC in setting up separations. These reporting points (waypoints) must be available in the FMS in the event that ATC requires a flight to report at the reporting point (waypoint) for separation purposes.

6.4 The RNAV/RNP route structure will be applicable from FL200 and above.

6.4.1 Operators are to note that the RNAV are designed to RNP4 criteria, however aircraft which are capable of operating to RNP5 criteria will be permitted to operate on the routes provided there is continuous radar coverage.

6.4.2 Operators are advised that the next phase will be the implementation of RNP4 on the above mentioned routes. This will have an effect on the accuracy requirement of the airborne navigation equipment and operators who wish to continue to utilise these routes should take note of the following items.

a. REFERENCE MATERIAL:

The latest publication of ICAO document 9613 AN/937 - Manual on Required Navigation Performance (RNP).

b. REFERENCE MATERIAL:

RNP may be specified for a route, a number of routes, an area, volume of airspace or any airspace of defined dimensions (ICAO Doc 9613 AN/937-2.3.1).

c. AIRCRAFT NAVIGATION PERFORMANCE:

The concept of RNP is based on the expected navigation performance accuracy of the population of aircraft using the airspace. This in turn places demands on individual aircraft, manufacturers of aircraft and aircraft operators to achieve the navigation performance required for a specific RNP type airspace on each flight. (ICAO DOC 9613-2.4.1).

d. CONTAINMENT PROBABILITY:

RNP types for en-route operations are established according to navigation performance accuracy in the horizontal plane, that is, lateral and longitudinal position fixing. The containment value is the distance from the intended position within which flights would be found for at least 95% of the total flight time.

e. REQUIRED NAVIGATION PERFORMANCE (RNP) TYPES.

RNP types (ICAO Doc 9613 AN/937-3.3.2) The RNP types most commonly used are 1.0, 4.0, 10, 12.6 and 20. The RNP type to be used within the South African domestic RNAV route structure will be RNP4. (Ref. Para 6.4.1 and 6.4.2).

f. AIRWORTHINESS APPROVAL FOR RNAV/RNP OPERATION

(See ICAO Doc 9613 AN/937 Chapter 5 & 6 and RSA AIP ENR 1.3) Operators who wish to make use of the benefits offered by RNAV operation will have to ensure that the navigation equipment required for RNAV/RNP use, installed in their aircraft, is approved by the Airworthiness section of the CAA. This includes onboard equipment associated with VOR/DME, which may be used, where the facilities are within range of the route flown.

g. BENEFITS OF RNAV/RNP ROUTES:

More direct routes permitting a reduction in flight distance.

Dual or parallel routes to accommodate a greater flow of enroute traffic.