



ARABIAN SEA INDIAN OCEAN ATS
COORDINATION GROUP AND INDIAN
OCEAN STRATEGIC PARTNERSHIP TO
REDUCE EMISSIONS WORKING GROUP
MEETING

**ARABIAN SEA INDIAN OCEAN ATS COORDINATION GROUP AND
INDIAN OCEAN STRATEGIC PARTNERSHIP TO REDUCE EMISSIONS
WORKING GROUP MEETING**

DOHA, QATAR 4-5 JUNE 2014

Agenda Item 5: Work Programs for 2014.

Free Route Airspace Concept

(Presented by Maldives)

SUMMARY

The purpose of this information paper is to share Maldives experience on the introduction of free route airspace concept within Male' FIR.

1. INTRODUCTION

1.1 At the ASIOACG/5 Meeting in Dubai, 19th -21st April 2010 Maldives presented a Working Paper, Free route Airspace Concept.

1.2 The concept outlined in the paper was about the development and implementation of Free Route Airspace within Male' FIR.

1.3 Free Route Airspace means a specific airspace within which users can freely plan their routes between an entry point and an exit point, without reference to the Air Traffic Services (ATS) route network. The flights are subject to air traffic control.

1.4 The aim of Free Route Airspace was to remove the constraints imposed by the fixed route structure; and through the optimized use of all the airspace obtains benefits of capacity, flexibility, flight efficiency, cost savings, and reduction of CO2 emission, while maintaining safety standards.

2. **DISCUSSION**

2.1 Concept

Maldives proposed to implement a series of Waypoints separated by 60 nm around the FIR allowing free entry, exit and direct routing between boundary Fixes based on RNAV10 (RNP10) Separation Standards above FL285.

The reason for 60NM is to allow future implementation of 30NM based on RNP4 with minimum changes to the airspace structure.

2.3 Route Designation

Waypoints were designated using the standard ICAO format

Route portions between waypoints were indicated by means of DCT.

2.4 Flight Plan Format:

No change in the ICAO flight-plan format.

2.5 Requirement for ATC

Within FRA, controllers do not have the basic pattern of the route network to act as an aid to traffic management.

Potential conflicts, instead of occurring at known points, are widely dispersed among numerous random points.

Therefore the ATS system was required to have the necessary support tools for surveillance and communication:

- a) SSR or ADS-C
- b) VHF or CPDLC

2.6 Requirement for Aircraft and aircrew:

RNAV 10

2.7 **IMPLEMENTATION**

Maldives implemented Waypoints separated by 60 nm around FIR in coordination with adjacent ANSPs. FIR chart have been amended accordingly. LOAs have been updated to reflect the changes.

LEGEND

Aerodromes

Flight Information Region (FIR)

MALE
UNL
GNOWATER
ACC MALE

Terminal Control Area (TMA)

TMA
FL 450
2500R
519.7

Control Zone (CTR)

CTR
KACHHOO
8500R
118.3

ATS route

G 465
RNP10
FL 450
2500 FT

Reporting Point

compulsory fly-by waypoint
on-request fly-by waypoint
compulsory fly-by intersection

Co-located VOR and DME navigation aids (VORDME)

Compare now entered on the chart to frequency list

Non-Directional Radio Beacon (NDB)

Identification for radio navigation aids (NAAID)

GAN
NDB 317
GN
00° 41' 51.6" S
073° 09' 50.3" E

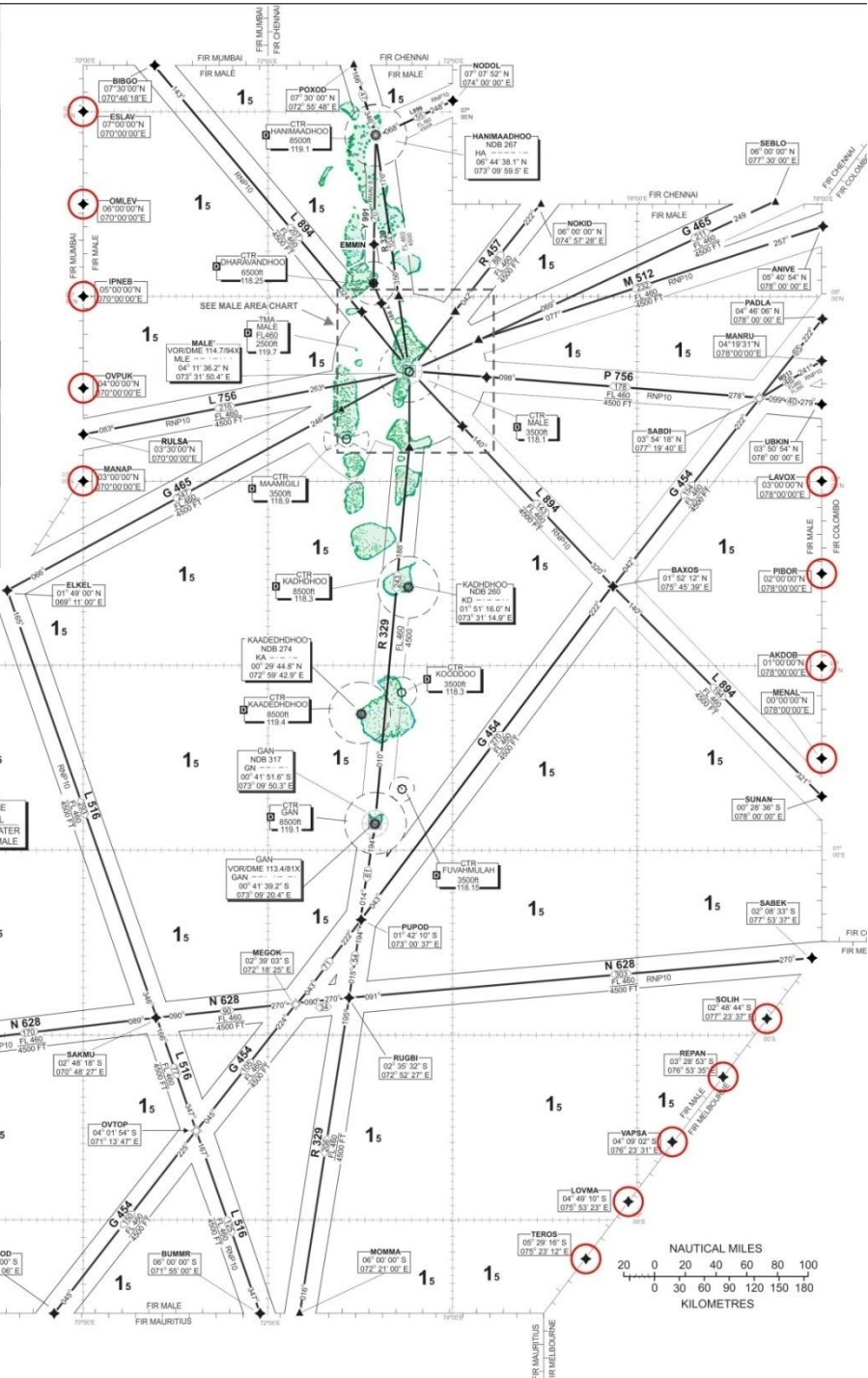
Area Minimum Altitude (AMA)

Each 1° quadrilateral contains an area minimum altitude (AMA) which represents the lowest altitude which may be used under instrument meteorological conditions (IMC). The AMA provides a minimum clearance of 1000 feet above all obstacles in the quadrilateral. It is represented in thousands and hundreds of feet above mean sea level.
Example 1500 feet

AIRSPACE CLASSIFICATION IN THE MALE FIR

| Altitude | Levels | Classification |
|--|------------------------|----------------|
| FIR | 250-450 | A |
| ATS Routes, MALE TMA | Lower limit to 250 | D |
| Control Zone (CTR) | Surface to upper limit | D |
| FIR except ATS Routes, MALE TMA and CTRs | Surface to 250 | G |

RVSM EXCLUSIVE MALE FIR
BTN FL 290 and FL 460 (inclusive)

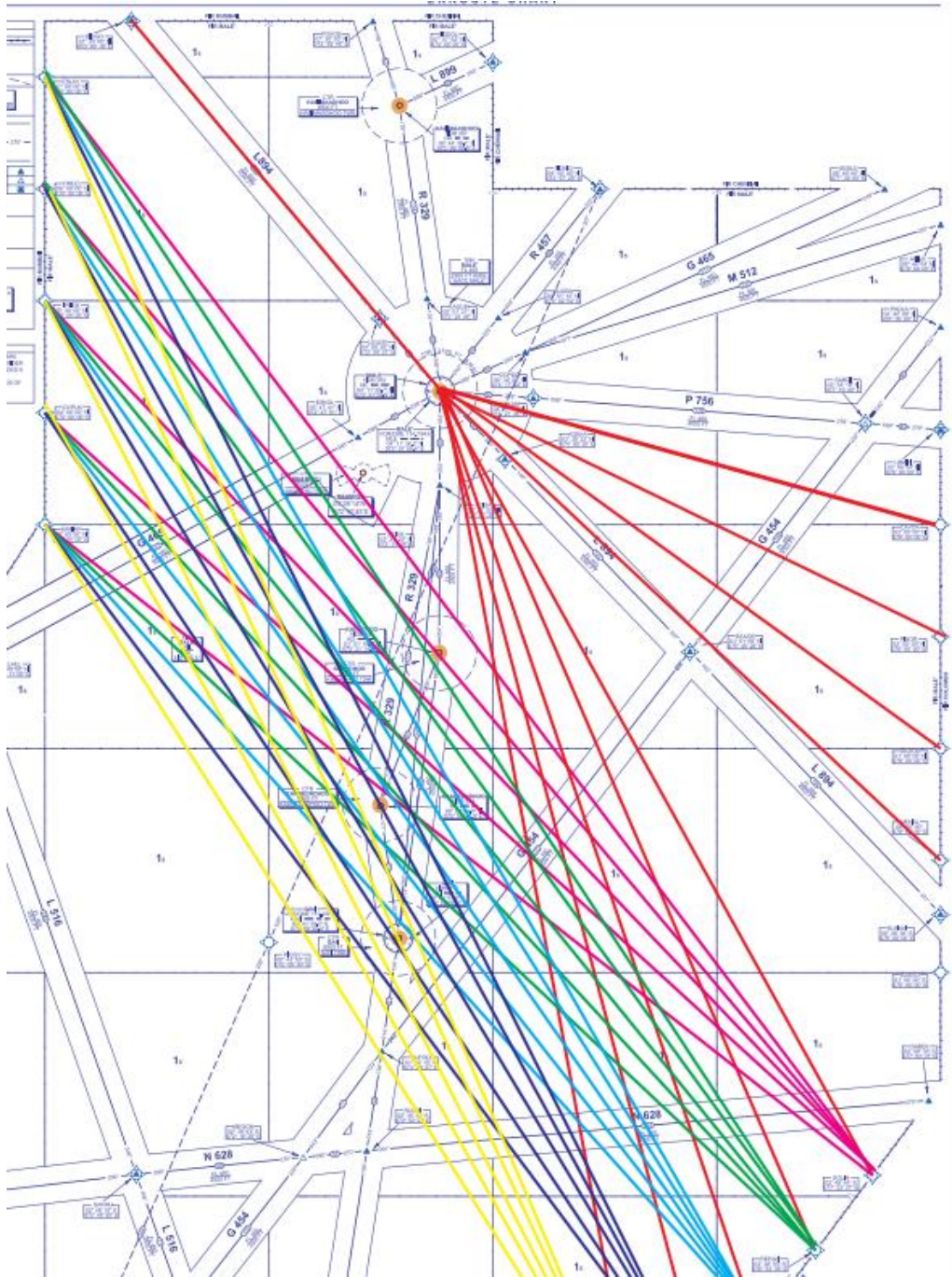


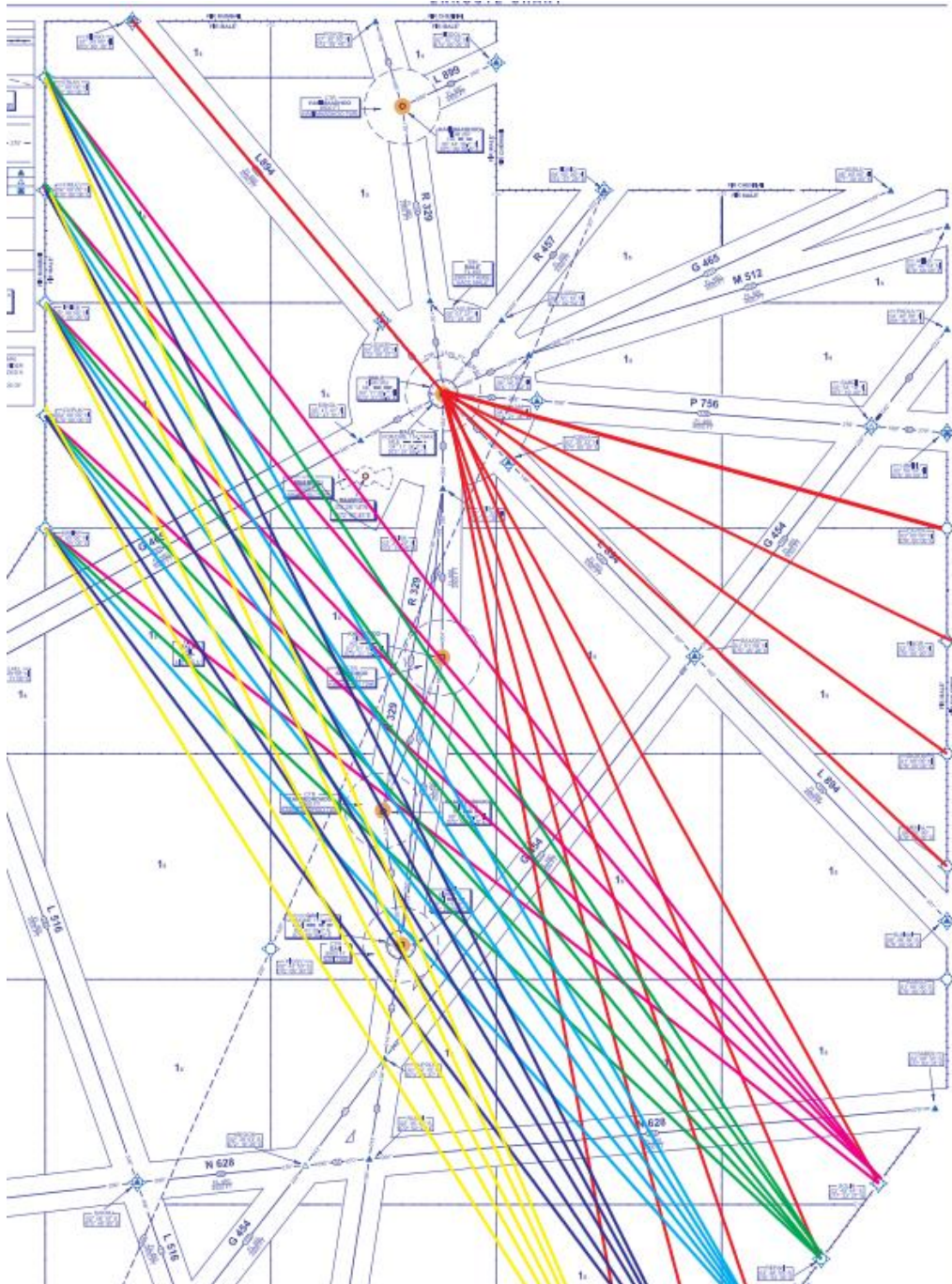
2.8 ATC SEPARATION STANDARDS

- Radar Separation;
- 1000 feet vertical separation;
- 10 minutes longitudinal separation with the application of MNT, if both the aircraft are following the same track (from point of entry to point of exit);
- 50NM longitudinal separation (with ADS-C and CPDLC)

2.9 Without Surveillance

Direct routing is restricted in the absence of surveillance





3. ACTION BY THE MEETING

3.1 The meeting is invited to note the information contained in this paper.