International Civil Aviation Organization

MIDANPIRG/19 & RASG-MID/9 Meetings

(Saudi Arabia, 14-17 February 2022)

Agenda Item 5.8: CNS

DEPLOYMENT OF NEW MONOPULSE SECONDARY SURVEILLANCE RADARS MODE-S IN SAUDI ARABIA

(Presented by Saudi Arabia)

SUMMARY

This paper presents the current status and of the ongoing and future activities and plans for implementation of the new Monopulse Secondary Surveillance Radars Mode-S at Jeddah, Riyadh, Dammam, Jazan, Um Almelh, and Shaibah aiming to improve the surveillance coverage for TMAs and in the Empty Quarter Area within Jeddah FIR.

1. INTRODUCTION

1.1 Under the enhancement of surveillance capabilities within Jeddah FIR, Saudi Air Navigation Services (ANSP) deployed:

a) four (4) new Mode-S Elementary and Enhanced Surveillance Monopulse SSR Radars (250 NM range) at four (4) sites namely Jeddah, Riyadh, Dammam & Jazan;
b) Three Mode-S Elementary and Enhanced Surveillance Monopulse SSR Radars (250 NM range) at Um Almelh and Shaibah covering large areas of the Empty Quarter Area.

1.2 The deployment of these radars was based on the operational requirements aiming to support the Air Traffic Management. (ATM) system with the most accurate tracking information to enhance capacity and accommodate the expected growth of air traffic during the coming years.

2. ATS SURVEILLANCE ENHANCEMENT

2.1 The deployment of new MSSR Mode-S radars is providing:

- Fully redundant and duplicated cooperative surveillance coverage for major TMAs (Jeddah, Riyadh & Dammam),
- New ATC approach service at Jazan considering as an enhancement of the safety and efficiency for air traffic management to cope with the growth of air traffic. The new ATC approach service is provided remotely from Abha Approach Center
- major enhancement of the Enroute Surveillance Coverage within Jeddah FIR from FL 150 and above.
- Extension of ATS surveillance coverage within the empty Quarter Area allowing safe reduction of ATC separation and supporting the evolution and the development of Air Traffic Management (ATM) in Saudi Arabia that is performance-based.

2.2 As consequence of the upgrading of the ATS surveillance capabilities (deployment of new Radars), the following operational ATS surveillance coverage and separation requirements were updated to achieve a long-term viable and effective solution able to meet the regulatory requirements and airspace users' needs and to increase the capacity and efficiency in the airspace allowing accommodation of the future air traffic growth:

Airspace Segment	Coverage Lateral	Coverage Vertical	Coverage	Separation minimum that can be supported
Enroute	Surrounding airspace around airports with fast-growing traffic	FL115-FL150	Single and redundant Cooperative surveillance	5 NM
Enroute	Entire KSA +/- 40 NM beyond FIR (excluding Empty Quarter)	FL150-FL245	Duplicated Cooperative Surveillance	5 NM
Enroute	Entire KSA +/- 40 NM beyond FIR	FL245-FL600	Duplicated Cooperative Surveillance	5 NM
Major TMAs Dammam Riyadh Jeddah	TMAs + 40 NM beyond	Lower Limit - CTLD Airspace (FL150)	Single PSR + Duplicated Cooperative Surveillance	3 NM

3. ACTION BY THE MEETING

3.1 The meeting is invited to take note of:

a) the information described in this paper;

b) the initiative to enhance ATS surveillance capabilities within Jeddah FIR and to improve the overall Air Traffic Services considering the expected traffic growth from/to MID Region.

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