



ICAO

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First Meeting of the South Asia, Indian Ocean and Southeast Asia ATM Coordination Group (SAIOSEACG/1)

Video Teleconference, 28 March – 1 April 2022

Agenda Item 5: Implementation of CNS/ATM Systems

NEW KUALA LUMPUR FLIGHT INFORMATION REGION (KL FIR) AIRSPACE AND KUALA LUMPUR CNS/ATM COMPLEX (KL ATCC)

(Presented by Malaysia)

SUMMARY

This paper presents an update from Malaysia on the successful implementation of New KL FIR airspace and migration to Kuala Lumpur new CNS/ATM Complex that was done on 17 June 2021 and 31 August 2021 respectively. This paper will discuss the purpose of the implementation/migration and how Malaysia manages the transition including its post-migration operation review.

1. INTRODUCTION

1.1 Previously, the provision of Air Traffic Services in Kuala Lumpur FIR was done in Kuala Lumpur Air Traffic Control Centre in Subang, Malaysia. During the period of early 2000s to 2019, Malaysia experienced a significant growth in air traffic movement particularly in Kuala Lumpur FIR.

1.2 Statistic shows that there was a significant increase in flight movements and to support the growth in KLIA and other major aerodromes within Kuala Lumpur FIR, more airspace sectorization is needed to ensure a smooth air traffic management.

2. DISCUSSION

2.1 In 2012, Malaysia starts the planning of enhancing Kuala Lumpur FIR structure by designing new PBN routes to increase traffic and airspace capacity. It is also to support and maximize Air Traffic Management (ATM) performance across the Asia/Pacific Region.

2.2 The purpose of this implementation is to support the significant growth in traffic movement without compromising the safety. This includes the implementation of Performance-Based Navigation (PBN) in En-route and terminal airspace, approach procedures, enhancement of airspace utilization for civil and military aspect, as well as improvement of traffic flows with the establishment of parallel routes in the En-route phase of flights.

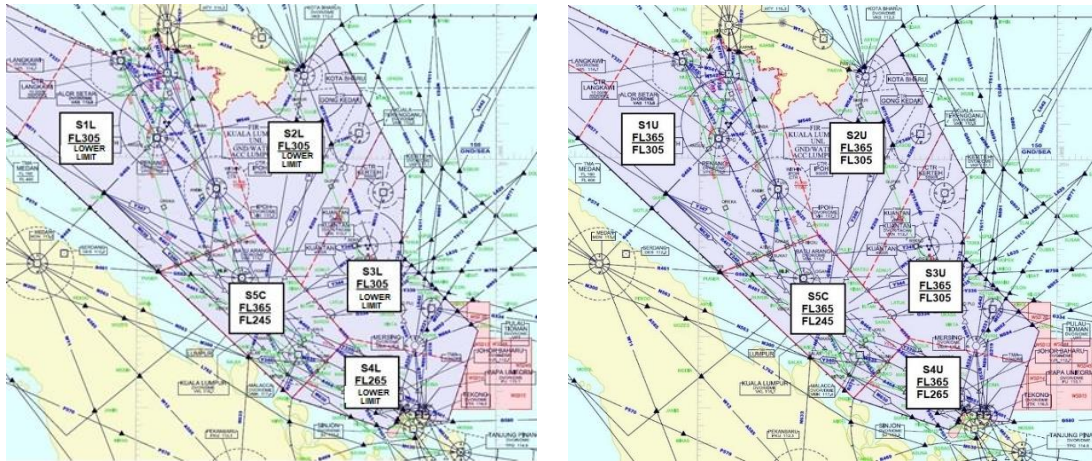
Details of New Kuala Lumpur FIR Airspace

2.3 In order to achieve the capacity performance of 108 movement per hour for triple runway operations in KLIA, new Standard Instrument Departures (SID) and four Standard Instrument Arrival (STAR) with the Point Merge Systems (PMS) concept and introduction of RNAV 1 standard arrival for WMSA were introduced.

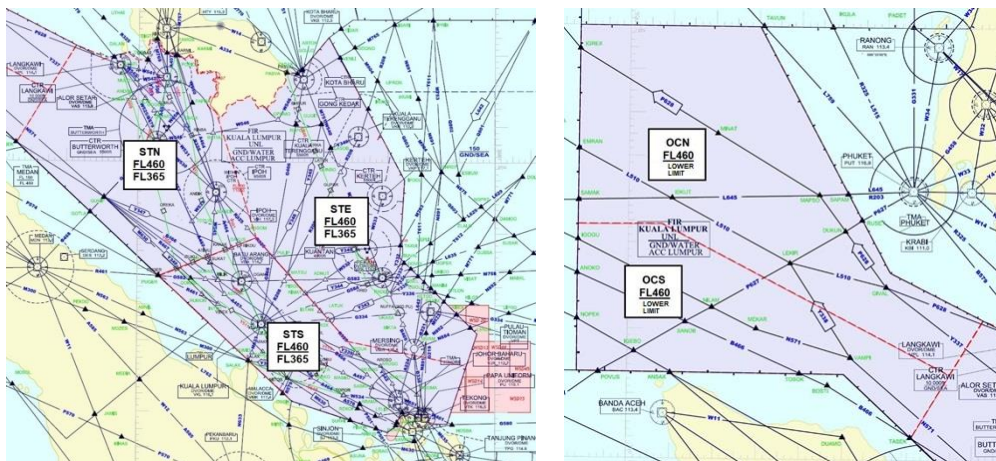
2.4 The new airspace structure also consists of 14 En-route and 13 TMA sectors as compared

to 6 En-route and 10 TMA sectors previously. These additional sectors are meant to accommodate future increase in traffic density, thus reducing controllers workload and transmission congestion.

2.5 The configuration of the airspace for En-route is as follows:

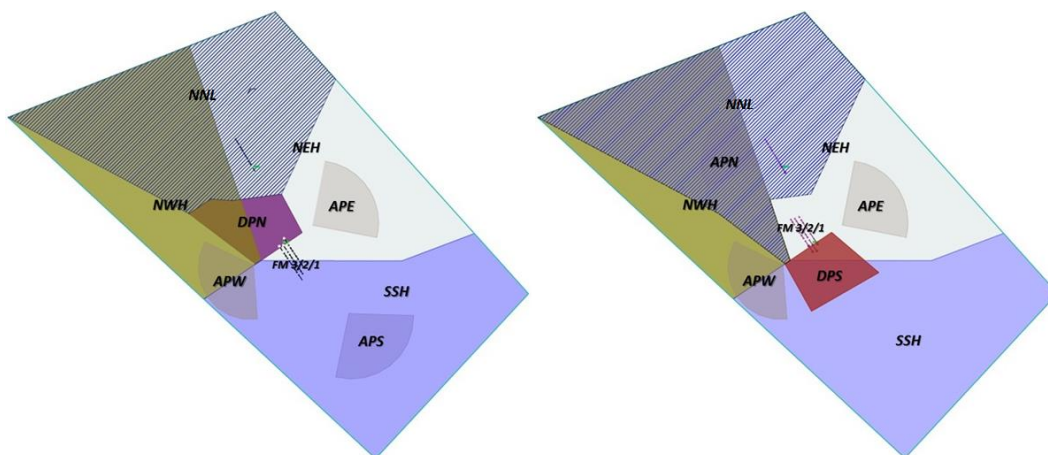


Lower/Upper Sectors and Central Sector



Top Sectors and Oceanic Sectors

2.6 The configuration of the airspace for TMA is as follows:



Sector configuration scenario RWY32/33 and RWY14/15

2.7 New PBN Routes were designed to enable a better traffic management in Kuala Lumpur FIR and the routes are:

- EASTBOUND – Y507, Y508, Y509, Y511, Y512, Y514
- WESTBOUND – Y501, Y502, Y503, Y504, Y506, Y513

2.8 A few of these routes are uni-directional parallel route to ensure a better separation between departing and arriving aircraft into Kuala Lumpur TMA. This arrangement will also provide for environmentally more efficient benefits to airlines as better CCO and CDO can be achieved. The future planning is to upgrade all domestic ATS routes to Regional PBN routes.

2.9 KL TMA was designed with RNP 1 specification.

Details of new CNS-ATM complex

2.10 The new Kuala Lumpur Air Traffic Control Centre (KLATCC) is located at Sepang, which is approximately sixty (60) kilometres away from the old KLATCC complex in Subang. The initial aim of the new complex was to increase the OTP (on time performance) in Kuala Lumpur International Airport (KLIA) and to support the huge amount of traffic growth expected in 2023. This plan is projected to support 108 aircraft movement per hour as compared to the old airspace procedure that can only cater to 84 movement per hour.

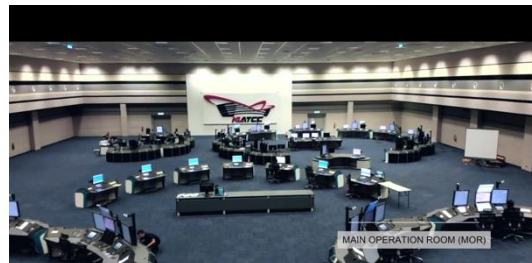
2.11 The new CNS-ATM complex is also expected to support the ASBU block zero (0) and block one (1) upgrade plan as the systems is equipped with Electronic Flights Strips (EFS) capability. This would significantly reduce controller's workload, time and operation cost.

2.12 The new complex also includes Search and Rescue facility and SAROCS that were introduced to improve SAR capability. The installation of COSPAS-SARSAT also enables fast action for any possible emergency situation.

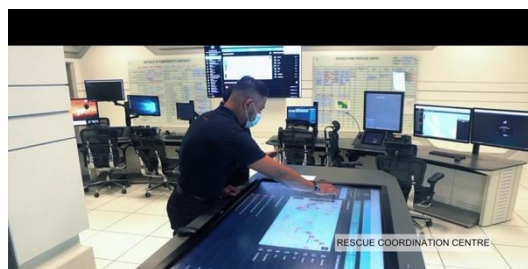
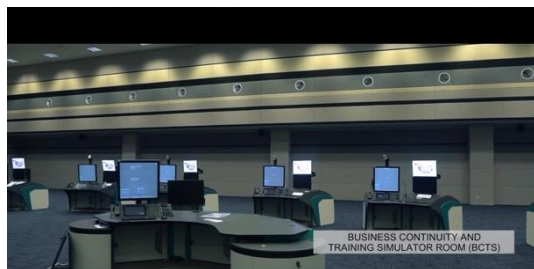
2.13 The operation of the new complex officially started on 31 August 2021 at 1800 UTC. Prior to the migration, trials and pre-Operational Validation (OV) were done to ensure the ATS operation runs smoothly and without any glitch during the migration.

2.14 Early notifications were also sent out to neighbouring ACCs to inform regarding the migration and changes that will take effect after the migration (i.e.: frequencies, IDD telephone numbers and Fax). The changes were also reflected in the Air Traffic Service Coordination Procedure (ATSCP) between States.

2.15 The figures below show some insight of the new Kuala Lumpur Air Traffic Control Centre:



<Aerial view of the complex / inside the Main Operating Room (MOR)>



<Business Continuity & Training Simulator Room (BCTS) / Rescue Coordination Centre (RCC)>

COVID-19 Impact on the project.

2.16 COVID-19 has severely affected domestic and international flight not only in Malaysia but all across the world. In order to curb the spread of the virus, Malaysian government had to impose a stringent travel restriction domestically and internationally. This action significantly reduces the number of air traveller and flights movement drastically in the early 2020.

2.17 Although currently the maximum capacity of the traffic movement designed for the new airspace has yet to be tested in real traffic, Malaysia is positive that the number of traffic movement will eventually increase as per our expectation given that the development of vaccination is progressing rapidly, and more countries are re-opening their borders including Malaysia. With the new airspace structure and improved air traffic facility, Malaysia is fully prepared for the aviation industry to rebound and recover.

3. ACTION BY THE MEETING

- 3.1 The meeting is invited to:
- a) note the information contained in this paper; and
 - b) discuss any relevant matters as appropriate.

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