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07 SEP

IMPLEMENTATION OF AUTOMATIC DEPENDANT SURVEILLANCE (ADS-B) OUT IN MALAYSIA

1 INTRODUCTION

1.1 The upgrading and modernisation of Malaysia's air traffic services is in progress under two separate projects, namely the construction of a new Kuala Lumpur Air Traffic Control Centre Complex near Kuala Lumpur International Airport (KLIA) Project and the upgrading of CNS/ATM Systems in Kota Kinabalu (KK) Flight Information Region (FIR) encompassing Sabah and Sarawak Project. The two said projects are expected to be completed at the end of 2019.

1.2 As part of the modernisation program above, Malaysia plans to introduce ADS-B services within parts of Kuala Lumpur FIR (KL FIR) and Kota Kinabalu FIR.

1.3 The purpose of this AIC is to inform aircraft operators of Malaysia's plan to implement the use of ADS-B OUT services.

2 INTRODUCTION OF ADS-B

2.1 ADS-B is an acronym for Automatic Dependant Surveillance - Broadcast. An ADS-B capable aircraft uses GPS receiver to derive its precise position from GNSS constellation and then combines its identity, velocity and other information to broadcast to ADS-B ground stations which receives and distribute the data to ATS automation systems.

2.2 The ADS-B transmission on 1090 MHz Extended Squitter data link will be used ultimately for the provision of Air Traffic Services within certain specific airspaces to be notified.

2.3 The ADS-B OUT implementation is aimed to extend the ATC surveillance services for Category R and Category S en-route airspace not covered by conventional surveillance services and providing redundancy where radar surveillance is already available. The use of ADS-B in the provision of Air Traffic Services will be introduced in a phased manner.

2.4 Currently, three ADS-B stations are in operation, one in Kuala Terengganu, Terengganu since 2008, one in Genting Highland, Pahang since 22 December 2016 and one in Gunung Raya, Langkawi since 22 June 2017.

2.5 The ADS-B data from the three ground stations mentioned above are currently sent to the existing KL ATCC and in future to the New ATCC complex at Sepang.

2.6 The operational date for KL FIR ADS-B implementation will be notified by NOTAM. (Refer to chart **APPENDIX A** (inset) for details of location for Kuala Lumpur FIR).

2.7 Another four (4) ADS-B stations are planned to be installed within the Kota Kinabalu FIR. The proposed locations are Kuching, Bintulu, Kota Kinabalu and Sandakan. The detailed locations will be notified by subsequent AIC.

3 IMPLEMENTATION OF ADS-B BASED AIRSPACE SURVEILLANCE

3.1 The plan for airspace surveillance using ADS-B will be implemented through the following phases:

3.1.1 **Phase 1 (31 December 2019)**

The surveillance of en-route ATS routes air traffic within certain parts of Kuala Lumpur FIR not covered by radar surveillance will be implemented. Malaysia plans to mandate the compulsory requirement for aircraft to carry serviceable ADS-B on 31 December 2019 when operating on ATS routes N571, P628, L510, P627, L645 and P574 at FL 290 to FL 410 within airspace bounded by Kuala Lumpur FIR boundary from 07° 15' 00'' N 098° 30' 00'' E to 10° 00' 00'' N 096° 30' 00'' E to 10° 00' 00'' N 094° 25' 00'' E to 06° 00' 00'' N 094° 25' 00'' E to 06°00' 00'' N 097°30' 00'' E and thence along a straight line to point 07°15' 00'' N 098°30' 00'' E. (See APPENDIX A - hatched area). This will be mandated by subsequent AIP Supplement.

3.1.2 **Phase 2 (December 2022)**

Under this phase, ADS-B will be used as the secondary means of en-route surveillance within the Kuala Lumpur FIR in addition to radar surveillance.

3.1.3 **PHASE 3 (December 2022)**

Under this phase, the installation of ADS-B stations will be used as the secondary means of en-route surveillance within the Kota Kinabalu FIR in addition to radar surveillance.

3.1.4 **PHASE 4 (2025)**

Under this phase ADS-B will be implemented as the primary means of en-route airspace surveillance.

3.2 The use of ADS-B to enhance and improve the provision of surveillance and separation of aircraft will only be carried out after the quality of data, probability of detection, accuracy, integrity, availability and coverage area including communications has been determined. This will be implemented by subsequent AIP Supplement.

4 AIRCRAFT OPERATOR APPROVAL

4.1 The ADS-B equipment must be of an approved type meeting the specifications of ICAO Annex 10 (Volume IV) or that has been certified as meeting any of the following standards:

a) EASA AMC 20-24 or latest;
b) FAA AC No. 20-165 – Airworthiness Approval of ADS-B or latest;
c) Civil Aviation Safety Authority of Australia, CASA Standard (The equipment configuration standards in Appendix XI of Civil Aviation Order 20.18 of the dated August 2012 and any amendment thereof) or latest; or

4.2 Aircraft operator must have the relevant ADS-B operational approval from the State of Registry.

5 FLIGHT PLANNING REQUIREMENTS

5.1 An appropriate ADS-B designator shall be entered in item 10 of the ICAO flight plan:

a) **B1** ADS-B with dedicated 1090 MHz ADS-B "out "capability
b) **B2** ADS-B with dedicated 1090 MHz ADS-B "out "and "in" capability

5.2 The aircraft address (24 Bit Code) in hexadecimal format must be entered in item18 of ICAO flight plan as per the following example:

a) CODE/7C432B

5.3 The aircraft identification (ACID), not exceeding 7 characters must be accurately indicated in item 7 of ICAO flight plan and replicated exactly when set in the aircraft avionics for transmission as Flight ID as follows:

a) The three–letter ICAO designator of the aircraft operator followed by flight identification number (e.g. MAS123, BAW123) when in radiotelephony the call sign used consists of the of the associated ICAO telephony designator for the aircraft operator followed by the flight number (e.g. MALAYSIAN ONE TWO THREE, SPEEDBIRD ONE TWO THREE)

OR

b) The registration marking of the aircraft (e.g. 9MAJS, VHSBM) when the radiotelephony call sign consists of the aircraft registration.

Note: *No zeros, dashes or spaces are to be added when aircraft identification is less than 7 characters. This AIC is issued for the advance notification and compliance of aircraft operators.*

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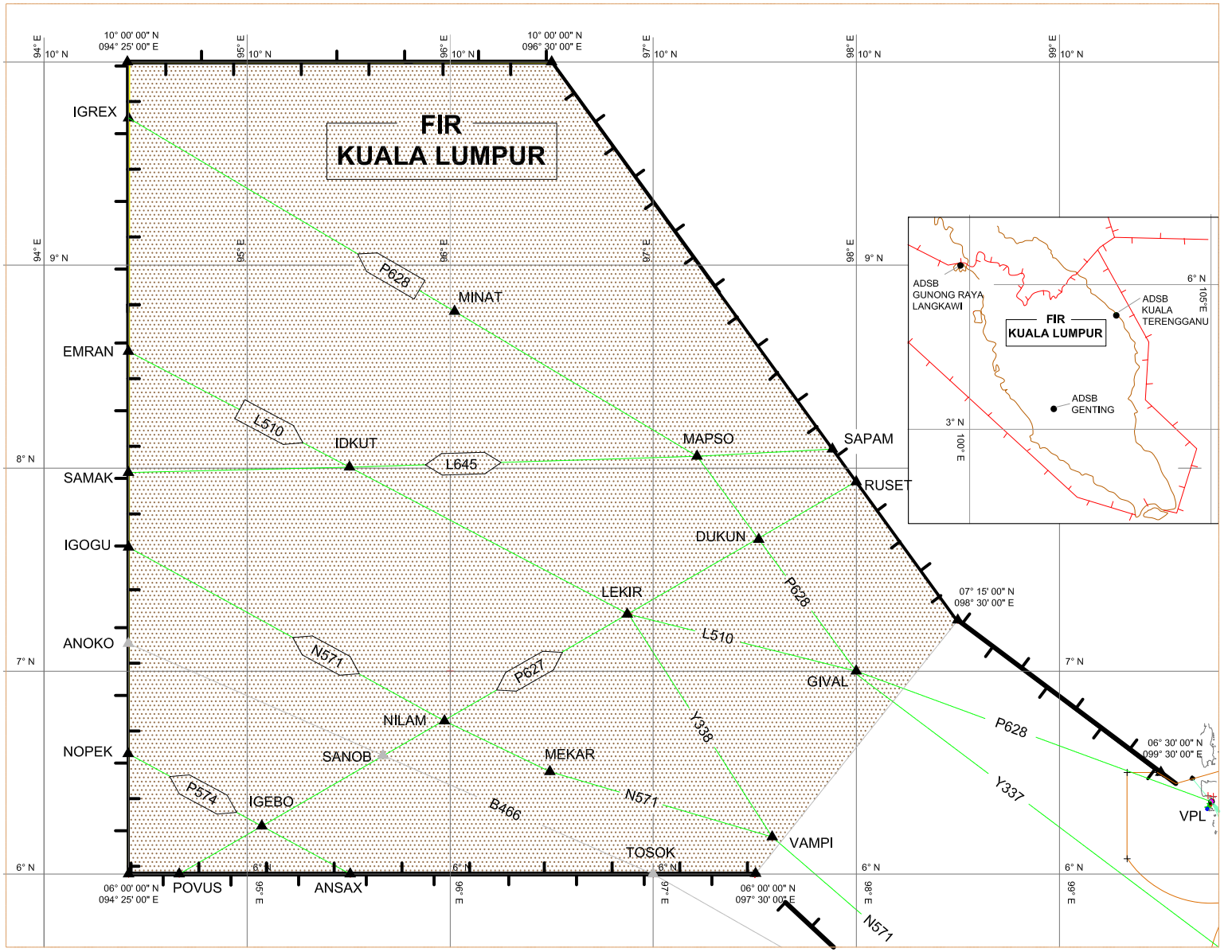
FIR
KUALA LUMPUR
10° 00' 00" N
094° 25' 00" E
10° 00' 00" N
096° 30' 00" E
07° 15' 00" N
098° 30' 00" E
06° 30' 00" N
099° 30' 00" E
06° 00' 00" N
094° 25' 00" E
06° 00' 00" N
097° 30' 00" E
IGREX
EMRAN
SAMAK
IGOGU
ANOKO
NOPEK
MINAT
IDKUT
MAPSO
SAPAM
RUSET
DUKUN
LEKIR
GIVAL
NILAM
SANOB
MEKAR
IGEBO
TOSOK
VAMPI
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