

**GEN 1.5 AIRCRAFT INSTRUMENTS, EQUIPMENT, AND FLIGHT DOCUMENTS****1 General**

- 1.1 The requirements of the Director-General of Civil Aviation and the general conditions under which the communication and navigation services are available for international use, as well as the requirements for the carriage of aircraft instrument, equipment and flight documents by all aircraft operating within the Hong Kong FIR are contained in the Air Navigation (Hong Kong) Order 1995.
- 1.2 The following are brief summaries of the requirements given in the Air Navigation (Hong Kong) Order 1995, operators should refer to that document for full details.

**2 Notification**

- 2.1 With reference to Schedule 6 of the Air Navigation (Hong Kong) Order 1995:
- a) Hong Kong International Airport is notified for the purpose of paragraph 2(1)(c). This means all aircraft making an approach to landing at Hong Kong International Airport shall carry radio equipment capable of enabling the aircraft to make an approach to landing using the ILS, unless otherwise permitted by ATC. Fixed wing aircraft and helicopters with a maximum total weight authorized not exceeding 2 730 kg when engaged in local flying within Hong Kong are exempted from this requirement.
  - b) The Hong Kong Control Zone and Hong Kong Terminal Area are notified for the purposes of paragraph 2(2)(b). This means that all aircraft operating in these areas regardless of flight level or altitude shall carry a SSR 4096 code transponder capable of functioning in Mode A and C and complying with the specifications of ICAO Annex 10 Volume IV.

**3 Radio and Radio Navigation Equipment**

- 3.1 In addition to the requirements of para 2 above, aircraft (other than gliders) shall be equipped with the following radio and radio navigation equipment:

	Nature of Flight	Equipment Required
a	Any IFR flight within controlled airspace	VHF radio operable on published frequencies, Transponder Mode 3/A and Mode C, VOR, DME
b	Any flight within the Hong Kong Control Zone	VHF radio operable on published frequencies, Transponder Mode 3/A and Mode C

- 3.1.1 An aircraft without ADF equipment is permitted to fly within Hong Kong as NDB procedures are not used.
- 3.2 Aircraft with a maximum total weight authorised not exceeding 2 730 kg, when carrying out local flying within the territory of Hong Kong, are exempted from the requirement to carry VOR and DME.
- 3.3 SSR TRANSPONDER
- 3.3.1 All aircraft flying in controlled airspace within the Hong Kong FIR are required to carry Mode 3/A (4 096 codes) and Mode C transponders which comply with the specifications of ICAO Annex 10 Volume IV.
- 3.4 AIRBORNE COLLISION AVOIDANCE SYSTEM (ACAS / TCAS)
- 3.4.1 All aeroplanes engaged in commercial air transport operations in the Hong Kong FIR having a maximum certificated take-off weight in excess of 5 700 kg, or authorised to carry more than 19 passengers, shall be equipped with TCAS II meeting ICAO ACAS II standards.
- 3.4.2 All aeroplanes operating within Hong Kong RVSM airspace shall be equipped with TCAS II meeting ICAO ACAS II standards.
- Note: With reference to ICAO Annex 10 Volume IV, TCAS II equipment shall be of Version 7.1 with effect from 1 January 2017.
- 3.5 AREA NAVIGATION (RNAV)
- 3.5.1 RNP 10
- 3.5.1.1 Operators of aircraft intending to operate on RNAV routes M772 and P901 within the Hong Kong FIR, shall prior to commencing operations obtain approval for RNP 10 operations from the relevant authority in the State of Registry or the State of the Operator.

### 3.5.2 RNP 4

3.5.2.1 Operators of aircraft intending to operate on RNAV routes L642 and M771 within the Hong Kong FIR shall, prior to commencing operations, obtain approval for RNP 4 operations from the relevant authority in the State of Registry or the State of the Operator.

### 3.5.3 RNP 1 SID / STAR

3.5.3.1 *Operational Approval.* Any aircraft arriving or departing HKIA other than those exempted categories of flights as specified in para 3.5.3.5 shall be equipped with appropriate systems and approved by the regulatory authority of the State of Registry/State of the Operator in accordance with ICAO RNP 1 standard for the conduct of RNP 1 SID and STAR. Carriage of a certified GNSS receiver is mandatory. Aircraft or avionics manufacturers shall provide aircraft documentation that shows compliance with the applicable criteria as appropriate. RNP 1 operational approval or compliance documentation shall be readily available for Ramp or Safety Assessment of Foreign Aircraft (SAFA) inspections conducted by the Civil Aviation Department Hong Kong.

3.5.3.2 GNSS RAIM availability prediction service and the associated NOTAM information related to GNSS availability will not be provided by the Hong Kong Civil Aviation Department. In accordance with ICAO Doc 9613, PBN Manual, aircraft operators shall subscribe the necessary information provided by other service providers to verify the RAIM availability for the intended route of flight.

3.5.3.3 RNP 1 navigation specifications are listed in ICAO Doc 9613, 'Performance-based Navigation (PBN) Manual'. The implementation procedures are given in Volume II, Part C, Chapter 3 of this document.

3.5.3.4 An operational approval issued in accordance with the ICAO Doc 9613 assumes that the operator and flight crew take into account all communication and surveillance requirements related to the relevant routes and/or airspace. Operators must therefore observe the equipment requirements when they file a flight plan. (see ENR 1.10 para. 12.3.1).

3.5.3.5 *Exemption Policy.* The following categories of flights are granted exemptions from the RNP 1 requirement, and approved to operate in / out of HKIA using contingency procedures stated in AD 2.22 para. 2.2.3 and para. 7.1.3:

- a) Humanitarian or SAR flights;
- b) State aircraft;
- c) Flight Check;
- d) Maintenance or delivery flights;
- e) Air tests (e.g. post maintenance);
- f) When specific prior approval has been given by Director-General of Civil Aviation.

3.5.3.6 Flights of categories specified in para 3.5.3.5 above shall indicate the status of flight in the flight applications to operate at HKIA, and in the FPL. Refer to ENR 1.10 para. 12.3.3 for details of flight planning requirements.

3.5.3.7 These procedures are intended exclusively for the purposes listed in para 3.5.3.5, and not as a means to circumvent the normal RNP 1 requirement.

### 3.6 REDUCED VERTICAL SEPARATION MINIMA (RVSM)

3.6.1 Operators shall obtain airworthiness and operational approval from the State of Registry or State of the Operator, as appropriate, to conduct RVSM operations.

3.6.2 The FAA is maintaining a website containing documents and policy for RVSM approval. Information may be obtained from the FAA website: [https:// www.faa.gov/air\\_traffic/separation\\_standards/rvsm/](https://www.faa.gov/air_traffic/separation_standards/rvsm/)

3.6.3 Operators are required to participate in the RVSM aircraft monitoring programme. This is an essential element of the RVSM implementation programme in that it confirms that the aircraft altitude-keeping performance standard is met. The Monitoring Agency for Asia Region (MAAR) processes the results of monitoring. Further information on RVSM monitoring may be obtained from the MAAR website:  
<http://www.aerothai.co.th/maar>

3.6.4 Monitoring accomplished for other regions can be used to fulfil the monitoring requirements for the Asia region. MAAR will co-ordinate with other monitoring agencies to access this information. For monitoring services in the Asia region, operators may contact MAAR at:

Telephone	+66 2 287 8154
Fax	+66 2 287 8155
e-mail	<a href="mailto:maar@aerothai.co.th">maar@aerothai.co.th</a>

### 3.7 AUTOMATIC DEPENDENT SURVEILLANCE BROADCAST (ADS-B)

- 3.7.1 All aircraft flying within Hong Kong FIR at or above F290 shall be installed with ADS-B equipages complying with the requirements stipulated in paragraph 3.7.6.
- 3.7.2 For all aircraft flying within Hong Kong FIR equipped with ADS-B equipages not complying with paragraph 3.7.6 the ADS-B equipages shall be:
- deactivated; or
  - set to transmit only a value of zero for the Navigation Uncertainty Category (NUC<sub>p</sub>) or Navigation Integrity Category (NIC) or Navigation Accuracy Category (NAC) or Source Integrity Level (SIL).
- 3.7.3 Aircraft not complying with paragraph 3.7.6 will not be accorded priority to operate in the designated airspace and flight level assignments would be subjected to air traffic conditions.
- 3.7.4 When an aircraft is ADS-B equipped but the equipment has become unserviceable during flight, the pilot in command or aircraft operator must inform ATC as soon as possible.
- 3.7.5 Operational approval from the State of Registry for ADS-B Out operation is no longer required.
- 3.7.6 Requirements for ADS-B Out Equipage
- 3.7.6.1 ADS-B equipages comply with 'RTCA DO-260 Minimum Operational Performance Standards', which is equivalent to ES Version 0 as specified in ICAO Annex 10, Volume IV, Chapter 3, Paragraph 3.1.2.8.6 and Chapter 2 of ICAO Doc 9871, or
- 3.7.6.2 ADS-B equipages comply with 'RTCA DO-260A Minimum Operational Performance Standards', which is equivalent to ES Version 1 as specified in ICAO Annex 10, Volume IV, Chapter 3, Paragraph 3.1.2.8.6 and Chapter 3 of ICAO Doc 9871, or
- 3.7.6.3 ADS-B equipages comply with 'RTCA DO-260B Minimum Operational Performance Standards', which is equivalent to ES Version 2 as specified in Chapter 4 of ICAO Doc 9871.

Note: The followings are the acceptable means of compliance to paragraphs 3.7.6.1, 3.7.6.2 or 3.7.6.3.

- The ADS-B equipages that have been certificated as meeting the European Aviation Safety Agency - Certification Considerations for the Enhanced ATS in Non-Radar Areas using ADS-B Surveillance (ADS-B-NRA) Application via 1090 MHz Extended Squitter (AMC 20-24), or
- The ADS-B equipages that have been certificated as meeting the European Aviation Safety Agency - Certification Specifications and Acceptable Means of Compliance for Airborne Communications, Navigation and Surveillance (CS-ACNS) Subpart D - Surveillance (SUR) (CS-ACNS.D.ADS-B), or
- The ADS-B equipages that have been certificated as meeting the Federal Aviation Administration - Advisory Circular No: 20-165A (or later versions) Airworthiness Approval of Automatic Dependent Surveillance - Broadcast (ADS-B) Out Systems, or
- The ADS-B equipages that meet the equipment configuration standards in Appendix XI of Civil Aviation Order 20.18 of the Civil Aviation Safety Authority of Australia.

### 3.7.7 Flight Planning and Operation Requirements

- 3.7.7.1 Aircraft operator complying with the requirement stipulated in paragraph 3.7.6 is to indicate the appropriate ADS-B designator in item 10 of the flight plan as per ENR 1.10 para. 14.
- 3.7.7.2 The Aircraft Identification, not exceeding 7 characters, as entered in item 7 of the flight plan is to be replicated exactly when set in the aircraft (for transmission as Flight ID) as follows:

Either,

- The ICAO three-letter designator for the aircraft operating agency followed by the flight identification (e.g. KLM511, BAW213, JTR25),
- or,
- The registration marking of the aircraft (e.g. EIAKO, 4XBCD, OOTEK), when the callsign used in radiotelephony consists of the registration marking alone (e.g. EIAKO), or preceded by the ICAO telephony designator for the operating agency (e.g. SVENAIR EIAKO),

Note 1: *No zeros, hyphens, dashes or spaces are to be added when the Aircraft Identification consists of less than 7 characters.*

Note 2: *Appendix 2 to PANS-ATM refers. ICAO designators and telephony designators for aircraft operating agencies are contained in ICAO Doc 8585.*

#### **4 Flight Documents to be Carried**

4.1 In accordance with Article 59 of the Air Navigation (Hong Kong) Order 1995, the commander of an aircraft shall, within a reasonable time after being requested to do so by an authorised person, cause to be produced to that person any of the following documents:

- a) the certificates of registration and airworthiness and the noise certificate or documentary proof of compliance in respect of the aircraft;
- b) the licences of its flight crew;
- c) such other documents as it is required to carry in flight under the law of the country in which it is registered.

4.2 Pilots in command of general aviation aircraft, private aircraft or helicopters shall be in possession of a valid aircrew licence issued in accordance with the appropriate conventions.

#### **5 Holders of Foreign Pilot's Licence**

##### **5.1 VISITING PILOTS**

5.1.1 A holder of a foreign pilot's licence who wishes to operate day VFR private flights in Hong Kong registered aircraft must apply to validate his/her foreign licence in accordance with the procedures and requirements as per AIC 26/08 ([http://www.hkac.gov.hk/HK\\_AIP/aic/AIC26-08.pdf](http://www.hkac.gov.hk/HK_AIP/aic/AIC26-08.pdf)).

5.1.2 The Director-General of Civil Aviation may in a particular case require the holder of a foreign licence to meet additional requirements.

##### **5.2 INITIAL ISSUE OF A HONG KONG PROFESSIONAL PILOT'S LICENCE ON THE BASIS OF A FOREIGN PROFESSIONAL FLIGHT CREW LICENCE**

5.2.1 The holder of a valid ICAO Contracting State professional flight crew licence may apply for conversion to an equivalent Hong Kong licence. However, such application will not be accepted and processed if:

- a) the foreign professional pilot's licence presented is one which was issued for reasons of equivalence by the issuing authority; or
- b) the applicant cannot show evidence of a genuine requirement to hold a Hong Kong professional pilot's licence and the need to exercise professional privileges of the licence on a Hong Kong registered aircraft.

5.2.2 Before a licence is issued, the Director-General of Civil Aviation requires to be satisfied that the applicant is a fit person to hold the licence and is qualified by reason of their knowledge, experience, competence, skill, physical and mental fitness to act in the capacity to which the licence relates.

5.2.3 The terms under which an applicant may convert his valid licence to a Hong Kong licence will be assessed individually and he will be notified in writing. Each term of issue will be valid for the period stated thereon.

5.2.4 The address of the Personnel Licensing Office is:

Personnel Licensing Office  
Flight Standards and Airworthiness  
Division  
Civil Aviation Department  
1 Tung Fai Road  
Hong Kong International Airport  
Lantau  
Hong Kong

5.2.5 Detailed information on the conversion of foreign professional flight crew licence is published in document CAD 54 - Requirements Document : Pilot's Licences and Associated Ratings and document CAD 50 - the Flight Engineer's Licence.