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STANDARD OPERATING PROCEDURE (SOP)

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SCOPE: Outlines standard techniques for controllers staffing Area Radar positions within Hong Kong FIR on VATSIM.

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1. PURPOSE

- 1.1. This Standard Operating Procedure (SOP) sets forth the procedures for all controllers providing air traffic control service at Hong Kong International Airport (VHHH) to improve communication, techniques, and to distinguish procedures that are specific to the online environment.

2. ROLES AND RESPONSIBILITIES

- 2.1. The Office of Primary Responsibility (OPR) for this SOP is the team under the supervision of the Facilities Director. This SOP shall be maintained, revised, updated or cancelled by the Facilities Director. Any suggestions for modification / amendment to this SOP should be sent to the Facilities Director for review.

3. DISTRIBUTION

- 3.1. This SOP is intended for controllers staffing ADC positions at Hong Kong International Airport (VHHH), as well as other controllers who interface with those controllers.

4. BACKGROUND

- 4.1. Over time, it has been observed that a written standard procedure is helpful to ADC controllers due to the vast knowledge required to control within this complex airspace. Due to operational differences between this online environment on VATSIM and that in the real world, it is also necessary to define procedures that are specific to the online environment.

5. GENERAL PROCEDURES

- 5.1. The Hong Kong Flight Information Region (FIR) has an established Area Control Unit (ACU). The ACU provides Air Traffic Services to aircraft within the boundaries of the FIR whilst they are not under the jurisdiction of Aerodrome or Approach Control.
- 5.2. Within controlled airspace the following Air Traffic Services are provided by the ACU:
- Area Control Surveillance Service;
 - Approach Control Surveillance Service (limited elements of this service);
 - Alerting Service.
- 5.3. Outside controlled airspace the following Air Traffic Services are provided:
- Flight Information Service;
 - Alerting Service.
- 5.4. Radar Separation Minima
- 5.4.1. Unless otherwise specified, all Area Radar sectors shall utilise radar separation minima.
- 5.4.2. The minimum lateral radar separation to be applied within all Area Radar sectors is **5 nautical miles**.
- 5.4.3. The minimum vertical radar separation to be applied within all Area Radar sectors is **1000 feet**. A vertical radar separation of **2000 feet** shall be applied for non-RVSM approved aircraft operating in RVSM airspace.
- 5.5. Surveillance Monitoring (ADS-B) Separation Minima
- 5.5.1. The minimum lateral separation to be applied within all Area Radar sectors utilising surveillance monitoring is **10 nautical miles**.
- 5.5.2. The minimum vertical separation to be applied within all Area Radar sectors utilising surveillance monitoring is **1000 feet**. A vertical separation of **2000 feet** shall be applied for non-RVSM approved aircraft operating in RVSM airspace.

5.6. Transfer of Control and Communications

5.6.1. Unless otherwise specified within this document, the following is applicable to the transfer of control and communications of aircraft:

- Transfer of Control – Effective upon the successful transfer of an aircraft's electronic data block from one sector to another
- Transfer of Communications – Effective upon verbally instructing a pilot to switch frequency

5.6.2. Controllers may coordinate other methods of handover (e.g. silent handoff) depending on the traffic situation.

5.7. Handoff Releases

5.7.1. Pursuant to Section 5.5, controllers may specify additional conditions alongside the transfer of control. These conditions are known as handoff releases.

5.7.2. Release For Climb

For traffic transferred on a release for climb, the receiving controller is allowed to instruct the traffic to continue their climb past the handoff level within the transferring controller's airspace.

5.7.3. Release For Descent

For traffic transferred on a release for descent, the receiving controller is allowed to instruct the traffic to continue their descent past the handoff level within the transferring controller's airspace.

5.7.4. Release For Turn

For traffic transferred on a release for turn, the receiving controller is allowed to instruct the traffic to make turns in the same general direction (no more than 45°*).

5.7.5. Full Release

For traffic transferred on a full release, the receiving controller is allowed to instruct the aircraft to make turns in the same general direction (no more than 45°*), and issue further climb or descent instructions.

5.7.6. Unless otherwise coordinated, traffic handed off to a different Hong Kong sector shall be released according to a written agreement. **Instructions that would cause aircraft to re-enter the transferring controller's airspace shall not be issued without prior coordination.**

- 5.7.7. Traffic released for climb or descent are not allowed to level off at an intermediate level higher than the cleared level until the traffic has exited the airspace of the transferring controller, except in case of a potential conflict with another aircraft.
- 5.8. Logon Order
- 5.8.1. The primary TR sector is Area Radar West (TRW). Other sectors may only be opened if Approach (APP) is online.
- 5.8.2. The sub-sectors of each main TR sector may only be staffed if the parent TR sector has been opened. For reference the main TR sectors are **Area Radar West (TRW)**, **Area Radar South (TRS)** and **Area Radar East (TRE)**.
- 5.9. Kai Tak (VHHX)
- 5.9.1. As Kai Tak International Airport (VHHX) is closed in the real world, there is no official guidance for handling Kai Tak traffic. Aircraft flying to / from Kai Tak shall be individually coordinated between TMC/TR. Controllers shall also note that certain Kai Tak SID/STARs conflict with those of Hong Kong and Macau, therefore controllers shall be prepared to separate Kai Tak traffic against other traffic where necessary.
- 5.10. Pratas Island (RCLM)
- 5.10.1. Pratas Island (or Dongsha) Airport (ICAO: RCLM) is an airport located in the South China Sea within Hong Kong FIR and is controlled by the Taipei Civil Aeronautics Administration in the real world. Due to the military nature of this airport, it is also located within Restricted Area VHR7, between SFC – 5000FT.
- 5.10.2. On VATSIM, this airport is considered uncontrolled and TR controllers shall not provide aerodrome control service to the airport. Flights to Pratas Island shall be instructed to leave controlled airspace at an appropriate level / point and transferred to advisory 122.800 MHz, and flights originating from Pratas Island entering controlled airspace within Hong Kong FIR shall be issued an IFR clearance once in the air and on first contact with TR.

6. AREA RADAR CONTROL (TR)

6.1. Callsigns & Frequencies

POSITION	TEXT CALL SIGN	VOICE CALL SIGN	FREQUENCY	CODE	CJS
Area Radar West	HKG_W_CTR	"Hong Kong Radar"	127.100	TRW	EW
Area Radar West (TRV)	HKG_V_CTR	"Hong Kong Radar"	125.325	TRV	EV
Area Radar West (TRD)	HKG_D_CTR	"Hong Kong Radar"	122.950	TRD	ED
Area Radar South	HKG_S_CTR	"Hong Kong Radar"	132.150	TRS	ES
Area Radar Central	HKG_C_CTR	"Hong Kong Radar"	128.750	TRC	EC
Area Radar East	HKG_E_CTR	"Hong Kong Radar"	118.925	TRE	EE
Area Radar East Arrivals	HKG_K_CTR	"Hong Kong Radar"	121.300	TRK	EK
Area Radar Upper	HKG_U_CTR	"Hong Kong Radar"	132.525	TRU	EU

6.2. Responsibilities

- 6.2.1. Manage his/her respective airspace sector by carefully planning traffic operating inside or through the sector taking into account equipment status, weather situation, airspace restrictions and controller manning etc.
- 6.2.2. Monitor as closely as practicable the traffic situation and devise plans strategically to control traffic volume in their sector such that it can be handled safely, orderly and efficiently.
- 6.2.3. Ensure flights leaving the Hong Kong FIR meet conditions prescribed in the LOAs (Letters of Agreements) with neighbouring ATCUs before traffic leaves their sector.
- 6.2.4. Ensure transfer of control information is received by the accepting ACC/ATCU in accordance with the terms in the LOA or in good time, whichever is applicable, and to the extent possible, ensure the accuracy of such information.
- 6.2.5. Assign flight levels to traffic in accordance with prescribed Flight Level Assignment Scheme (FLAS) in the LOAs. Co-ordination with the neighbouring ACC/ATCU shall be effected when levels other than those in the FLAS are being utilised.
- 6.2.6. Coordinate with adjacent sector on level assignments for overflights. If a level has not been prescribed in the procedure, the hand-off level at common boundaries between internal surveillance control sectors shall normally be coordinated when necessary by the controllers concerned.

- 6.2.7. Ensure that all hand-offs are completed prior to the traffic entering the adjacent sector. If this is not possible, co-ordination must be completed prior to the traffic entering the adjacent sector.
- 6.2.8. Ensure that aircraft are maintaining their level assigned as per Section 6.2.5. before leaving Hong Kong FIR.
- 6.2.9. Assign the appropriate STAR to flights through their sector landing at Hong Kong or Macau. There is no requirement to specify the expected landing runway.
- 6.3. Sector Airspace
 - 6.3.1. Sector diagrams for all TR sectors are available within SOP005 Annex I.
- 6.4. Reduced Vertical Separation Minimum (RVSM)
 - 6.4.1. Only RVSM approved aircraft are permitted to operate within RVSM airspace. On VATSIM, all aircraft are considered RVSM equipped unless the pilot specifies otherwise.
- 6.5. Flight Level Assignment
 - 6.5.1. Flight level assignment in Hong Kong FIR shall conform to ICAO Annex 2 Table 3a.
 - 6.5.2. Within RVSM airspace, odd levels (F290, F310 etc up to F410) are designated for eastbound flights while even levels (F300, F320 etc up to F400) are allocated to westbound flights. This scheme of allocating flight levels is termed Single Alternate Flight Level Orientation Scheme.
 - 6.5.3. In consideration of special needs in adjacent FIR and regional agreement, the flight level assignment for L642, M771, A461/BEKOL, B330 and A470 have been modified.
 - 6.5.4. Bilateral agreements have been made with adjacent ACCs to designate cruising levels that do not require prior co-ordination. These levels are specified in the respective Letter of Agreement (LOA). Flight levels appropriate to the direction of flight that are not specified in the LOA are subject to coordination.
 - 6.5.5. Assignment of a flight level not appropriate to the direction of flight in accordance with the levels specified above shall be avoided.

6.6. Suspension of RVSM

- 6.6.1. RVSM operations within the entire Hong Kong airspace shall be suspended upon receipt of widespread reports from pilots about severe turbulence in RVSM airspace of Hong Kong FIR.
- 6.6.2. When an individual aircraft reports severe turbulence, RVSM operations for that aircraft shall be suspended and the pilot requested to clarify the degree and extent of turbulence to decide if the event warrants RVSM operations to be suspended throughout the entire Hong Kong airspace.
- 6.6.3. When RVSM is suspended, 2000 ft (600 m) vertical separation shall be immediately applied between aircraft reporting severe turbulence and other aircraft; the application of 2000 ft (600 m) vertical separation between other traffic shall be completed as soon as possible.
- 6.6.4. When 2000 ft (600 m) vertical separation is provided between all traffic, the RVSM stratum shall be considered non-RVSM until RVSM operations can be resumed.
- 6.6.5. RVSM operations may be resumed when there are no further reports of severe turbulence.
- 6.6.6. RVSM operations for an individual aircraft shall be suspended if it reports a failure of RVSM equipment.
- 6.6.7. In the event that RVSM operation is suspended, the relevant adjacent ACC/ATSU(s) shall be immediately notified. Close co-ordination to resolve possible separation issues shall be effected. If necessary, a temporary FLAS to ensure non-RVSM (i.e. 2000 ft) vertical separation shall be established as soon as possible.

6.7. Wake Turbulence at High Level

- 6.7.1. From time to time, flight crew may report wake turbulence encountered at high altitude. Although ATC handling and separation are in order, wake turbulence is encountered at distances of 15 to 20NM and/or 3000 to 4000 feet below the other traffic.
- 6.7.2. When flight crew reports encountering wake turbulence from traffic in the vicinity, controllers may consider, traffic permitting, to offer the affected flight a clearance to fly offset track at one or two miles to the right until the situation improves. This tactical measure shall not be confused with the 2NM Strategic Offset Procedure in Remote Airspace advocated by ICAO which is not applicable in the Hong Kong FIR. Appropriate

coordination with downstream sectors shall be effected when this measure is applied.

6.8. Area Radar West (TRW)

6.8.1. Sector Absorption

- 6.8.1.1. When TRV or TRD are not open, TRW shall be responsible for their sector and associated responsibilities.

6.8.2. Procedures for Departing Aircraft

- 6.8.2.1. TDC shall transfer departing aircraft from Hong Kong and Macau airports to TRW assigned FL250. On receipt of hand off, TRW shall continue to climb this traffic above FL250 and route them to the appropriate FIR boundary points according to their flight planned routes.
- 6.8.2.2. Traffic shall be transferred to Zhanjiang Approach / Nanning Control / Sanya Control as appropriate prior to reaching SIKOU. Refer to the Hong Kong / Sanya LOA.

6.8.3. Procedures for Hong Kong Arrivals

- 6.8.3.1. TRW shall assign the appropriate STAR to flights through their sector landing at Hong Kong. There is no requirement to specify the expected landing runway. TRW shall integrate the Hong Kong arrivals into a metered flow of 10 NM unless otherwise coordinated and hand off to TMW assigned FL260, with a requirement to reach FL260 by MAPLE. Co-ordinate the hand-off level with TMW for flights below FL260.

6.8.4. Procedures for Overflights landing Macau

- 6.8.4.1. Flights from SIKOU and IKELA will route via DASON – COTON – CHALI. TRW shall assign the appropriate STAR and hand off to MCU assigned FL120 with 10 NM in-trail spacing and a requirement to reach FL120 by COTON.

6.8.5. Procedures for Overflights landing Guangzhou

- 6.8.5.1. Flights from SIKOU will route via J104 – CHALI. They shall be handed off to TDC with 10 NM in-trail spacing, assigned FL260 with a requirement to reach FL260 by CHALI.

6.8.6. Procedures for Overflights landing Shenzhen

- 6.8.6.1. Flights from SIKOU J104 and IKELA P901 will route via DASON – COTON – LANDA. TRW shall assign these flights FL120 to reach by COTON and hand off to MCU with 10 NM in-trail spacing.

6.8.7. Procedures for Overflights departing Guangzhou

- 6.8.7.1. Flights departing Guangzhou via SIERA will be handed off from TMW assigned FL250.
- 6.8.7.2. For exit points DOTMI, ELATO, ENVAR, NOMAN or SABNO, aircraft shall route via MULET to SKATE and join the appropriate TTR. Co-ordinate with TRS for the hand-off level.
- 6.8.7.3. For exit points EPDOS, IKELA or SIKOU, aircraft shall route via ALLEY to join the appropriate TTR.

6.8.8. Procedures for Other Overflights

- 6.8.8.1. Other overflights should normally be routed in accordance with the flight planned routes listed in the Hong Kong AIP for flights transiting Hong Kong airspace.
- 6.8.8.2. TRW shall issue en-route clearance according to flight planned route where necessary. TRV shall also co-ordinate the hand-off level with the next sector where necessary. The co-ordinated level should be in conformity with the imperial level system, especially for overflights from TAMOT.
- 6.8.8.3. TRW shall also be responsible for conflict resolution between traffic on tracks J103 – BEKOL and KAPLI – ALLEY V10. These aircraft will be pointed out by TRS.

6.8.9. Reach Cruising Level Requirements

- 6.8.9.1. Unless prior coordination has been agreed, aircraft exiting the Hong Kong FIR via SIKOU shall maintain level flight within 22 NM of SIKOU (or prior to reaching DAGBU).

6.8.10. Contingency Holding Procedures

- 6.8.10.1. Due to range of airspace and diversity of traffic controlled by TRW, prolonged holding is not considered practicable within the sector. Holding pattern GAMBBA (inbound track 074°M, right-hand pattern, 10 NM outbound leg) is established for contingency purposes only. If required, the recommended holding altitude is between FL260 and FL280. GAMBBA holding pattern is NOT procedurally separated with TTR J104. **TRW shall note that TMW is delegated the GAMBBA holding pattern between FL200 and FL250.**

- 6.8.10.2. Holding pattern MYWAY (inbound track 013°M, left-hand pattern, 10 NM outbound leg) is also available on a contingency basis. At FL340 or below, aircraft are required to hold at 280 KIAS or MACH 0.8, whichever is less. Above FL340, aircraft are required to hold at MACH 0.83.

6.8.11. Weather Deviation / Tactical Re-routing Procedures

- 6.8.11.1. Where necessary for operational reasons, TRW may route aircraft inbound to CANTO towards BETTY to join the BETTY STAR. TRW shall instruct such aircraft to route GAMBA – BETTY, descend the aircraft to FL260 and transfer to TDC.

6.9. Area Radar West (TRV)

6.9.1. Procedures for Departing Aircraft

- 6.9.1.1. TDC shall transfer departing aircraft from Hong Kong and Macau airports to TRV assigned FL250. On receipt of hand off, TRV shall continue to climb this traffic above FL250 and route them to the appropriate FIR boundary points according to their flight planned routes.

- 6.9.1.2. Traffic shall be transferred to the next control unit as follows:

- At IKELA, to Sanya Control;
- At EPDOS, to TRD.

6.9.2. Procedures for Hong Kong Arrivals

- 6.9.2.1. TRV shall assign the appropriate STAR to flights through their sector landing at Hong Kong. There is no requirement to specify the expected landing runway. TRV shall hand-off the aircraft to TRW at their cruising levels prior to reaching the sector boundary.

6.9.3. Procedures for Overflights landing Macau

- 6.9.3.1. Flights from IKELA will route via IDOSI – DASON – COTON – CHALI. TRV shall assign the appropriate STAR and hand off to TRW prior to reaching the sector boundary.

6.9.4. Procedures for Other Overflights

- 6.9.4.1. Other overflights should normally be routed in accordance with the flight planned routes listed in the Hong Kong AIP for flights transiting Hong Kong airspace.

- 6.9.4.2. TRV shall issue en-route clearance according to flight planned route where necessary. TRV shall also co-ordinate the hand-off level with the next sector where necessary.

6.9.5. Reach Cruising Level Requirements

- 6.9.5.1. Unless prior coordination has been agreed, aircraft exiting the Hong Kong FIR via IKELA shall maintain level flight within 27 NM of IKELA (or prior to reaching IDOSI).
- 6.9.5.2. Aircraft exiting the Hong Kong FIR via EPDOS shall maintain level flight prior to reaching EPDOS, unless prior coordination has been effected.

6.10. Area Radar West (TRD)

6.10.1. Separation Minima

- 6.10.1.1. As radar coverage is not readily available within TRD sector airspace, surveillance monitoring separation minima shall be applied within TRD sector airspace.

6.10.2. Procedures for Departing Aircraft

- 6.10.2.1. Aircraft will be handed off from TRV at their cruising levels.
- 6.10.2.2. Aircraft shall be transferred to Sanya Control at EPKAL.

6.10.3. Procedures for Hong Kong Arrivals

- 6.10.3.1. TRD shall issue the appropriate STARs to arrivals from DOSUT and ASOBA and hand-off to TRC prior to reaching CARSO.

6.10.4. Procedures for Overflights landing Macau

- 6.10.4.1. Traffic landing Macau from DOSUT or ASOBA will route DUMOL – J103. TRD shall assign the appropriate STAR and hand-off to TRC prior to reaching DUMOL.

6.10.5. Procedures for Other Overflights

- 6.10.5.1. Other overflights should normally be routed in accordance with the flight planned routes listed in the Hong Kong AIP for flights transiting Hong Kong airspace.

6.10.5.2. TRD shall issue en-route clearance according to flight planned route where necessary. TRD shall also co-ordinate the hand-off level with the next sector where necessary.

6.11. Area Radar South (TRS)

6.11.1. Sector Absorption

6.11.1.1. When TRC is not open, TRS shall be responsible for its sector and responsibilities.

6.11.2. Procedures for Departing Aircraft

6.11.2.1. TDE shall transfer departures from Hong Kong, Macau or Shenzhen to TRS assigned FL250. On receipt of hand off, TRS shall continue to climb the aircraft above FL250 and route them to the appropriate FIR boundary points according to their flight planned routes.

6.11.2.2. Aircraft shall be transferred to the next control unit as follows:

- At NOMAN, to Manila Control;
- For flights via SABNO, prior to reaching the sector boundary with TRC;
- At KAPLI, to Taipei Control.

6.11.3. Procedures for Hong Kong Arrivals

6.11.3.1. TRS shall assign the appropriate STAR to flights through their sector landing at Hong Kong. There is no requirement to specify the expected landing runway. TRS shall integrate the Hong Kong arrivals into a metered flow of 10 NM independent of the CYBER stream and hand-off to TMS.

6.11.3.2. Hong Kong arrivals shall be assigned FL260, with a requirement to reach FL260 by SONNY. Co-ordinate the handoff level with TMS for flights below FL260.

6.11.3.3. When EATON holding pattern is in operation, TRS shall integrate traffic from EATON, which should be tracking towards DAKTO, with traffic from NOMAN, and hand-off to TMS with 10 NM in-trail spacing.

6.11.4. Procedures for Overflights departing Guangzhou

- 6.11.4.1. Flights shall route via MULET and SKATE to join TTR V601 to V651. A hand-off level at the sector boundary shall be coordinated with TRW. TRS shall be mindful of the separation with converging traffic departing from Hong Kong and Macau joining V641 and V651.

6.11.5. Procedures for Other Overflights

- 6.11.5.1. Other overflights should normally be routed in accordance with the flight planned routes listed in the Hong Kong AIP for flights transiting Hong Kong airspace.
- 6.11.5.2. TRS shall issue en-route clearance according to flight planned route where necessary. TRS shall also co-ordinate the hand-off level with the next sector where necessary.
- 6.11.5.3. TRS shall point-out any traffic routing KAPLI – ALLEY V10 to TRW. Co-ordination with TRW shall be effected before changing the cruising levels of aircraft on this route.
- 6.11.5.4. Tracks J103 – BEKOL and KAPLI – ALLEY V10 intersect near the boundaries of TRS and TRW. TRS shall assess and point-out any potential conflicts between traffic on J103 – BEKOL and KAPLI – ALLEY. TRW shall ultimately be responsible for resolution of these conflicts.
- 6.11.5.5. TRS shall point-out any flights from NOMAN to BEKOL with destination beyond Guangzhou FIR to TRW.

6.11.6. Reach Cruising Level Requirements

- 6.11.6.1. Unless prior coordination has been agreed, aircraft exiting the Hong Kong FIR via NOMAN shall maintain level flight within 20 NM of NOMAN.
- 6.11.6.2. Aircraft exiting the Hong Kong FIR via SABNO shall maintain level flight prior to reaching SABNO, unless prior coordination has been effected. There is no requirement for the aircraft to have reached their cruising level before hand-off to TRC.

6.11.7. Contingency Holding Procedures

- 6.11.7.1. TRS may be required to hold aircraft at DAKTO (inbound track 318°M, right-hand pattern, 10 NM outbound leg) between FL260 and FL280. Certain

aircraft (e.g. those re-routed from ELATO due to TME/TRK airspace congestion) may also be held at EATON (inbound track 248°M, right-hand pattern, 10 NM outbound leg).

6.11.7.2. It is recommended that no more than 2 aircraft be held at DAKTO at any one time.

6.11.7.3. Prolonged holding at DAKTO is not recommended.

6.11.8. Weather Deviation / Tactical Re-routing Procedures

6.11.8.1. Where necessary for operational reasons (e.g. due to weather), TRK may instruct Hong Kong arrivals in their airspace to join TTR V525 to BETTY. Such aircraft will be transferred from TRE at FL360 or as coordinated if the aircraft is cruising below FL360.

6.11.8.2. Similarly, Hong Kong arrivals joining TTR W29 will be transferred from TRE at FL320 (or as coordinated if the aircraft is cruising below FL320) prior to MEPUT.

6.11.8.3. In both cases, TRS shall integrate these aircraft with other Hong Kong arrivals into the main arrival stream.

6.12. Area Radar Central (TRC)

6.12.1. Procedures for Departing Aircraft

6.12.1.1. Aircraft will be handed off from TRS either at cruising level or assigned climb to their cruising level. These aircraft shall be handed off to Manila Control at SABNO.

6.12.2. Procedures for Hong Kong Arrivals

6.12.2.1. TRC shall assign the appropriate STAR to flights through their sector landing at Hong Kong. There is no requirement to specify the expected landing runway. TRC shall integrate the Hong Kong arrivals into a metered flow of 10 NM independent of the SONNY stream and hand-off to TMS.

6.12.2.2. Hong Kong arrivals shall be assigned FL260, with a requirement to reach FL260 by CYBER. Co-ordinate the handoff level with TMS for flights below FL260.

6.12.3. Procedures for Overflights landing Macau

6.12.3.1. Traffic landing Macau from ASOBA or DOSUT will route DUMOL – J103 while traffic from SABNO will route ALDOM – J103.

6.12.3.2. TRC shall integrate these arrivals into a metered flow of 10 NM and assign these flights to reach FL200 by ISBAN and hand-off to TDC.

6.12.4. Procedures for Overflights landing Guangzhou

6.12.4.1. Traffic landing Guangzhou from ASOBA or DOSUT will route DUMOL – J103 while traffic from SABNO or IKELA will route ALDOM – J103.

6.12.4.2. TRC shall integrate these arrivals into a metered flow of 10 NM and assign these flights to reach FL260 by ISBAN and hand-off to TDC.

6.12.5. Procedures for Overflights landing Shenzhen

6.12.5.1. Traffic landing Shenzhen from ASOBA or DOSUT will route DUMOL – J103 while traffic from SABNO will route ALDOM – J103.

6.12.5.2. TRC shall integrate these arrivals into a metered flow of 10 NM and assign these flights to reach FL200 by ISBAN and hand-off to TDC.

6.12.6. Procedures for Other Overflights

6.12.6.1. Other overflights should normally be routed in accordance with the flight planned routes listed in the Hong Kong AIP for flights transiting Hong Kong airspace.

6.12.6.2. TRC shall issue en-route clearance according to flight planned route where necessary. TRC shall also co-ordinate the hand-off level with the next sector where necessary.

6.12.7. Reach Cruising Level Requirements

6.12.7.1. Unless prior coordination has been agreed, aircraft exiting the Hong Kong FIR via SABNO shall maintain level flight within 20 NM of SABNO.

6.12.8. Contingency Holding Procedures

6.12.8.1. Holding pattern HOCKY (inbound track 358°M, right-hand pattern, 10 NM outbound leg) is established for contingency purposes. The recommended holding altitudes are FL260 – FL280.

- 6.12.8.2. It is recommended that no more than 2 aircraft are held at HOCKY at any one time.
 - 6.12.8.3. Holding pattern HOCKY is **not** procedurally separated with TTR J103. Controllers are reminded to ensure vertical separation exists between traffic on J103 and traffic holding at HOCKY.
 - 6.12.8.4. TRC shall note that TMS is delegated the HOCKY holding pattern between FL200 and FL250.
- 6.13. Area Radar East (TRE)
- 6.13.1. Sector Absorption
 - 6.13.1.1. When TRK is not open, TRE shall be responsible for its sector and responsibilities.
 - 6.13.2. Procedures for Departing Aircraft
 - 6.13.2.1. Departures from Hong Kong or Macau for DOTMI or LELIM will be transferred from TDE at RFL if RFL below S0690 (FL226) or FL230 if RFL at or above S0690 (FL226).
 - 6.13.2.2. For all other aircraft for DOTMI or LELIM, TRE may climb the aircraft above FL230 but shall not descend or level off aircraft at levels below FL230 until also clear of TDE airspace.
 - 6.13.2.3. Controllers are reminded that position SOUSA is designated as a fly-by point as for all other reporting points within the TMA. FMS/RNAV equipped aircraft will commence the left turn as early as 15 NM before SOUSA to align with the track from SOUSA to DOTMI. The actual distance before commencing the turn will vary slightly depending on the prevailing wind, aircraft speed, bank angle and altitude of the aircraft. HK AIP requires DOTMI aircraft to reach cruising level at SOUSA but with an early turn this will not be achieved in many instances – positive separation assurances are necessary.
 - 6.13.2.4. Departures for DOTMI above S0750 (FL246) or LELIM shall be handed off to TRK at least 25 NM prior to SOUSA to enable TRK to deconflict the traffic against arrivals if necessary.
 - 6.13.2.5. Departures for DOTMI at or below S750 (FL246) shall be retained under TRE's control while transiting the "DOTMI Corridor". Aircraft shall be transferred to

Shantou ATCU / Xiamen Control as appropriate prior to DOTMI. Refer to the Hong Kong / Shanghai LOA.

6.13.2.6. Departures routing SKATE – CONGA will be transferred from TDE assigned FL190. Due to conflicting traffic on the SKATE – KAPLI track, TRE shall not vary the level of these departures until they are clear of TDE airspace.

6.13.2.7. For all other departures (e.g. those for ELATO or ENVAR), they will be transferred from TDE assigned FL250. On receipt of hand off, TRE shall continue to climb them above FL250 and route them to the appropriate FIR boundary point. Aircraft shall be transferred at ELATO or ENVAR to Taipei Control.

6.13.3. Procedures for Other Overflights

6.13.3.1. Other overflights should normally be routed in accordance with the flight planned routes listed in the Hong Kong AIP for flights transiting Hong Kong airspace.

6.13.3.2. TRE shall issue en-route clearance according to flight planned route where necessary. TRE shall also co-ordinate the hand-off level with the next sector where necessary.

6.13.3.3. Southbound flights via DOTMI above S0750 (FL246) will be transferred from TRK to TRE prior to entering TRE's airspace.

6.13.3.4. Northbound flights required to cross DOTMI above S0750 (FL246) shall be transferred to TRK prior to SOUSA.

6.13.4. Reach Cruising Level Requirements

6.13.4.1. Unless prior coordination has been agreed, aircraft exiting the Hong Kong FIR via ELATO shall maintain level flight within 20 NM of ELATO.

6.13.4.2. Aircraft exiting the Hong Kong FIR via ENVAR shall maintain level flight prior to ENVAR. Those exiting via DOTMI shall maintain level flight prior to SOUSA and those exiting via LELIM shall maintain level flight prior to BESDA.

6.13.4.3. Due to the requirement for high-level aircraft via DOTMI or LELIM to be handed off to TRK at least 25 NM prior to SOUSA, aircraft that are not able to reach cruising level before SOUSA shall be co-ordinated with TRK.

6.13.5. ELATO Wedge Procedures (TRE)

- 6.13.5.1. The area west and south west of ELATO from A090 to UNL is designated the "ELATO Wedge". This area is normally under the jurisdiction of TRK.
- 6.13.5.2. Aircraft under the control of TRE may transit this area without prior co-ordination with TRK, provided that the aircraft reaches assigned cruising level 5 NM before entering the "ELATO Wedge" and 20 NM before ELATO. Aircraft under the control of TRE and TRK are not permitted to change level while they are operating within 5 NM of/or within the "ELATO Wedge", unless absolutely necessary for separation. In this case co-ordination shall be effected with the other sector.

6.13.6. DOTMI Corridor Procedures (TRE)

- 6.13.6.1. The area east of ENPET between SOUSA and DOTMI from A090 to FL250 is designated the "DOTMI Corridor". This area is normally under the jurisdiction of TRK.
- 6.13.6.2. Aircraft at or below S0750 (FL246) under the control of TRE may transit this area without prior co-ordination with TRK, provided that the aircraft reaches assigned cruising level 5 NM before entering the "DOTMI Corridor" and before SOUSA. Aircraft under the control of TRE / TRK are not permitted to change level while they are operating within 5 NM of/or within the "DOTMI Corridor", unless absolutely necessary for separation. In this case co-ordination shall be effected with the other sector.
- 6.13.6.3. Northbound flights required to cross DOTMI at or below S0750 (FL246) shall remain under TRE's control whilst transiting the "DOTMI Corridor".
- 6.13.6.4. Southbound flights via DOTMI at or below S0750 (FL246) will be transferred to TRE at least 10 NM prior to DOTMI.

6.13.7. Weather Deviation / Tactical Re-routing Procedures

- 6.13.7.1. Where necessary for operational reasons, TRK may instruct Hong Kong arrivals in their airspace to join TTR V525 towards BETTY. TRK shall be responsible for issuing re-routing clearance and the appropriate BETTY STAR, and such aircraft will be handed off at cruising level to TRE. TRE shall descend the aircraft to FL360 (or following coordination, at cruising level if the aircraft is cruising below FL360) and transfer to TRS.

- 6.13.7.2. Similarly, aircraft may also require to join TTR W29 towards BETTY. Such aircraft will be transferred from TRK on an agreed level with TRE. TRE shall descend the aircraft to FL320 (or following coordination, at cruising level if the aircraft is cruising below FL320) and transfer to TRS.

6.14. Area Radar East Arrivals (TRK)

6.14.1. Procedures for Departing Aircraft

- 6.14.1.1. Aircraft via DOTMI above S0750 (FL246) or those via LELIM will be handed off from TRE assigned climb to cruising level at least 25 NM prior to SOUSA. It is the responsibility of TRK to deconflict these traffic against any arrivals.
- 6.14.1.2. Caution should be exercised when applying lateral separation between a departure and an arrival. When in doubt, the departure should be given radar vectors e.g. an easterly heading in good time before SOUSA, until positive separation can be established. Co-ordination with TRE shall be effected before issuing a heading that causes the departure to remain in TRE airspace.
- 6.14.1.3. Aircraft shall be transferred to Shanghai Control prior to reaching DOTMI for DOTMI-bound aircraft and LIMSU for LELIM-bound aircraft.

6.14.2. Procedures for Hong Kong Arrivals

- 6.14.2.1. TRK shall assign the appropriate STAR to flights through their sector landing at Hong Kong. There is no requirement to specify the expected landing runway. TRK shall integrate the Hong Kong arrivals into a metered flow of 10 NM and hand-off to TME assigned FL260 with a requirement to reach FL260 by ENPET. Co-ordinate the hand-off level with TME for flights below FL260.
- 6.14.2.2. TRK shall note that aircraft are not permitted to change level when operating within 5 NM of/or within the "ELATO Wedge" (see below for details). In effect this means that TRK shall not descend arrivals until the arrival is roughly abeam BESDA.

6.14.3. Procedures for Overflights landing Macau

- 6.14.3.1. Flights from DOTMI and ELATO will route via SAMMI – J101. TRK shall assign the appropriate STAR and hand off to TME with 10 NM in-trail spacing assigned FL260 with a requirement to reach FL230 by NEDLE.

6.14.4. Procedures for Overflights landing Guangzhou

- 6.14.4.1. Flights from DOTMI and ELATO will route via SAMMI – J101. TRK shall integrate these arrivals into a metered flow of 10 NM and hand off to TME with 10 NM in-trail spacing assigned FL260 with a requirement to reach FL230 by NEDLE.

6.14.5. Procedures for Other Overflights

- 6.14.5.1. Other overflights should normally be routed in accordance with the flight planned routes listed in the Hong Kong AIP for flights transiting Hong Kong airspace.
- 6.14.5.2. TRK shall issue en-route clearance according to flight planned route where necessary. TRK shall also co-ordinate the hand-off level with the next sector where necessary. The co-ordinated level should be in conformity with the imperial level system, especially for overflights from DOTMI.
- 6.14.5.3. TRK shall transfer any southbound flights above S0750 (FL256) to TRE prior to entering TRE's airspace.
- 6.14.5.4. Northbound flights required to cross DOTMI at S0780 (FL256) or above will be transferred to TRK prior to SOUSA.
- 6.14.5.5. When holding pattern FISHA is in operation, TRK shall restrict southbound DOTMI traffic from entering Hong Kong FIR below FL280. TRK shall also that northbound DOTMI traffic does not encroach TME airspace.
- 6.14.5.6. Aircraft transiting Hong Kong FIR from DOTMI/ELATO routing towards BEKOL will route SAMMI – J101 – PONTI – BEKOL. These aircraft shall be transferred to TRW at NEDLE.
- 6.14.5.7. TRW is responsible for the transition of the flight level to the BEKOL exit level before BEKOL. The distance from NEDLE via PONTI to BEKOL is 34 NM. Due to the short distance between NEDLE and BEKOL, TRW may co-ordinate with TRE/TRK for the level transition before NEDLE in a timely manner.

6.14.6. Reach Cruising Level Requirements

- 6.14.6.1. Unless prior coordination has been agreed, aircraft exiting the Hong Kong FIR via DOTMI shall maintain level flight prior to SOUSA.

6.14.6.2. Aircraft exiting the Hong Kong FIR via LELIM shall maintain level flight prior to LIMSU.

6.14.7. ELATO Wedge Procedures (TRK)

6.14.7.1. The area west and south west of ELATO from A090 to UNL is designated the "ELATO Wedge". This area is normally under the jurisdiction of TRK.

6.14.7.2. Aircraft under the control of TRE may transit this area without prior co-ordination with TRK, provided that the aircraft reaches assigned cruising level 5 NM before entering the "ELATO Wedge" and 20 NM before ELATO. Aircraft under the control of TRE and TRK are not permitted to change level while they are operating within 5 NM of/or within the "ELATO Wedge", unless absolutely necessary for separation. In this case co-ordination shall be effected with the other sector.

6.14.8. DOTMI Corridor Procedures (TRK)

6.14.8.1. The area east of ENPET between SOUSA and DOTMI from A090 to FL250 is designated the "DOTMI Corridor". This area is normally under the jurisdiction of TRK.

6.14.8.2. Aircraft at or below S0750 (FL246) under the control of TRE may transit this area without prior co-ordination with TRK, provided that the aircraft reaches assigned cruising level 5 NM before entering the "DOTMI Corridor" and before SOUSA. Aircraft under the control of TRE / TRK are not permitted to change level while they are operating within 5 NM of/or within the "DOTMI Corridor", unless absolutely necessary for separation. In this case co-ordination shall be effected with the other sector.

6.14.8.3. TRK shall transfer any southbound overflights at S0750 (FL246) or below to TRE at least 10 NM prior to DOTMI.

6.14.9. Weather Deviation / Tactical Re-routing Procedures

6.14.9.1. Where necessary for operational reasons, TRK may instruct Hong Kong arrivals in their airspace to join TTR V525 towards BETTY. TRK shall be responsible for issuing re-routing clearance, the appropriate BETTY STAR and transfer such aircraft at cruising level to TRE.

- 6.14.9.2. Similarly, aircraft may be instructed to join TTR W29 towards BETTY. TRK shall coordinate on the transfer level with TRE, assign the aircraft the appropriate BETTY STAR and descend the aircraft to the agreed level prior to transfer to TRE.

6.15. Area Radar Upper (TRU)

6.15.1. General Information

- 6.15.1.1. During periods of heavy overflight traffic, a vertical split of TR is available to cater for these flights.
- 6.15.1.2. Prior approval from the Director or Training Director of Hong Kong vACC is required prior to opening this sector.
- 6.15.1.3. TRU shall assume the responsibilities of each TR low sector within the upper airspace. This includes assigning the appropriate STARs to arrivals as well as any other responsibilities listed above within each individual TR sector. Co-ordination with the TR low sectors shall be effected where necessary.

6.15.2. Control Positions and Area of Responsibilities

- 6.15.2.1. The vertical boundary is FL365. Each TR sector will be divided into two with the split at FL365.
- Area Radar Upper (TRU) will be responsible for the airspace in Hong Kong FIR above FL365. The lowest usable flight level is FL370.
 - Each TR sector will be responsible for their respective sector below FL365. The lowest usable flight level is FL360.

6.15.3. Restrictions on Level Allocation

- 6.15.3.1. In order to minimise coordination between sectors when TRU is open, the following procedures shall apply:
- Aircraft departing from Hong Kong or Macau and overflights entering Hong Kong FIR at FL360 or below shall normally be assigned cruising level FL360 or below. TRU shall inform CDC that FL370 or above require prior co-ordination.
 - It is recommended that aircraft landing Hong Kong, Macau, Guangzhou and Shenzhen should be restricted to enter Hong Kong FIR at FL360 or below.

6.15.4. Opening and Closing of TRU

- 6.15.4.1. When TRU is to open, the TRU controller shall inform adjacent ACC/ATCU for traffic entering Hong Kong FIR at or above FL370 to contact Hong Kong Radar on 132.525 MHz.
- 6.15.4.2. When TRU is to close, TRU shall inform adjacent ACC/ATCU for traffic entering Hong Kong FIR to contact the appropriate sector (i.e. resuming normal operations).

6.15.5. Level Change between TRU and TR Low Sectors

- 6.15.5.1. When level change is required across the upper and lower sectors, the following procedures shall apply.
- 6.15.5.2. For level change from TR low sectors into TRU airspace, the transferring TR sector shall climb the subject aircraft to FL360 when it is clear of conflict with any other aircraft in the lower sector and hand off to TRU who shall climb the aircraft into the upper sector without delay.
- 6.15.5.3. For level change from TRU into TR low sectors, TRU shall descend the subject aircraft to FL370 when it is clear of conflict with any other aircraft in the upper sector and hand off to the receiving TR sector who shall descend the aircraft into the lower sector without delay.
- 6.15.5.4. The receiving sector shall not accept the handoff unless the aircraft can vacate the transfer level once the aircraft is accepted.
- 6.15.5.5. It is recommended that aircraft landing Hong Kong, Macau, Guangzhou and Shenzhen when TRU is open should be restricted to enter Hong Kong FIR at FL360 or below to minimise coordination between TRU and the TR low sectors for their descent. Should ACC/ATCU of adjacent FIR transfer such flights above FL360, TRU may, at their discretion, request the adjacent ACC/ATCU concerned to revise the transfer level to other agreed levels at or below FL360 with a reason of "due to conflicting traffic" in Hong Kong FIR.
- 6.15.5.6. Notwithstanding the above, TRU may exercise their discretion to accept flights at levels higher than FL360 taking into account workload and prevailing conditions.

6.15.6. Airspace Integrity

- 6.15.6.1. Aircraft are considered to be infringing the TRU airspace if they are flying above FL360 in the lower sectors.
- 6.15.6.2. Aircraft are considered to be infringing the relevant lower sector airspace if they are flying below FL370 in TRU airspace.
- 6.15.6.3. Controllers shall monitor the traffic closely when there is aircraft descending to FL370 in the upper sector or when there is aircraft climbing to FL360 in the lower sectors to cater for possible bust.

6.16. Procedures for Level Changes for Overflights (All Sectors)

- 6.16.1. The TR controller responsible for transferring the overflight to the next ACC (henceforth referred to as **TR1**) has jurisdiction over and responsibility for the transfer level of the overflight before it leaves Hong Kong airspace.
- 6.16.2. Any level change made before the overflight enters Hong Kong airspace shall be regarded as a level revision by the transferring ACC, and therefore not governed by these level change procedures.
- 6.16.3. On receipt of handoff of an aircraft whose immediate downstream sector is TR1, the controller (henceforth known as **TR2**) shall request an entry flight level into TR1 airspace from TR1.
- 6.16.4. TR1 shall notify TR2 of the entry flight level into TR1 airspace.
- 6.16.5. TR2 shall endeavour to meet the level requirement of TR1. If this cannot be achieved, they shall inform TR1 at what level the flight will be transferred to TR1.
- 6.16.6. Any level change requirement between the TR2 sector and sectors further upstream is subject to co-ordination between the TR sectors.

6.17. Co-ordination between TR Sectors

6.17.1. Overflights **not** subject to Section 6.16 may be transferred to the next sector without prior co-ordination provided that the following conditions have been satisfied:

- The aircraft is on their flight planned route or on a pre-coordinated routing;
- The aircraft has not changed level within 2 minutes of the sector boundary;
- The aircraft ATC assigned speed (if any) has not been changed within 2 minutes of the sector boundary.

6.18. Co-ordination between TR/TMC Sectors

6.18.1. Overflights shall be kept clear of TMC airspace laterally or vertically unless specific co-ordination is carried out.

6.18.2. If due to workload or for other unforeseen reasons TRs cannot provide the standard spacing for TMC, the TR controller shall provide as much spacing as possible and advise the TMC controller.

6.18.3. If TMC requires increased spacing, they shall inform TR of a increased spacing requirement at the earliest opportunity.

6.18.4. When TMC is holding all arrivals the relevant TRs shall be advised. TR/TM shall then co-ordinate speed and in trail spacing for subsequent arrivals.

6.19. Co-ordination between TR/TMC/APP Sectors

6.19.1. During periods of reduced traffic levels, e.g. during quiet periods of night operations, controllers are allowed more flexibility to issue expeditious routings and suspend published profiles. However, controllers should note that in doing so the revised track arrangement may introduce new conflict points that call for the application of different handling techniques for separation assurance.

6.19.2. To ensure separation is maintained during such manoeuvres, all direct track clearances or profile amendments shall be coordinated between the respective Approach, Terminal and Area controllers. When track shortening may create an opposite direction traffic flow, both parties shall agree on the use of appropriate vertical separation or other means of conflict resolution, i.e. define specific separation responsibilities, prior to the issuance of such a clearance.

6.19.3. TR shall deliver arrivals with the in-trail spacing as required by FLC/TMC to achieve an orderly sequence. If the required spacing cannot be achieved, TR shall coordinate with

TMC/FLC/APP before handoff. (Small discrepancies are acceptable as long as the overall average spacing is maintained).

7. GLOSSARY OF TERMS

ABBREVIATION	DEFINITION
FIR	Flight Information Region
ACU	Area Control Unit
ATCU	Air Traffic Control Unit
ACC	Area Control Centre
FLAS	Flight Level Assignment Scheme
TR	Area Radar Control
RVSM	Reduced Vertical Separation Minimum
ATSU	Air Traffic Services Unit
ICAO	International Civil Aviation Organisation
TTR	Terminal Transition Route
RWY	Runway
RFL	Requested Flight Level
TMA	Terminal Manoeuvring Area
UNL	Unlimited
TMC	Terminal Radar Control
ADS-B	Automatic Dependent Surveillance - Broadcast

RECORD OF REVISION

DATE	REV.	REVISION CONTENT	APPROVAL
31 JUL 2018	1	Changes in Content	B. BROWN
19 JUN 2020	2	Updated new sector splits and frequency list	B. BROWN
24 JUN 2020	3	Updated section 5.3.2	J. CHENG
29 FEB 2024	4	Updated text call signs for all positions Added Area Radar Upper sector (event-only) Updated Section 5.2.2 (Primary Area Radar sector) Updated Section 6.1.2 and 6.1.3 (Coordination requirements) Added Section 7.2 (Climbing to Metric Levels) Added Section 8.1 (Issuing Arrival Clearances) Added Section 9.4 (Area Radar Upper Procedures) Added Section 10 (Dongsha Airport Procedures) Added Section 11 (CPDLC) Split Sector Identifiers and Sector Codes	T. SIU
23 APR 2024	5	Updated Section 5.5.2 Added Section 5.1.6	T. SIU
05 OCT 2024	6	Updated Airspace Diagram	T. SIU
28 NOV 2024	7	Updated Frequency for Area Radar Central Updated wording regarding CPDLC usage Updated Section 5.1.4	T. SIU
16 OCT 2025	8	Complete rewrite for readability and organisation Updated various procedures	T. SIU