STANDARD OPERATING PROCEDURES (SOP)
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SUBJECT: Hong Kong Terminal Airspace Standard Operating Procedures

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SCOPE: Outlines standard techniques for VATSIM online ATC service in Hong Kong Approach and Departure positions in the Hong Kong Terminal Airspace

Contents

1. PURPOSE

1.1. This Standard Operating Procedure (SOP) sets forth the procedures for all controllers providing terminal airspace air traffic control service in the Hong Kong Terminal Airspace (TMA) 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 Manager (Standards and Publications). This SOP shall be maintained, revised, updated or cancelled by the Manager (Standards and Publications). Any suggestions for modification / amendment to this SOP should be sent to the Manager (Standards and Publications) for review.

3. DISTRIBUTION

3.1. This SOP is intended for controllers staffing ATC positions in the Hong Kong TMA, as well as other controllers who interface with Hong Kong TMA controllers.

4. BACKGROUND

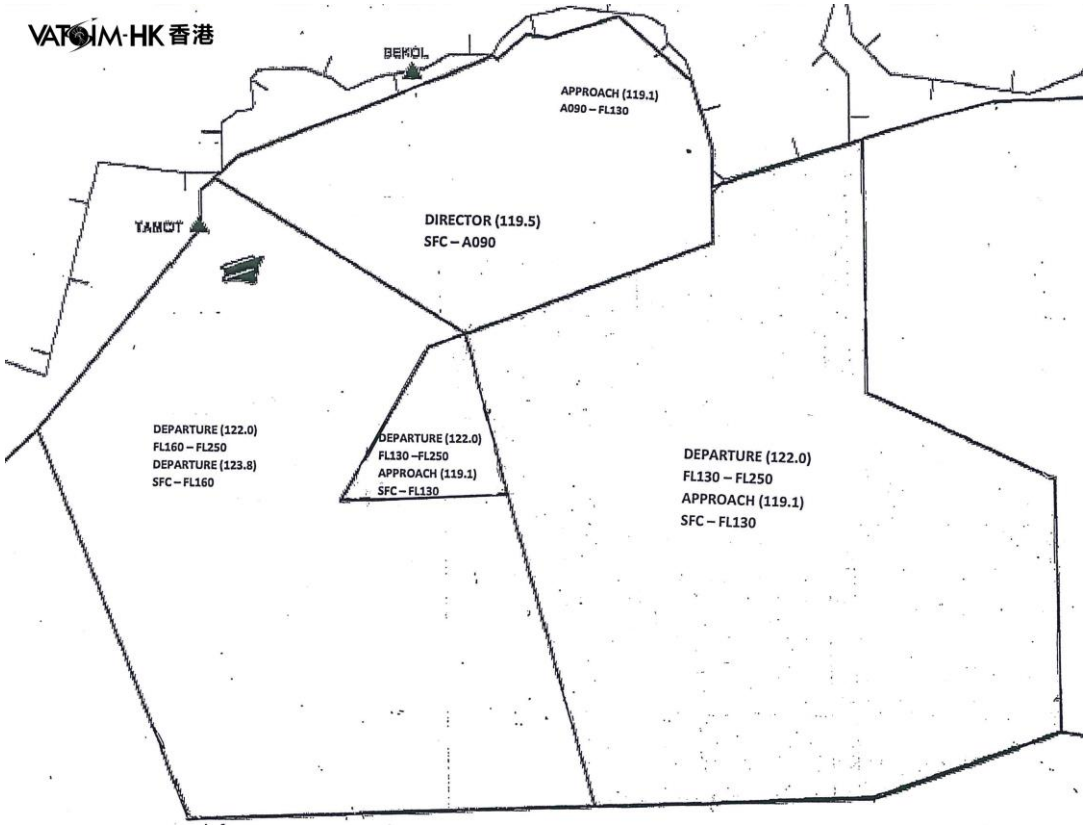
4.1. Over time, it has been observed that a written standard procedure is helpful to Hong Kong TMA controllers due to the vast knowledge required to control within this complex airspace. Due to operational differences between this online environment on VATSIM and that in the real world, it is also necessary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

5. AIRSPACE

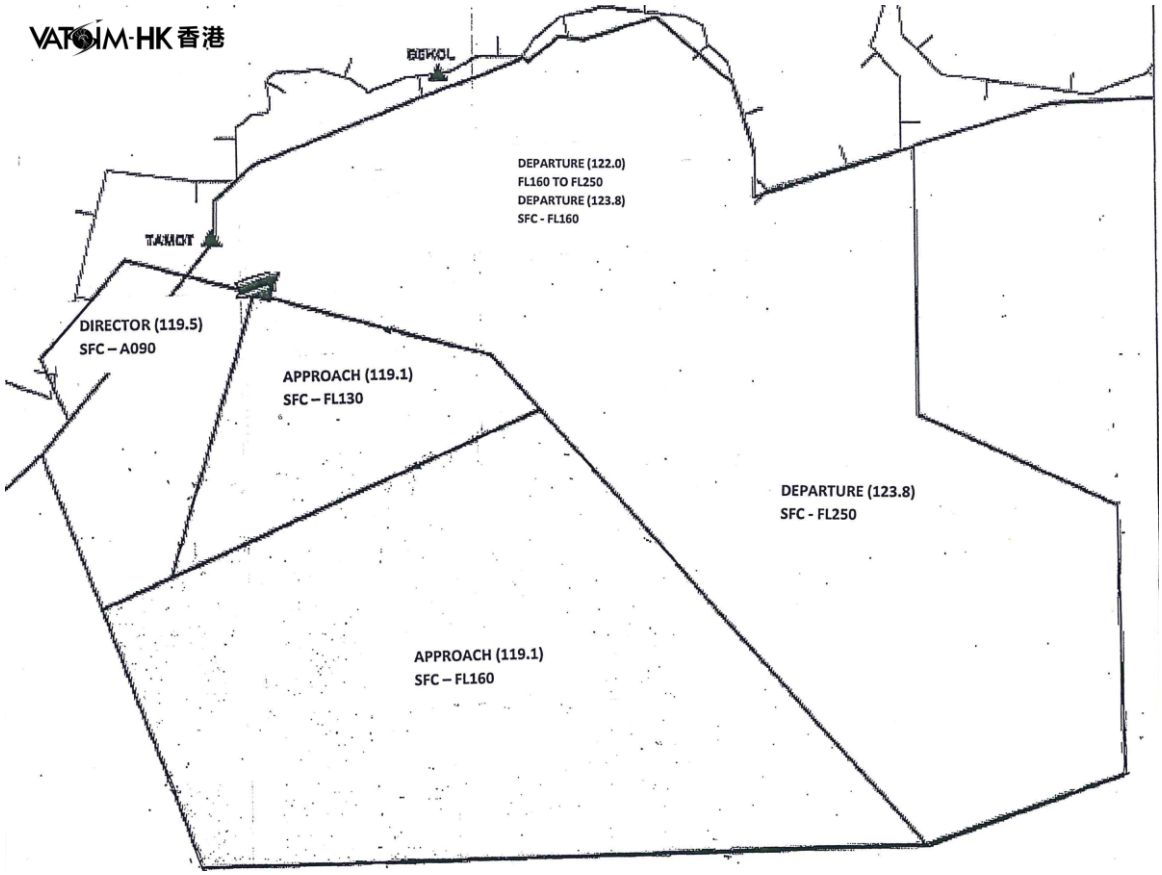
5.1. SECTOR DIAGRAM OF HONG KONG TERMINAL AIRSPACE

5.1.1. Hong Kong Terminal Radar and Approach Airspace

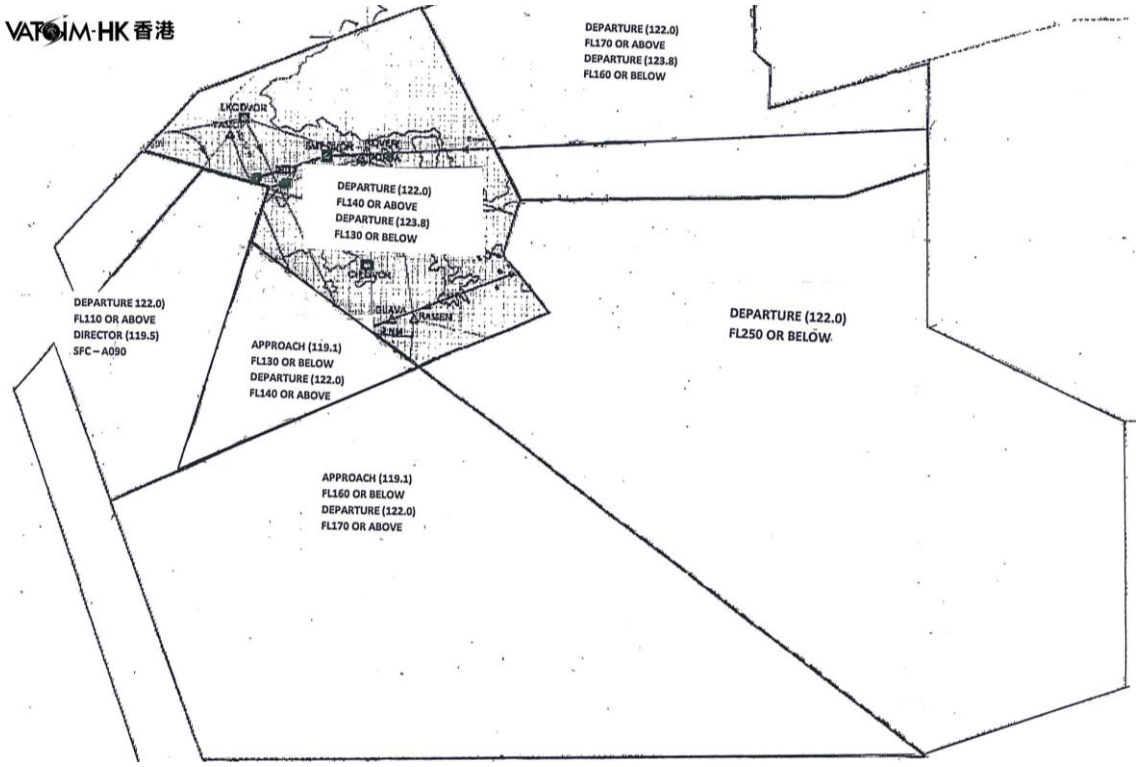
5.1.2. Departure, Approach and Final Approach Director Airspace in 25 Configuration



5.1.3. Departure, Approach and Final Approach Director Airspace in 07 Configuration



5.1.4. Departure, Approach and Final Approach Director Airspace in 07 Noise Configuration



5.2. FREQUENCIES

5.2.1. The following frequencies, text call sign and voice call sign shall be used at all times. Frequencies other than listed may not be used. *(Refer to AIP ENR 2.1)*

POSITION	TEXT CALL SIGN	VOICE CALL SIGN	FREQUENCY
Hong Kong Approach[1]	VHHH_APP	"Hong Kong Approach"	119.100
Hong Kong Departure	VHHH_DEP	"Hong Kong Departure"	123.800
Hong Kong Departure (High)	VHHH_H_DEP	"Hong Kong Departure"	122.000
Hong Kong Director	VHHH_F_APP	"Hong Kong Director"	119.500
Hong Kong Radar (Terminal Radar East)	VHHH_E_APP[2]	"Hong Kong Radar"	126.500
Hong Kong Radar (Terminal Radar South)	VHHH_S_APP[2]	"Hong Kong Radar"	126.300
Hong Kong Radar (Terminal Radar West)	VHHH_W_APP[2]	"Hong Kong Radar"	127.550
Hong Kong Radar (Macau Radar Control)[3]	VMMC_APP	"Hong Kong Radar"	123.950
Hong Kong Zone Control	VHHH_Z_APP	"Hong Kong Zone"	120.600

[1] Approach airspace does not include ATZ and UCARAS.

[2] Although these positions are designated as Hong Kong Radar according to Hong Kong AIP, APP text call signs shall be used in order to allow S3 controllers to control these terminal airspace positions.

[3] When Zhuhai approach or Guangzhou control is offline, VMMC_APP is responsible for the entire path of RWY16 instrument approach procedures.

5.3. SECTORISATION

5.3.1. When only one TMA controller is online, such controller shall use **VHHH_APP and frequency 119.100** to log in. Coverage will be the entire terminal airspace with all terminal radar airspace (SFC-FL250) shown in Figure 5.1.1 unless an area radar controller is online.

5.3.2. If an area radar controller and VHHH_APP are online simultaneously, **VHHH_APP should manage Approach/Departure and Macau Radar Control airspace only** while the rest of terminal radar airspace (TME, TMS and TMW) will be managed by the area radar controller.

5.3.3. When two or more controllers covering the terminal airspace are online, depending on the current and upcoming traffic flow, those controllers shall coordinate and decide on the sectorisation of the airspace. The following are examples of sectorisation methods:

5.3.3.1. When there are one APP controller and one DEP controller, the APP controller shall use the **VHHH_APP** callsign and frequency **119.100**. The DEP controller shall use the **VHHH_DEP** callsign and frequency **123.800**.

5.3.3.2. When the majority of the traffic is arrival aircraft and there are two TMA controllers, one controller shall take **VHHH_APP (119.100)** and the other shall take one of the terminal radar positions (i.e. **VHHH_E_APP, VHHH_S_APP** or **VHHH_W_APP**) depending on the traffic flow.

5.3.4. Controllers shall refer to HKVACC-SOP004 Annex I for strategies in air traffic flow management and coordination between air traffic controllers under multi-sector operations within Approach/Departure airspace.

5.4. HONG KONG ZONE CONTROL

5.4.1. VHHH_Z_APP (Hong Kong Zone) is a position that controls VFR traffic in class C airspace except ATZ. The APP text call sign designator is used due to radar control nature of the position requirement a controller rating of S3 or above. In reality, this is not an approach position, and does not control IFR traffic within the terminal airspace. Controllers and pilots shall not confuse this position with other positions within the terminal airspace.

5.4.2. Controllers shall refer to HKVACC-SOP006 document for procedures related to Hong Kong Zone position.

5.5. HONG KONG DEPARTURE HIGH

5.5.1. VHHH_H_DEP (Hong Kong Departure) is responsible for managing inbound traffic into Macau, Shenzhen, Guangzhou, and outbound traffic from Macau to the east and south. Controllers shall refer to HKVACC-SOP004 Annex I for more details.

5.6. FINAL APPROACH DIRECTOR

5.6.1. VHHH_F_APP (Hong Kong Director) manages the separation of the whole arrival stream in its final approach phase. Its controller must always **maintain his/her vigilance at aircraft's course, speed and altitude** so that aircraft can remain in the proper energy profile and position to commence its approach while attaining required spacing within the traffic stream. This position is exceptionally crucial during major event as it ensures a high arrival rate, which maintains the whole airspace's capacity to intake traffic continuously. Controllers shall refer to HKVACC-SOP004 Annex I for more details.

5.7. TOP-DOWN COVERAGE

5.7.1. When no aerodrome ATC is available at airfields within Hong Kong FIR, the controller online responsible for TMA or Approach/Departure controller shall provide aerodrome ATC service to all **controlled airfields (VHHH, VMMC and VHHX),** except Shek Kong Airfield (VHSK).

5.7.2. When VHHH_Z_APP is not online, VHHH_APP or other controllers controlling the Approach/Departure airspace in Figure 5.1.1 shall be responsible for VHHH_Z_APP position.

5.7.3. When VHHH_H_DEP is not online, VHHH_DEP (or VHHH_APP if VHHH_DEP is offline) shall be responsible for VHHH_H_DEP position.

5.7.4. When VHHH_F_APP is not online, VHHH_APP shall be responsible for the position and its responsibility.

6. GENERAL INFORMATION

6.1. PRIOR TO CONNECTION

6.1.1. Prior to each connection, Hong Kong TMA controllers shall check the weather information at each aerodrome and, if coverage for aerodrome positions is necessary, determine the runway(s)-in-use at the relevant aerodromes.

6.1.2. Hong Kong TMA controllers shall make use of the Hong Kong VACC Discord channel to coordinate with aerodrome controller(s) and Hong Kong Radar controller(s) if they are also online. When other TMA controllers are also online, the controller shall also make use of the Discord channel to arrange sectorisation of the positions. In addition, TMA controllers shall also check if other TMA controllers are already online. If so, arrangement of sectorisation shall be made prior to connection.

6.1.3. Hong Kong TMA controllers shall be **familiar with all SIDs, STARs and IAPs into the three major aerodromes (VHHH, VMMC and VHHX)** prior to connection. They should also be familiar with the airspace floors and ceilings of their respective positions (see Section 5.1). If needed, they should have all the SID/STAR guides ready prior to connection.

6.2. RADAR VECTORS

6.2.1. When departing aircraft is unable to follow SID, the departure controller shall provide radar vectors to such aircraft. Radar vector departure shall be coordinated with aerodrome controllers so that the **proper initial climb altitude** and **heading** after departure is communicated to the aircraft prior to take-off.

6.2.2. If an arrival aircraft is unable to follow STAR and/or published IAP, approach controllers shall provide radar vectors to such aircraft. In the case of aircraft unable to follow certain published ILS approaches, the approach controller may provide radar vectors to the final leg to intercept the localizer.

6.2.3. As a general practice, when providing radar vectors, controllers shall picture on the radar screen and predict whether the heading change and/or altitude change may cause potential conflict. A good rule of thumb is to provide radar vectors that follow closely the routes of the SID/STAR that the aircraft would be using if it was capable of doing so.

6.2.4. When initiating radar vectors, controllers shall state the intention of providing radar vectors. For example:
"UNITED 869, TURN LEFT HEADING 250, RADAR VECTORS TO ILS RUNWAY 07 LEFT"
"OASIS 205, FLY HEADING 020, DUE TO TRAFFIC."

6.2.5. It is common for pilots on VATSIM to deviate from the assigned route or not being able to immediately execute the instruction from a controller. If the deviation may cause potential conflict with other traffic in vicinity, radar vectors shall be provided to avoid such conflict.

6.2.6. Phraseologies: (Reference: ICAO Doc 4444, Chapter 12)

Phraseology:

General assignment of heading:

TMA Controller: *(Callsign)* ***FLY HEADING*** *(three-digit heading); or,*

(Callsign) ***TURN LEFT*** *(or* ***RIGHT****)* ***HEADING*** *(three-digit heading)* ***[REASON IF NEEDED****]*

Examples:

VHHH_APP: DRAGON 908, FLY HEADING 210 DUE TO TRAFFIC.

VHHH_APP: OASIS 801, TURN LEFT HEADING 250 FOR SPACING.

Phraseology:

Holding Manoeuvres:

TMA Controller: *(Callsign)* ***ORBIT LEFT*** *(or* ***RIGHT) [REASON IF NEEDED]****; or,*

(Callsign) ***MAKE A THREE SIXTY TURN LEFT*** *(or* ***RIGHT****).*

TMA Controller: *(Callsign)* ***STOP TURN NOW.***

Examples:

VHHH_APP: AMERICAN 137, ORBIT LEFT FOR SPACING.

Phraseology:

No change of heading:

TMA Controller: *(Callsign)* ***CONTINUE HEADING*** *(three-digit heading); or,*

(Callsign) ***CONTINUE CURRENT HEADING.***

Examples:

VHHH_APP: OASIS 401, CONTINUE HEADING 250.

Phraseology:

Termination of Radar-vectoring:

TMA Controller: *(Callsign) (instruction),* ***RESUME OWN NAVIGATION.***

Examples:

VHHH_APP: AMERICAN 137, TRACK DIRECT OCEAN, RESUME OWN NAVIGATION.

Phraseology:

Assigning a heading after a certain waypoint:

TMA Controller: *(Callsign)* ***LEAVE*** *(waypoint****) HEADING*** *(three-digit heading); or,*

(Callsign) ***AFTER*** *(waypoint), (heading instruction).*

Examples:

VHHH_APP: OASIS 401, LEAVE TANGO-DELTA HEADING 270.

6.3. TRAFFIC SEQUENCING

6.3.1. Basic knowledge

Traffic sequencing normally starts at approximately 100NM from the airport. In the case of VHHH, it will be waypoint MAGOG, SONNY, CYBER and MAPLE. Once the aircraft has passed the aforementioned waypoints, controllers shall determine the aircraft's sequence based on its position from a reference waypoint, which, oftentimes, is the initial approach fix (IAF). In order to achieve a required arrival rate at IAF and a proper spacing at the localizer, controller may need to adjust aircraft's speed or course.

Before giving out instructions, controllers need to be aware of 2 major natural factors that affects the spacing of aircraft in sequence. 1) Ground speed is lower at lower altitude with the same indicated airspeed. This means aircraft's ground speed would keep reducing while it is descending. 2) A *compression* between aircraft would occur throughout the traffic sequence as it approaches the runway. The reduction in separation is the result of the first factor as aircraft at the front of the sequence has already descended to a lower altitude than those at the back, resulting in a lower ground speed, thus the aircraft at the back are catching up. Therefore, when calculating the required separation between 2 aircraft, controllers need to consider the **effect of compression**, **speed difference** of the 2 aircraft and the **minimum separation required by HK AIP ENR1.6 Section 6**. A general rule of thumb is to aim a 2-minute separation at IAP, except LIGHT aircraft, which needs 3 minutes.

6.3.2. Speed Control

Air traffic management always applies strategies ahead of time to counter the possibilities that will happen in the future. The earlier the strategies are employed, the lesser the workload for controllers. Speed control is one of the techniques that are used at the early stages of an approach. It is only effective when it is applied accurately and at the right time. The table below displays the time required for an aircraft maintaining a constant IAS to travel 45NM at a 3° glide, which is roughly the distance to cross terminal radar airspace. This would show you the effectiveness of using speed control.

IAS	Time	Delta time
250	07'56"	
		------ 19"
260	07'37"	
		------ 16"
270	07'21"	
		------ 15"
280	07'06"	
		------ 15"
290	06'51"	
		------ 14"
300	06'37"	
		------ 13"
310	06'24"	
		------ 12"
320	06'12"	
		------ 11"
330	06'01"	

IAS/FL250	TAS
250	375
260	390
270	405
280	420
290	435
300	450
310	465
320	480
330	495

For example, 2 aircraft, which are 1.5-minute separated, just enter TMA airspace. Both travel at 300KIAS. The trailing aircraft needs to reduce to 280KIAS so that 2-minutes spacing can be achieved when reaching APP/DEP airspace.

6.3.3. Point Merge

Point merge is a spacing technique used to combine traffic streams from different directions into a single waypoint. The key parameters of this techniques involve a target, target reference lines, an image and image reference lines. When aircraft enters the target reference line, controllers shall imagine a virtual image on the image reference line with equidistance from the reference point. Two examples are shown in the following images.

Figure 6.1

Figure 6.2

For arrival streams into VHHH, point merge technique is heavily applied at waypoint GUAVA (during 07 ops) and TD (during 25 ops). Figure 6.1 shows the technique used on traffic from BETTY2A and ABBEY3A arrival. A virtual image of the traffic on ABBEY3A is placed on the track of BETTY2A so that controllers can estimate the separation when the two aircraft reaches GUAVA. The same method is done in Figure 6.2, which shows the image being too closed to the preceding traffic. In this situation, controllers shall apply appropriate strategies, e.g. speed control or stretching aircraft's path. If applicable, controllers can even provide radar vectors to instruct the aircraft to fly along the radial lines as shown on the radar screen. Once adequate spacing is achieved, controller can instruct the aircraft to direct to the reference waypoint.

6.3.4. Speed control, radar vectors and holding are the instructions that are used in sequencing traffic. The first two are often applied. However, holding should only be used if aircraft needs to be delayed 6 minutes or more. This strategy would often lead all subsequent traffic in an arrival stream into the holding pattern, thus raising the workload of controllers.

6.3.5. Controllers shall keep in mind that all sequencing strategies must be done as effective as possible in order to keep controllers' workload at minimum.

7. DEPARTURE PROCEDURES

7.1. RADAR CONTROL OF DEPARTURE AIRCRAFT

7.1.1. All RNAV-capable aircraft shall be assigned and shall follow a Standard Instrument Departure (SID) after takeoff.

7.1.2. Departure controller shall refer to the Hong Kong AIP, Macau AIP and Appendix A in HKVACC-SOP001, HKVACC-SOP002, HKVACC-SOP003 documents for a list of all available SIDs at major aerodromes within Hong Kong FIR and their corresponding transition routes.

7.1.3. TMA controllers shall note that some historic aircraft may not be able to follow RNAV SIDs as those aircraft is not capable of RNP1. If such is the case, controllers shall provide radar vectors for departure.

7.1.4. A diagram of all departure routes of VHHH and VMMC can be found in Hong Kong AIP ENR6.5 and ENR6.6.

7.1.5. Once departure aircraft is airborne and has contacted the TMA controllers, it shall be radar identified. An altitude check shall be performed prior to radar identification by checking the altitude reported by the pilot against the displayed altitude on the radar. Such aircraft should be climbing or maintain the assigned initial climb altitude until a higher altitude is assigned.

Phraseology:
VHHH_DEP: *(Callsign)* ***SAY PASSING ALTITUDE.***
Pilot: (Indicated altitude) (Callsign).
VHHH_DEP: *(Callsign)* ***RADAR IDENTIFIED.***

Example 1:
VHHH_DEP: CATHAY 401, HONG KONG DEPARTURE, SAY PASSING ALTITUDE.
CPA401: 1500 FEET, CATHAY 401.
VHHH_DEP: CATHAY 401. IDENTIFIED.

7.1.6. When assigning the next altitude for departing aircraft from **RWY07C/R** of **VHHH**, the TMA controller must consider whether it would cause potential conflict to aircraft on ABBEY3A arrival between **TUNG LONG VOR/DME (TD)** and **GUAVA**, particularly during major events. Controllers shall provide adequate vertical separation as required. Only provide speed control and/or radar vectors separation if absolutely required.

7.1.7. If the cruising altitude of a departing aircraft is higher than to the ceiling of the position of the TMA controller (which is true for most jet flights), temporary climb altitude may be assigned to the ceiling of the TMA controller when it is safe to do so or when there is no other traffic in vicinity. Controllers shall not assign an altitude outside of their airspace.

7.1.8. TMA controllers shall be aware of the slower-than-normal climb rate of long-haul aircraft. These aircraft usually climb slower due to heavy weight and may have constraint on the range of speed at which they are able to fly. Controllers shall avoid assigning vertical speed or horizontal speed restriction on these aircraft unless it is absolutely necessary.

7.1.9. TMA controllers shall always follow the separation minima recommended in ICAO Doc 4444, Section 5.6 when controlling departure aircraft.

7.2. HANDOFF BETWEEN TMA CONTROLLERS AND AREA RADAR CONTROLLERS

7.2.1. When the departing aircraft approaches the ceiling of the position of the TMA controller, handoff shall be initiated unless it is deemed unsafe or special arrangement with other TMA controllers has been made.

7.2.2. Controller shall use the handoff function (i.e. F3 & F4 buttons-Refer to radar client manuals) to properly handoff an aircraft. Pilots shall be instructed to change frequency **AFTER** the receiving controller has accepted the aircraft.

7.2.3. As a good practice, in a situation where there is no other aircraft in vicinity, the TMA controller shall initiate the handoff prior to the aircraft reaching the ceiling of the position of the TMA controller. Doing so can ensure that the aircraft can have an uninterrupted climbing without making any unnecessary stop at an intermediate altitude.

7.3. COORDINATION BETWEEN DEPARTURE TRAFFIC AND KAI TAK TRAFFIC

7.3.1. Since Chek Lap Kok International Airport (VHHH) and Kai Tak International Airport (VHHX) were not designed to coexist. Therefore, special operation arrangements must be made in order to maintain separation between traffic to/from the two airports on the network.

7.3.2. When VHHH operates in 07 configuration while VHHX operates in 13 configuration, it is recommended to use 07C for departure and arrival, and radar vector departure should be used instead of SID. Tower controller shall **instruct the aircraft to fly HDG060 after departure** to avoid conflict between aircraft on the IGS localizer. Approach/Departure controller shall provide radar vectors to guide traffic to the initial waypoint in their flight plan.

7.3.3. When VHHH operates in 07 configuration while VHHX operates in 31 configuration, tower controller **should not release traffic** without instructions from Approach/Departure controller.

8. ARRIVAL PROCEDURES

8.1. RADAR CONTROL OF ARRIVAL AIRCRAFT

8.1.1. Once an arrival aircraft is handed off from Hong Kong Radar, the Terminal Radar controller shall check if the arrival aircraft has been assigned a STAR by the Hong Kong Radar controller. One way to check is through the flight plan route of the aircraft. If the aircraft has not been assigned a STAR, the Terminal Radar controller shall instruct the aircraft to expect the appropriate STAR according to the current arrival runway-in-use. Controllers shall also assign an arrival runway and an IAP (e.g. ILS, RNP, LLZ etc.). If applicable, clear the aircraft for descend according to altitude described in the STAR charts and inform the aircraft its arrival runway.

8.1.2. Once the TMA controller has assigned a STAR and/or landing runway to an arrival aircraft, he/she shall amend the flight plan accordingly. The STAR and landing runway shall be added to the end of the flight plan route following the initial fix of the STAR:

(STAR number)/(runway)

For example:
ABBEY3A/07R
CHALI4A/34

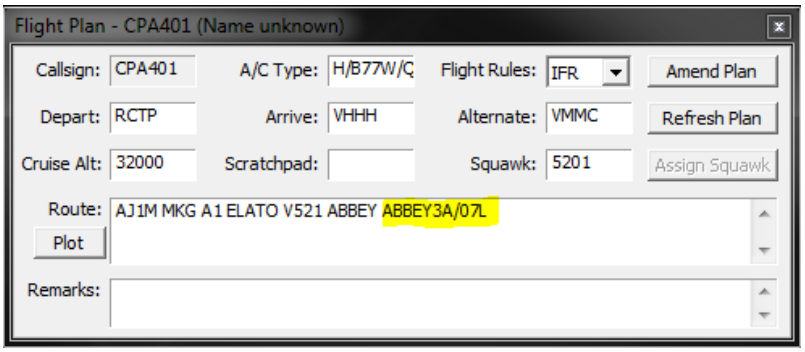


Figure 8.1: Example of adding STAR and landing runway to a flight plan.

Phraseology:
TMA Controller: *(Callsign)* ***EXPECT*** *(STAR procedure)****, RUNWAY*** *(runway)****.***

TMA Controller: *(Callsign)* ***DESCEND TO REACH*** *(altitude/flight level)* ***BY*** *(waypoint), or;*
(Callsign) ***DESCEND TO*** *(altitude/flight level),* ***REACH BY*** *(waypoint).*

When assigning an lower altitude without a waypoint reference,
TMA Controller: *(Callsign)* ***DESCEND TO*** *(altitude/flight level)****.***

Example 1:
VHHH_E_APP: AMERICAN 137, HONG KONG RADAR, IDENTIFIED. EXPECT ABBEY3A ARRIVAL, RUNWAY 07C.
AAL137: EXPECT ABBEY3A ARRIVAL, RUNWAY 07C, AMERICAN 137.
VHHH_E_APP: AMERICAN 137. DESCEND TO REACH FL130, REACH BY MUSEL.
AAL137: DESCEND TO REACH FL130, REACH BY MUSEL, AMERICAN 137.

8.1.3. TMA controller shall note that **all STARs** into VHHH, except those whose numbers end with 1G (e.g. CANTO1G, ABBEY1G etc.), **lead aircraft to the IAF of an ILS approach.** Within the charts of these STAR procedures, it is specified that aircraft shall expect ILS approach for arrival. Therefore, when assigning arrival runway while using these STAR procedures, **it is not necessary to state "expect ILS approach"**. For STAR procedures ending with 1G, controllers shall state the specific RNP the pilot shall expect for arrival
For example,
"OASIS 201, EXPECT CANTO1G ARRIVAL, RNP X RUNWAY 25C APPROACH. DESECND TO REACH FL130 BY CANTO."
"OASIS 201, EXPECT CANTO2A ARRIVAL. RUNWAY 07C. DESCEND TO REACH FL130 by MURRY."

8.1.4. In addition to 8.1.3, for arrival into VHHH, **controller shall assign a STAR that leads to ILS approach of the active arrival runway.** If a pilot has filed in the flight plan route that a STAR ending with 1G is requested, the controller shall confirm the request with the pilot prior to providing STAR clearance.
For example,
"HONG KONG SHUTTLE 801, VERIFY REQUESTING RNAV RNP APPROACH."

8.1.5. For arrivals into VMMC airport, controllers may use the phraseology "**DESCEND TO *** via *** ARRIVAL**" to provide STAR clearance and clearance to descend to a specific altitude indicated on the STAR chart.

8.1.6. TMA controller shall pay close attention the descend rate of arrival aircraft flying the same track, as often times different aircraft have different descend rate and speed. Controllers shall provide vertical separation or speed control as needed. Unless absolutely necessary, controllers shall avoid holding or orbiting within TMA airspace.

8.1.7. As a good practice, TMA controllers should start sequencing arrival aircraft into landing order by providing proper spacing. This is particularly true during major events when arrival aircraft are coming from one direction. Establishing such spacing as early as possible can prevent unnecessary radar-vectoring later on when arrival aircraft are too close together for landing.

8.1.8. Before an arrival aircraft reaches the initial waypoint of a STAR, the TMA controller shall provide STAR clearance with the following phraseology.

Phraseology:

STAR Clearance:

TMA Controller: *(Callsign)* ***CLEAR*** *(STAR number)* ***ARRIVAL****.*

Examples:

VHHH_APP: AMERICAN 137, CLEAR ABBEY3A ARRIVAL.

8.1.9. Before arrival aircraft descend below Transition Level (TL), TMA controller shall ensure that the arrival aircraft has received the latest ATIS or the current QNH number.

8.1.10. For VHHH and VMMC airports, lists of all STARs are listed in Appendix A and Appendix B of this document. TMA controllers shall pay particular attention to the descend altitude(s) and the corresponding waypoints. Controllers shall always use these waypoints to provide descend instructions to arrival aircraft.

8.2. INSTRUMENT APPROACH PROCEUDRES (IAP)

8.2.1. TMA controllers shall be aware of the corresponding IAP(s) of each STAR and their **Initial Approach Fix (IAF)**. The majority of the STAR procedures terminate at the IAF. Hence, controllers shall provide IAP clearance to arrival aircraft at the end of the STAR procedures.

8.2.2. Section 18.2 in AD2.22 of the Hong Kong AIP states that the **standard instrument approach of VHHH shall be ILS approach procedure**. Therefore, it is not necessary to state the type of approach expected in ATIS, and IFR arrival aircraft into VHHH are expected to use ILS approach unless the pilot requests other approach methods. Controllers shall review Sections 18 to 23 in AD2.22 of the Hong Kong AIP prior to provide arrival ATC service at VHHH.

8.2.3. Before issuing IAP clearance, controllers shall ensure that the aircraft is at an altitude adequate for the IAP. This altitude shall be consistent to the altitude indicated for the IAF on the IAP chart. Speed control shall also be applied if it exists.
For example,
Aircraft performing VHHH ILS RWY 07C approach shall cross ***LIMES*** *between 3000feet and 6000feet.*

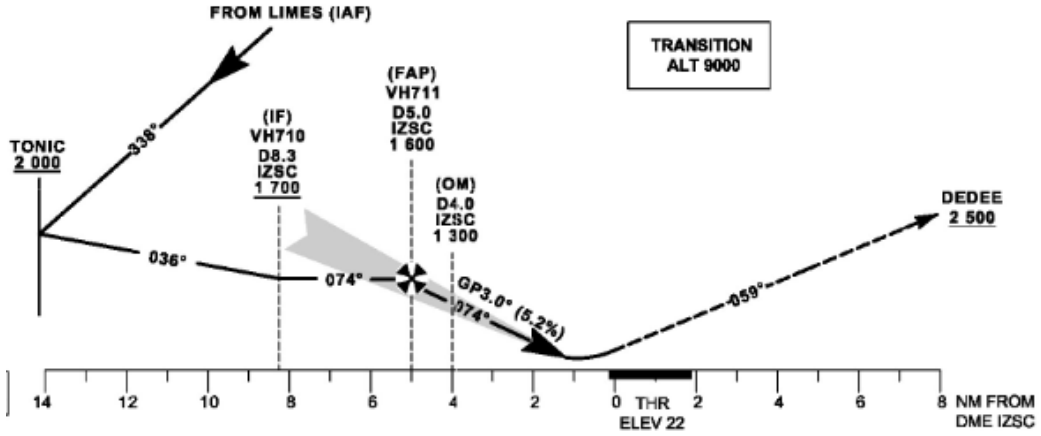


Figure 8.2: The IAF altitude for VHHH ILS07C approach is between 3000ft and 6000ft. (Photo source: Hong Kong AIP AD 2-VHHH-IAC-03A)

8.2.4. TMA controllers shall provide clearance for an IAP before the aircraft reaches the IAF of such IAP.

Phraseology:

IAP Clearance:

TMA Controller: *(Callsign)* ***CLEAR*** *(IAP number)* ***APPROACH [ADD ADDITIONAL INFO IF NEEDED].***

Examples:

VHHH_APP: AMERICAN 137, CLEAR ILS RUNWAY 25C APPROACH.

VHHH_APP: AMERICAN 137, FROM LIMES VIA TONIC, CLEAR ILS RUNWAY 07C APPROACH.

8.2.5. Following real-world practices, when clearing VHHH ILS RWY07C/07R approach, it is necessary to add the instruction "**FROM LIMES VIA TONIC**" (RWY07C) or "**FROM LIMES VIA STELA**" (RWY07R) due to pilots often deviating from the published approach by skipping the waypoints STELA and TONIC.

8.2.6. For Kai Tak **RWY 13** arrival, TMA controllers shall by default assign the **IGS RWY 13** approach with **CH** as the IAF. In addition, due to concerns of potential conflict with VHHH departing and arriving traffic, it is the responsibility of the approach controller to ensure that adequate separation can be maintained. Aircraft on IGS RWY 13 approach shall **maintain 4500 feet until established on the localizer.**

8.2.7. Controllers shall note that the command **"REPORT ESTABLISHED ON THE LOCALIZER**" is not mandatory and shall only be used when needed.

8.2.8. For VMMC arrival, controllers shall refer to and be familiar with the LOA between Guangzhou FIR and Hong Kong FIR regarding the division of responsibility between Hong Kong Approach and Zhuhai Approach.

8.3. HANDOFF OF AIRCRAFT TO TOWER CONTROLLERS

8.3.1. For ILS approaches and VHHX IGS RWY13 approach, aircraft shall be handed off to the Tower controller once the aircraft has established on the localizer. For RNAV/RNP approaches, as a good rule of thumb, aircraft shall be handed off approximately 5nm from touchdown.

8.3.2. As Tower controllers do not provide radar control to IFR aircraft, handoff to Tower shall be performed by simply dropping the aircraft on the radar client (i.e. pressing the F4 button without identifying the next controller).

8.3.3. If missed approach is required, the tower controller shall instructor the aircraft to contact the TMA controllers again. TMA controller shall radar identify such aircraft once it has contacted the controller.

8.4. COORDINATION BETWEEN CHEK LAP KOK ARRIVAL AND KAI TAK ARRIVAL

8.4.1. Controllers shall be aware that current airspace is not designed for simultaneous arrival streams into the 2 airports as the 2 airports were not operated concurrently. Therefore, special operation arrangements must be made in order to maintain separation between traffic flying to the 2 airports on the network.

8.4.2. VHHX and VHHH arrival streams should be sequenced independently and separated vertically. It is recommended that Kai Tak arrival streams are kept on top of Chek Lap Kok arrivals since the vertical profile into Kai Tak is higher than that into Chek Lap Kok. Controllers shall pay special attention to traffic's descent rate. If necessary, controllers may provide radar vectors to maintain lateral separation between the two arrival streams.

8.4.3. When VHHX operates in 13 configuration while VHHH operates in 25 configuration, **IGS13 and only ILS25C should be used**. However, 3 NM separation will be violated. (Only 2 NM separation at closest point between the two glidepaths.) In this situation, separation minima will be ignored only under the following conditions:

1) IGS and ILS traffic must be fully established before reaching 3000ft;
2) traffic information is provided;
3) both traffic has visual contact with each other, and pilots are advised to maintain visual separation.

Controllers shall note that 2) and 3) shall always be done whenever there is traffic established on ILS and IGS.

8.4.4. Although this SOP permits the loss of separation between ILS25C and IGS13 traffic, controllers are advised to do their best to avoid this situation. A simple way to prevent this is not to let traffic cross TD and CH at the same time.

APPENDIX A: REFERENCE GUIDE FOR VHHH STAR ROUTES

(Note: Refer to AD2-87 for a diagram of all STAR and transition routes)

FROM	Initial Fix	07C/R	25L/C (ILS)	25L/C (RNP)	DESCEND FIX/ALT./SPEED CONTROL
DOTMI.V511 (Northeast) ZGZU/ZSHA FIR	ABBEY	ABBEY3A	ABBEY2B	ABBEY1G	MUSEL/FL130/280KIAS GUAVA/5000ft (ABBEY1G only)
ELATO.V521 (East) RCAA FIR					
NOMAN.V531 (Southeast) RPHI FIR	BETTY	BETTY3A	BETTY2B	BETTY1G	MANGO/FL130/280KIAS GUAVA/5000ft (BETTY1G only)
SABNO.V541 (Southeast) RPHI FIR					
SABNO.V542 (Southeast) RPHI FIR					
CARSO.V551 (South) ZJSA FIR					
IDOSI.V561 (South) ZJSA FIR	CANTO	CANTO3A	CANTO2B	CANTO1G	CANTO/+FL130/280KIAS (CANTO3A) MURRY/FL110-FL130 (CANTO3A) CANTO/280KIAS (CANTO2B) MURRY/FL150 (CANTO2B) CANTO/FL130/280KIAS (CANTO1G) GUAVA/5000ft (CANTO1G)
SIKOU.V561 (West) ZGZU/ZJSA FIR					
SIERA (North) ZGZU FIR	SIERA	SIERA7A SIERA7C	SIERA6B SIERA6D	SIERA1G	SIERA/280KIAS BORDA/250KIAS (SIERA7C/6D only) CANTO/+FL130/280KIAS (SIERA7A/7C only) MURRY/FL110-FL130 (SIERA7A/7C) MURRY/FL150 (SIERA6B/6D)

ILS:

RWY	CAT	IAF/ALT. *(Clear ILS before…)*	IF/ALT.	ILS FREQ.
07C	II	LIMES/3000-6000ft	IZSC D8.3NM/1700ft	111.100
07R			ISR D8.3NM/1700ft	109.300
25L	II	TD/6000-8000ft	N/A	108.900
25C	II & III		N/A	110.900

(Reference document: Hong Kong AIP AD2-87 & AD2-98)

APPENDIX B: REFERENCE GUIDE FOR VMMC STAR ROUTES

From VHHK FIR: (Beware of altitude measurement units!)

FROM	Initial Fix	34	16	DESCEND FIX/ALT./SPEED CONTROL	
East	SMT	SMT4A	SMT5B	RWY34	HAZEL (IAF)/FL110
				RWY16	HAZEL/FL110 INDUS/2700m MC514/2100m ZUH (IAF)/1800m
Southwest	CHALI	CHALI4A	CHALI5B	RWY34	CHALI/FL110 RUNLI/9000ft MC611 (IAF)/6000ft
				RWY16	CHALI/FL110 RUNLI/9000ft INDUS/2700m MC514/2100m ZUH (IAF)/1800m

From ZGZU FIR*: (See charts for altitude restrictions)

Initial Fix	34	16
CON	CON6A CON7A	CON9A
POU	POU6A POU7A POU8A	POU9A POU1A
NLG	NLG5A NLG6A NLG7A	N/A
BIGRO	BIGRO6A BIGRO7A	BIGRO9A BIGRO1A

**Zhuhai Approach is responsible for these STARs. See LOA for details.*

ILS RWY34: Use ILS Z unless otherwise requested by pilot

IAP	IAF/ALT	IF/ALT	ILS FREQ.
ILS Z	HAZEL/FL110 MCU/2100m UJ/2400m R163MCU-R205CH/6000ft	PAPA/3000ft	MCN/109.700

LLZ/DME RWY16: Use LLZ/DME Z unless otherwise requested by pilot

IAP	IAF/ALT	IF/ALT	LLZ FREQ.
LLZ Z	ZUH/1800m	D9.0-R217 MCS/2500ft	MCS/111.700

APPENDIX C: REFERENCE GUIDE FOR VHHX STAR ROUTES

FROM	Initial Fix	13	31	DESCEND FIX/ALT./SPEED CONTROL
DOTMI ZGZU/ZSHA FIR	DOTMI	MAGOG13	MAGOG31	RWY13: CH30NM/-FL140/250KIAS 210KIAS below 6000FT RWY31: CH50NM/-FL130 WHISHKEY/7000FT TH30NM/250KIAS 250IAS below 5000FT LIMA/180KIAS
ELATO RCAA FIR	ELATO			
NOMAN RPHI FIR	NOMAN	NOMAN13	NOMAN31	
SABNO RPHI FIR	SABNO	SABNO13	SABNO31	
DULMO RPHI/ZJSA FIR	DULMO	DULMO13	DULMO31	
IDOSI ZJSA FIR	IDOSI	IDOSI13	IDOSI31	
SIKOU ZJSA FIR	SIKOU	SIKOU13	SIKOU31	
POU/TAMOT ZGZU FIR	TOMAT	TAMOT13	TAMOT31	MIKE/FL280, then same as above

IGS RWY13: Use IGS unless otherwise requested by pilot

IAP	IAF	ALT	FREQ.
IGS	CH	CH/8000FT GOLF/6000FT Intercept at 4500FT	111.9 KL

ILS RWY31

IAP	IAF	ALT	ILS FREQ.
ILS	LIMA	LIMA/4500FT	109.9 IHK

RECORD OF REVISION

DATE	REV.	REVISION CONTENT	APPROVAL
31 Jul 2018	1	Updated Diagrams Updated Overall Content	B. BROWN
17 Jun 2020	2	Updated sector diagrams in section 5.1 Updated frequencies in section 5.2.1 Added section 5.3.2 Added section 6.3 Updated section 7.1.3 Added section 7.3 Added section 8.4 Updated appendix A Added appendix C Added HKVACC-SOP004 Annex I	J. CHENG
1 DEC 2021	3	Updated VHHH runway designators Updated section 8.2.3	J. CHENG