

<b>SOP</b>	<b>VATSIM (VIRTUAL AIR TRAFFIC SIMULATION) Standard Operating Procedure</b>	
Subject:	<b>Thailand vACC</b>	Final 4.1
Operations	<b>VATSEA Division</b>	15-July-14

**1. GENERAL:** Operational Instructions - This document will outline the Operational procedures and guidelines for normal operations of ATC within Thailand vACC boundaries.

**1. AIRSPACE:**

a. ATS Airspace classification. Detailed ATS airspace classification can be found in *ENR 1.4-1*.

1. CLASS A Airspace: Shall be that controlled airspace starting at FL290 and extending up to FL600 along ATS routes in Bangkok FIR

Only IFR flights are permitted and all flights are subject to air traffic control services and are separated from each other.

2. CLASS B Airspace: Shall be that controlled airspace starting at FL280 and below along ATS routes in Bangkok FIR.

IFR and VFR flights are permitted and all flights are subject to air traffic control services and are separated from each other.

3. Class C Airspace: "TMA" (Terminal Control Area) and or "CTR" Control Zone. Altitudes and lateral boundaries vary. IFR and VFR flights are permitted and all flights are subject to air traffic control services. IFR separated from IFR and VFR. VFR separated from IFR and receive traffic information in respect to all other flights.

4. Class D Airspace: "TMA" (Terminal Control Area) and or "CTR" Control Zone. Altitudes and lateral boundaries vary. IFR and VFR flights are permitted and all flights are subject to air traffic control services. IFR separated from IFR.

5. Class E Airspace: IFR and VFR flights are permitted and all IFR flights are subject to air traffic control services and are separated from other IFR flights. All flight receive traffic information as far as practical.

6. Class F Airspace: IFR and VFR flights are permitted and all participating IFR flights receive air traffic advisory services and all flight receive flight information services if requested.

7. Class G Airspace: IFR and VFR flights are permitted and receive flight information services if requested.

b. VFR Cruising Altitudes: Detailed information available on Thailand AIP **ENR 1.7-1 section 2.3.2**.

c. IFR Cruising Altitudes: Standard IFR Cruising altitudes are to be used in Bangkok FIR except air routes in section e.

a. Track 360-179 Odd altitudes

b. Track 180-359 Even altitudes

d. RVSM Procedures: RVSM procedures are to be used in Bangkok FIR at all times with vertical separation of 1000 feet provided between aircraft between FL290 and FL410 with the exception of rules established in section e.

e. RVSM Procedures: The following procedures (altitude restrictions) shall be applied when aircraft file for flights along these airways.

**1. L-301, N-895, P-762**

-RVSM, standard ICAO cruise levels apply eastbound

-RVSM, FL300, FL360 westbound

2. **W-1, W-2**
  - RVSM, FL310, FL350 northbound
  - RVSM, FL320, FL360 southbound
3. **L-759, M-770**
  - RVSM, FL310, FL330, FL350, FL370, FL390 eastbound
  - RVSM, FL320, FL340, FL360, FL380, FL400 westbound
4. **A-1, A-202**
  - RVSM, FL290, FL330, FL370, FL390, FL410 eastbound
  - RVSM, FL280, FL300, FL340, FL380, FL400 westbound
5. **G-474, B-202**
  - RVSM, FL330, FL370, FL410 eastbound
  - RVSM, FL280, FL340 westbound
6. **N-891**
  - RVSM, FL260, FL300, FL380 northbound
  - RVSM, FL330 southbound
7. **M-768**
  - RVSM, FL270, FL330, FL410 eastbound
  - RVSM, FL300, FL380 westbound
8. **M-753, M-755**
  - RVSM, FL260, FL300, FL380 northbound
  - RVSM, FL270, FL330 southbound
9. **R-468**
  - RVSM, FL27, FL330, FL410 eastbound
  - RVSM, FL300, FL380 southbound
10. **M-751**
  - RVSM, FL290, FL330, FL350, FL370, FL410 eastbound
  - RVSM, standard ICAO cruise levels applied westbound
11. **R-588**
  - RVSM, FL270 eastbound
  - RVSM, FL28, FL320, FL340 westbound
12. **P-628**
  - RVSM, FL310, FL330, FL350, FL370, FL390, FL410 eastbound
  - RVSM, FL300, FL340, FL360, FL380 westbound
13. **L-645**
  - RVSM, standard ICAO cruise levels apply eastbound
  - RVSM, FL320, FL360 westbound
14. **M-765**
  - RVSM, FL290, FL310, FL330, FL350, FL370 north eastbound
  - RVSM, FL28, FL300, FL320, FL340 south westbound
15. A-1 between BKK and UBL shall be utilized for eastbound traffic only.  
Westbound traffic shall be routed from UBL W-1, A-202 to BKK.
- 16 **A-464**
  - From BKK (south) to KARMI Odd Thousand
  - From KARMI (north) to BKK Even Thousand
- 17 **W-19**
  - From BKK (South) to UPNEP Odd Thousand
  - From UPNEP (North) to BKK Odd Thousand
- 18 **W-9**
  - From BKK (North) to MHS Even Thousand
  - From MHS (South) to BKK Odd Thousand
- 19 **Y-6**
  - Single direction RNAV airway / Even Flight levels / VTBD-VTBS to VTCC only.
  - Route: 19L/R NESTA SID to NESTA D-> TANGO Y6 MARNI, 01L/R JEANS SID JEANS D-> TANGO Y6 MARNI. VTBD 21R FRANK SID FRANK D->TANGO Y6 MARNI.

**20 Y-7**

- Single direction RNAV airway / Odd Flight levels / VTCC to VTBD-VTBS only.
- Route: Rwy 36 Runway Hdg to 2500 right turn 180 then D-> PANTA Y7 TL STAR VTBD/VTBS
- Route Rwy 18 Runway Hdg to 3500 Then D-> PANTA Y7 TL STAR VTBD/VTBS

**20. Y-8**

- Single direction (South) RNAV airway / Even Flight levels / VTBD-VTBS to VTSP/VTSGVTSR/VTSE/VTST or other destination beyond Thailand.
- Route: 19L SEESA SID, 19R COMET SID to SEESA/COMET direct to SABIS
  - 01L/01R FIRNN SID to FIRNN direct SABIS
  - 21L/21R SABIS SID to SIBIS
  - 03L/03R Radar Vectors to SABIS

**21. Y-9**

- Single direction (North) RNAV airway / Even Flight levels / VTSS/VTSM/VTSF/Lumpur FIR to VTBS/VTBD only
- Route: Y9 LEBIM direct SILVA SILVA 1B 19R
  - Y9 LEBIM direct DAREN DAREN 1B 01L
  - Y9 LEBIM direct PAULA PAULA 4A 21R
  - Y9 LEBIM direct BKK Radar Vectors to 03L

**22. Y-10**

- Single direction (South) RNAV airway / Odd Flight levels / VTBD-VTBS to VTSS/VTSM/VTSF or Lumpur FIR.
- Route: 19L SEESA SID, 19R COMET SID to SEESA/COMET direct to KASNI
  - 01L/01R FIRNN SID to FIRNN direct KASNI
  - 21R/21L GRANT SID to GRANT direct KASNI
  - 03L/03R Radar Vectors to KASNI

**23. Y-11**

- Single direction (South) RNAV airway / Odd Flight levels / VTBD-VTBS to WSSS/WIII via VKB
- Route: 19L SEESA SID, 19R COMET SID to SEESA/COMET direct to KASNI
  - 01L/01R FIRNN SID to FIRNN direct KASNI
  - 21R/21L GRANT SID to GRANT direct KASNI
  - 03L/03R Radar Vectors to KASNI

**24. Y-12**

- Single direction (North) RNAV airway / Even Flight levels / WSSS/WIII via VKB to VTBS/VTBD only.
- Route: M644 ALUMO Y10 DOLNI direct DANNY DANNY 1B 19L
  - M644 ALUMO Y10 DOLIN direct CABIN CABIN 1B 01R
  - M644 ALUMO Y10 DOLIN direct HELEN HELEN 5A 21R
  - M644 ALUMO Y10 DOLIN direct BKK Radar Vectors to 03L

**2.CONTROL POSITIONS:**

**A. CENTER:** Bangkok control (Center) position shall:

1. Be responsible air traffic services of en-route air traffic on airways with in Bangkok FIR.
2. Be responsible for all radar/procedural services for Approach/Departure, Tower and ground positions when those positions are not staffed.
3. Provide radar/procedural approach services to controlled airports not covered by

- approach control as described in section 2-B
4. Have the ability to split in to two or three center sectors when operational needs warrant.
  5. Controllers have the option of controlling Center by means of RADAR CONTROL or by Longitudinal Separation Minima with the Mach Number Technique Based on Time (PROCEDURAL Control).
  6. Controllers using the Radar Control method for separating aircraft will maintain 5 NM separation and 1000 ft between all IFR en-route aircraft.
  7. Controllers using (Non-Radar separation) shall follow the procedures dictated in ICAO Document 4444 Chapter 5 (5.4.2.4) "Longitudinal Separation Minima with the Mach Number Technique Based on Time" and will provide a minimum of 10 minute separation.
  8. Use the following verbal call sign, frequency and log on ID when manning the center position(s)
    - i. Single center controller: Bangkok Control, Frequency 132.10, VTBB\_CTR
    - ii. Two center sector split: Bangkok North Control, Freq 132.10, VTBB\_N\_CTR  
Bangkok South Control, Freq 126.60, VTBB\_S\_CTR
    - iii. Three center sector split: Bangkok North Control, Freq 132.10, VTBS\_N\_CTR  
Bangkok Central Control, Freq 135.50, VTBB\_C\_CTR  
Bangkok South Control, Freq 126.60, VTBB\_S\_CTR

**B. APPROACH:** Thailand vACC shall utilize several approach sectors. These Approach sectors will be responsible for one or more TMA (Terminal Control Zone)/CTR (Control Zone) areas. Approach positions have been based on **Thailand AIP "ENR 1.6-1"**. Some approach positions have been added or modified for VATSIM use. Controllers should refer to "ENR 2.1-1" for Airspace Classification, Lateral and vertical boundaries of that controlled airspace. Only Bangkok vACC senior staff members have the authority to activate/establish additional approach positions normally covered by the center controller for special events, training or operational needs. Detailed airport information for each airport with controlled airspace can be found in the AIP section. Each airport will have a face page on the website containing general airport information. Each face sheet shall have a link to detailed airport information (AIP) and aeronautical Charts that that airport.

1. Bangkok Approach, VTBS\_APP. Bangkok Approach shall provide Approach/Departure radar services and be responsible for the separation and sequencing of aircraft in the Bangkok TMA. Refer to Bangkok TMA SOP for details.
2. Chiang Mai Approach, VTCC\_APP. Chiang Mai Approach shall provide radar services and be responsible for the separation and sequencing of aircraft in the following TMA's:
  - i. VTCC Chiang Mai TMA
  - ii. VTCL Lampang TMA
  - iii. VTCH Mae Hong Son TMA
  - iv. VTPM Mae Sot TMA
3. Hat Yai Approach, VTSS\_APP. Hat Yai Approach shall provide radar services and be responsible for the separation and sequencing of aircraft in the following TMA's:
  - i. VTSS Songkhla/Hat Yai TMA
  - ii. VTSC Narathiwat TMA
  - iii. VTSK Pattani TMA
  - iv. VTST Trang TMA
4. Phuket Approach, VTSP\_APP. Phuket Approach shall provide

- radar services and be responsible for the separation and sequencing of aircraft in the following TMA's:
- i. VTSP Phuket TMA
  - ii. VTSG Krabi TMA
  - iii. VTSR Ranong TMA
5. U-Taphao Approach, VTBU\_APP. U-Taphao Approach shall provide radar services and be responsible for the separation and sequencing of aircraft in the U-Taphao TMA.
6. Phitsanulok Approach, VTPP\_APP. Phitsanulok Approach shall provide radar services and be responsible for the separation and sequencing of aircraft in the following TMA's:
- i. VTPP Phitsanulok TMA
  - ii. VTPO Sukhothai TMA
  - iii. VTPT Tak TMA
7. Hua Hin Approach, VTPH\_APP. Hua Hin Approach shall provide radar services and be responsible for the separation and sequencing of aircraft in the following TMA: Prachuap Khiri Khan/ Hua Hin TMA.
8. Bangkok Approach Control Center. This approach position is covered by the on duty Bangkok Center controller. This center controller will be responsible for air traffic services, separation and sequencing of air traffic in TMA & CTR areas without established approach control positions. This controller will also be responsible for those established approach control positions when they are not staffed.

**C. TOWER:** All controlled airports in Bangkok FIR with an established operating tower may be manned. Tower controllers shall log on those positions using the airport ICAO code followed by "TWR". example "VTCC\_TWR"

**D. GROUND:** All controlled airports in Bangkok FIR with an established operating ground control position may be manned. Ground controllers shall log on those positions using the airport ICAO code followed by GND. example "VTBS\_GND"

**3. ROUTING:** Routing issued and approved in accordance of LOA's. Preferred routing shall be maintained on [www.simroutes.com](http://www.simroutes.com)

#### **4. Altimeter Settings:**

- a. Altimeter Format: All barometric pressure reading shall be broadcasted in QNH format.
- b. Transition Altitude: This is the highest level/altitude that pilots should be operating on local altimeter / QNH settings. The transition altitude for all civil aerodromes (TMA's) and ATS airways shall be 11,000 feet.
- c. Transition Level: This is the lowest level/altitude a pilot should be operating on standard pressure (QNE). The transition Level for all civil aerodromes (TMA's) and ATS airways shall be FL130.
- d. Transition Layer: This is the layer between the Transition Altitude and the Transition Level. Aircraft cruising / operating in the transition layer requires a specific

clearance from ATC. (12,000 / FL120)

**5. Aerodrome Traffic Zone:** Aerodrome Traffic Zone is the Tower's controlled airspace which has a radius on 5 NM centered on the airport and extends from the surface to 2000 agl.

**6. Control Zone "CTR":** Control Zones "CTR" are the inner most controlled airspace around a controlled airport. This airspace is controlled and requires a clearance to make entry. This airspace is normally has a 10 mile radius centered on the airport and can extend vertically from the ground up to 5000'. This airspace can have a classification of Charlie or Delta depending on volume of traffic the facility receives. Control Zones "CTR" are represented by the red dashed lines around the airports on the sector file.

**7. Terminal Control Area "TMA":** Terminal Control Areas "TMA" are the outer most controlled airspace around a controlled airport. This airspace is controlled and requires a clearance to make entry. This lateral area of this airspace varies from 20 miles to 50 miles radius from the airport center and is designed to encompass the instrument approach procedures for the airport. The vertical limits vary between 2000 feet and 16,000 feet. This airspace can have a classification of Charlie or Delta depending on volume of traffic the facility receives. Terminal Control Areas "TMA" are represented by the solid green lines around the airports on the sector file. ASR Radar Approach capabilities will be simulated at all TMA's in the Bangkok vACC.

**8. RADAR SYSTEMS, SEPARATION, HAND-OFF & FLIGHT STRIP PROCEEDURES:** For VATSIM purposes Thailand vACC may simulate PSR, SSR and ASR Radar operations at Center, Approach and at all airports in Bangkok FIR. Tower and Ground positions are considered VFR positions. Center controllers have the option of controlling by RADAR or as controlled in the real world via Procedural Control (time based separation).

1. Radar systems:

- a. Primary Surveillance Radar "PSR" is when the orientation of the radar antenna provides the bearing of the aircraft from the ground station, and the time taken for the pulse to reach the target and return provides a measure of the distance of the target from the ground station.
- b. Secondary Surveillance Radar "SSR" uses a second radar antenna to transmit and receive area aircraft data for barometric altitude, identification code, and emergency conditions from the aircrafts Transponder.
- c. Airport Surveillance Radar "ASR" system consists of two integrated electronic subsystems: primary surveillance radar and secondary surveillance radar.

2. Radar Separation in Bangkok FIR/Thailand Division:

- a. In accordance with Thailand AIP ENR 1.6-1 Section 3.3 controllers shall provide a minimum of 5 horizontal mile separation along Airways and in all TMA/CTR with in Bangkok FIR.
- b. Longitude radar separation between en-route aircraft shall be a minimum of 5 NM.
- b. Controllers shall separate one IFR from another IFR aircraft vertically by 1000 feet.
- c. Controllers shall separate an IFR from a VFR aircraft vertically by 500 feet.
- d. If coordination between the controllers concerned has not been effected, separate radar-controlled aircraft from the boundary of adjacent airspace in which radar separation is also being used by 2 ½ miles.
- e. Approach/Departure controllers shall not issue altitudes above their "TMA" controlled airspace unless coordinated with the Center controller.
- f. All radar controllers shall initiate hand-off procedures 15 miles from the boarder of the next control facility.
- g. All hand-off's conducted in accordance with SOP do not require coordination with the next controlling facility.
- h. Controllers shall not allow aircraft to cross control boundaries until the next controlling agency has (accepted the hand-off) assumed control responsibilities for that aircraft.

- i. Controllers using Radar to separate aircraft within the approach areas (TMA and CTR) shall provide the required separation in accordance with ICAO Doc 4444 8.7.3

3. Flight Strips:

- a. Controllers are to add the assigned SID with transition to the route portion of all aircraft flight strips departing airports in Thailand. "SEESA1C REGOS M751 VPK B469 BIKTA"
- b. If there are no SID's for the airport controllers will add the departure runway, transition and "RV" for radar vectors in the route portion of the flight strip. "RV/19R REGOS M751 VPK B469 BIKTA"
- c. Controllers are to add the assigned transition and STAR to the route portion of all aircraft flight strips arriving at airports in Thailand. "VMR B469 VKP M751 REGOS SILVA1B"
- d. Controllers are to add the assigned arrival runway, transition and "RV" radar vectors to the route portion of all aircraft flight strips arriving at airports in Thailand when radar vectors will be provided. "VMR B469 VKP M751 REGOS RV/03L"
- e. Controllers are to add the assigned arrival runway, transition and IAP to the route portion of all aircraft flight strips arriving at airports in Thailand when flying a full procedure approach. "PSL V9 TONUN VOR36/36". A circle to land would look like this ". "PSL V9 TONUN VOR36/18".

**8. AIR ROUTE SYSTEM (ATS):** Thailand air route system is separated into International and Domestic route systems. Thailand air routes can be found in **ENR 3.1-1**.

**A. International Airways:**

1. International Airways are defined as airways that extend beyond the Thailand AIDZ boundary.
2. International Airways are identified by a letter and followed by the route number. The letters listed below are used for international routes in Thailand:
  - i. A example (A1)
  - ii. B example (B202)
  - iii. G example (G473)
  - iv. R example (R215)
3. Magnetic Track, Upper and lower airway limits, lateral limits and direction of cruise levels information can be found in Thailand **ENR 3.1-1**.
4. International routes are toggled on and off through "VEIW" → "HIGH ROUTES" in VRC

**B. Domestic Routes:**

1. Domestic Airways are defined as airways that are contained within the Thailand ADIZ boundary.
2. Domestic Airways are identified with the letter "W" and followed by the route number.  
Examples W1, W26, W31
3. Magnetic Track, Upper and lower airway limits, lateral limits and direction of cruise levels information can be found in Thailand **ENR 3.1-1**.
4. Domestic routes are toggled on and off through "VEIW" → "LOW ROUTES" in VRC

**C. Routing Rules:**

1. No controller shall force a pilot to fly preferred routing at any time. Controllers can recommend or ask if pilot can except preferred routing and then direct pilots to [www.simroutes.com](http://www.simroutes.com) for preferred routing. With the exception of rule 8.C.4

2. Controllers may use any combination of airways (Domestic or International Airways) to facilitate the movement of traffic as long as it does not violate rule 8.C.4 (single direction airways)
3. Pilots may use a combination of Domestic and International Airways to reach their Destination weather inside or outside the Thailand FIR boundary as long as it does not violate rule 8.C.4 (single direction airways)
4. Airways that are single direction airways must be flown in the direction indicated. Refer to [www.skyvector.com](http://www.skyvector.com) for Thailand en-route charts or the Thailand AIP.
  - a. The following airways are single direction: Y1, Y2, Y3, Y4, Y5, Y6, Y7.

## 9. VFR Operations in Thailand Division

1. Flights 10,000 ft and below, visibility must be 5km or more and the pilot must maintain 1500m horizontally and 1000ft vertically from clouds.
2. Flights 10,000 ft up to FL200, Visibility must be 8km or more and the pilot must maintain 1500m horizontally and 1000ft vertically from clouds.
3. No VFR flights are permitted above FL200.
4. No VFR departures will be permitted from a control zone when visibility is less than 5km or reported ceiling is less than 1500 feet above ground.
5. All VFR aircraft departing from a Control Zone including traffic pattern and local flights shall:
  - a. file a basic VFR flight plan
  - b. be issued a VFR departure clearance
  - c. be issued and continue to squawk a four digit code when airborne
  - d. at all time be in radio contact with ATC
  - e. have "VFR" placed in the scratch pad portion of the flight strip
6. All VFR aircraft entering the Thailand ADIZ shall:
  - a. file a basic VFR flight plan
  - b. be issued a VFR clearance and issued a Squawk code.
  - c. at all times be in radio contact with ATC
  - e. have "VFR" placed in the scratch pad portion of the flight strip
7. All VFR aircraft departing uncontrolled (airfields that DO NOT have an operating control tower or are listed as VFR airports in the Thailand AIP )airfields in Thailand shall:
  - a. file a basic VFR flight plan
  - b. have the ability to contact ATC on the ground for a clearance and or squawk code.
  - c. if not contact ATC on the ground for a clearance and or squawk code must contact ATC as soon as practical once airborne for a VFR clearance and Squawk code
  - c. at all time be in radio contact with ATC
  - e. have "VFR" placed in the scratch pad portion of the flight strip
8. All VFR Aircraft are required to maintain VFR at all times and fly at VFR designated altitudes (+500).
9. Controllers will issue instructions to VFR aircraft in control zones or ATS airspace:
  - a. when separation from IFR traffic is required, Traffic alerts will be given when the other aircraft is also VFR.
  - b. upon request of the pilot

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