ENR 1.9 AIR TRAFFIC FLOW MANAGEMENT (ATFM)

1 AIR TRAFFIC FLOW MANAGEMENT (ATFM)

1.1 ATFM is a service to complement the safe, orderly and efficient delivery of Air Traffic Services (ATS) by regulating air traffic flow to match the prevailing capacity at a given airport or airspace. Through ATFM, airspace users (AUs) and ATS units (ATSUs) can be made aware of predicted delays so that timely adjustment to operations and flight schedules could be made accordingly. ATFM measure such as Ground Delay Programme (GDP), Minimum Departure Interval (MDI) and Miles- in-Trail (MIT) are some of the methods to achieve the objectives of ATFM as defined in ICAO's Manual on Collaborative ATFM (Doc 9971).

1.2 For Singapore FIR and airspace where ATS is provided by Singapore (see ENR 2.1), ATFM services are provided by Civil Aviation Authority of Singapore (CAAS) from the Singapore ATFM Unit (ATFMU) operating on a 24-hour basis. The services comprise the planning and implementation of ATFM measures to balance demand and capacity. The review of the effectiveness of ATFM measures are carried out through the conduct of post operation analysis. The implementation of ATFM measures will be coordinated with AUs and ATSUs through Collaborative Decision Making (CDM) processes and agreed operating procedures.

2 ATFM OPERATIONS FOR FLIGHTS ARRIVING AT SINGAPORE CHANGI AIRPORT

2.1 Where necessary, ATFM measures will be applied for flights scheduled to arrive at Singapore Changi Airport (WSSS).

2.2 Flights departing from the following airports may be subjected to ATFM measures:

States/Adminstrations	Airport
Cambodia	VDPP, VDSA, VDSV
China	ZGGG, ZGSZ, ZJHK, ZJSY
Hong Kong	VHHH, VMMC
Indonesia	WIII, WADD, WARR
Malaysia	WBGG, WBKK, WMKI, WMKJ, WMKK, WMKL, WMKP, WMSA
Myanmar	VYMD, VYNT, VYYY
Philippines	RPLL, RPLC, RPVM, RPSP
Republic of Korea	RKSI, RKSS, RKPK, RKPC, RKTN, RKNW
Thailand	VTBS, VTSP, VTBD, VTBU, VTCC, VTCT, VTSB, VTSG, VTSM, VTSS, VTUD
Vietnam	VVTS, VVNB, VVDN, VVCI, VVCR, VVPQ, VVVD, VVVH, VVPB, VVCT, VVDL

2.3 When ATFM measures are applied, the Singapore ATFMU will assign Calculated Take-Off Times (CTOTs) to flights departing from the airports listed in paragraph 2.2 planning to arrive into Singapore Changi Airport.

2.4 AUs and ATSUs are advised to refer to the Air Traffic Flow Management (ATFM) Portal to access CTOTs and/or other pertinent ATFM information via the Civil Aviation Authority Singapore (CAAS) Webpage, link provided: http://www.caas.gov.sg/e-services/air-traffic-flow-management

2.5 Compliance to CTOT during the ATFM operation is important, it contributes to the realisation of the ATFM plan. It would assist in the reduction of the need for tactical airborne delay, promoting a safer and more efficient operating environment for AOs and AUs.

2.6 All AUs planning to arrive into WSSS shall:

a. file and submit FPLs at least 3 hours before the Estimated Off Block Time (EOBT);
b. transmit the appropriate ATS messages (CHG / DLA) when the EOBT changes by more than 15 minutes; and
c. transmit CNL message if the flight is cancelled after the submission of FPL.

2.7 FPLs and ATS messages shall be addressed to WSJCZQZX.

3 ATFM OPERATIONS FOR FLIGHTS PLANNING TO OPERATE WITHIN THE SINGAPORE FIR AND AIRSPACE WHERE ATS IS PROVIDED BY SINGAPORE (SEE ENR 2.1)

3.1 The Singapore ATFMU may implement ATFM measures to facilitate ATC of flow restrictions originated by downstream ATSUs, with the aim to provide a higher level of predictability for AUs and affected upstream ATSUs when operating in the Singapore FIR and airspace where ATS is provided by Singapore (see ENR 2.1). For example, flow restriction on a given ATS

route in a form of Minutes-in-trail MINIT at downstream segments would be converted into CTOT, and/or Calculated Time Over (CTO) at a given waypoint within the Singapore FIR and airspace where ATS is provided by Singapore (see ENR 2.1).

3.2 Procedures for flight plan submission for such ATFM facilitation would be coordinated tactically by the Singapore ATFMU with AUs and affected upstream ATSUs. The transmit of the appropriate ATS messages would take reference from para 2.6 in the above.

Note: In general, Singapore ATFMU would request for FPL to be filed and submitted within 1 hour from the notification of the activation of ATFM measure.

3.3 FPLs and ATS messages should be addressed to WSJCZQZX.

4 SINGAPORE ATFMU CONTACT INFORMATION AND WEB CONFERENCE

4.1 When ATFM measure are implemented, Singapore ATFMU will open a CDM channel for AUs and affected ATSUs through an active web conferencing facilities and ATFM helpdesk thereafter to facilitate operational queries from AUs relating to the ATFM measure.

4.2 The contact details of the Singapore ATFMU are as follows:
Email: CAAS_ATFMU@caas.gov.sg
Phone: (+65) 62414143, (+65) 62414142
Fax: (+65) 62414034

5 BAY OF BENGAL COOPERATIVE ATFM (BOBCAT)

5.1 INTRODUCTION

5.1.1 BOBCAT service is provided by Aeronautical Radio of Thailand LTD (AEROTHAI) from the Bangkok Air Traffic Flow Management Unit (ATFMU) for westbound flights intending to transit Kabul FIR between 2000 UTC and 2359 UTC daily. The service provided includes calculation, promulgation, and management of mandatory Calculated Take-Off Time (CTOT) and flight level, ATS route, and Calculated Time Over (CTO) at entry waypoint for entry into Kabul FIR for each affected flight.

5.1.2 The Bangkok ATFMU operates on a 24-hour basis and is responsible for westbound flights entering the Kabul FIR at specified times, flight levels and ATS routes in accordance with paragraph 5.2. The objectives of this ATFM service are to:

a. Reduce ground and en-route delays;
b. Maximise capacity and optimize the flow of air traffic through Kabul FIR;
c. Provide an informed choice of routing and flight level selection;
d. Alleviate unplanned in-flight re-routing and technical stops; and
e. Assist regional Air Navigation Service Providers (ANSPs) in planning for and managing workload in handling increased air traffic flow through Kabul FIR.

5.1.3 Bangkok ATFMU utilises the automated, web-based BOBCAT in providing ATFM service in Kabul FIR. These responsibilities will be managed in coordination with airspace users and Singapore ATC in the Singapore FIR and airspace where ATS is provided by Singapore (see ENR 2.1).

5.2 ATFM AFFECTED ATS ROUTES, FLIGHT LEVELS AND APPLICABLE HOURS

5.2.1 All westbound flights intending to enter Kabul FIR between 2000 UTC and 2359 UTC daily on ATS routes and flight levels specified in the Table below shall comply with the BOBCAT procedures. This includes a mandatory requirement for all flights to obtain a specific ATFM slot allocation - CTOT, CTO at Kabul FIR entry waypoint, allocated flight level and allocated ATS route from Bangkok ATFMU for entry into Kabul FIR.

Routing through the Kabul FIR	Metering Waypoint	Flight Level
M875 – TAPIS – L509	LAJAK	FL320, FL340, FL360, FL380, FL400
N644	DOBAT	FL320, FL340, FL360, FL380, FL400
L750	BIROS	FL320, FL340, FL360, FL380, FL400
P628	ASLUM	FL320, FL340, FL360, FL380, FL400
UL333	SERKA	FL320, FL340, FL360, FL380, FL400

Note: Flight Levels availability may be subject to changes. Stakeholders may access the BOBCAT website for updated information.

5.2.2 Flights that plan to enter Kabul FIR without an ATFM slot allocation will be accommodated only after flights with slots have been processed. Such flights should expect delayed pushback and start clearances, non- preferred routes and/or flight levels, enroute holding and/or diversion around Kabul FIR.

5.2.3 The following flights are exempted from the BOBCAT procedures:

a. Flights experiencing an emergency, including aircraft subjected to unlawful interference;
b. Flights on search and rescue or rescue and firefighting missions;
c. Urgent medical evacuation flights or humanitarian flights specifically declared by State medical authorities that flight delays would put the life of patients aboard at risk; and
d. Flights with “Head of State” status; or
e. Other flights specifically identified by State authorities.

Note: After medical flights have completed their mission, they should be subjected to ATFM measures. Scheduled patient transfer flights are, by their nature, non-urgent and should not be given priority under normal operational situation.

5.2.4 Flights exempted from ATFM procedures shall indicate the exemption in their flight plan as follows:
(Field 18 - STS-BOB ATFM EXMP).

5.3 MANDATORY CTOT AND KABUL FIR SLOT ALLOCATION

5.3.1 Affected flights shall obtain the mandatory Kabul FIR slot allocation - CTOT, CTO at Kabul FIR entry waypoint, allocated flight level and allocated ATS route from the BOBCAT system. The Kabul FIR slot allocation will enable ANSPs to tactically control westbound flights transiting the Kabul FIR at specified times by assigning minimum spacing requirements at specified FIR boundary waypoints of the Kabul FIR.

5.3.2 The application, calculation and distribution of CTOT and associated Kabul FIR entry waypoint slot allocations will be managed via internet access to the BOBCAT system in accordance with the BOBCAT operating procedures in paragraph 5.4.

5.4 BOBCAT OPERATING PROCEDURES

5.4.1 All affected flights are required to submit their slot requests to the BOBCAT system by logging onto https://www.bobcat.aero between 0000 UTC and 1159 UTC on the day of flight and completing the electronic templates provided.

5.4.2 Affected operators who do not have dedicated BOBCAT username/password access should contact Bangkok ATFMU for an account creation as soon as possible.

Slot Allocation Process

5.4.3 The slot allocation is divided into 3 phases, namely, the slot request submission, initial slot allocation, and slot distribution to aircraft operators and ANSPs.

a) Slot Request Submission

i. Includes preferred ATS routes, flight level and Maximum Delay (MAD). These should be lodged between 0000 UTC and 1159 UTC on the day of flight. Slot requests may subsequently be amended prior to the cut-off time of 1200 UTC. Aircraft operators are encouraged to submit additional slot request options in case their first choice is not available. This may include variations to ATS route, flight level and MADs.

ii. Slot requests shall be for flight parameters that are able to be met by the flight. For example, flights requesting a slot at FL360 must be able to enter Kabul FIR at FL360. Flight subsequently unable to meet slot parameters (flight level, ATS route, or CTO at Kabul FIR entry waypoint) should expect non-preferred routes and/or flight levels, enroute holding and/or diversion around Kabul FIR.

iii. Flights that were not allocated a slot in the initial slot allocation, are not satisfied with the allocated slot or did not submit a slot request should select slots from the listing of remaining unallocated slots available immediately after slot distribution has been completed.

b) Slot Allocation and Distribution

i. Slot allocation will commence at the cut-off time of 1200 UTC. BOBCAT will process and generate the slot allocation based on the information submitted in the slot requests. Notification of slot allocation will be made not later than 1230 UTC via the BOBCAT website and via AFTN using Slot Allocation Message (SAM) in accordance with the Asia/Pacific AFTN/AMHS-Based Interface Control Document.

ii. After the slot allocation has been published at https://www.bobcat.aero, airspace users can:

– Use the slot allocation result for ATS flight planning purposes;
– Cancel the allocated slot; and / or
– Change slot allocation to another available slot in the published list of unallocated slots.

5.5 SUBMISSION OF ATS FLIGHT PLAN

5.5.1 Once aircraft operators are in receipt of the slot allocation, they shall submit the ATS flight plan using the time, ATS route and flight level parameters of the BOBCAT allocated slot.

5.5.2 In addition to the normal AFTN addressees, operators should also address the flight plan (FPL) and related ATS messages (e.g. DLA, CNL, CHG) to the Bangkok ATFMU via AFTN address VTBBZDZX for all flights that have submitted a slot request.

5.6 AIRCRAFT OPERATOR / PILOT-IN-COMMAND AND ANSP RESPONSIBILITIES

Aircraft Operator / Pilot-in-Command

5.6.1 In accordance with ICAO PANS-ATM provisions, it is the responsibility of the Pilot-in-Command (PIC) and the airspace user to ensure that the aircraft is ready to taxi in time to meet any required departure time. PIC shall be kept informed by their aircraft operators of the CTOT, CTO at Kabul FIR entry waypoint and flight parameters (route, flight level) allocated by BOBCAT.

5.6.2 The PIC, in collaboration with ATC, shall arrange take-off as close as possible to the CTOT in order to meet the allocated CTO at Kabul FIR entry waypoint.

5.6.3 For flights with CTOTs from BOBCAT operating out of an A-CDM airport, where the CTOT is integrated into the A-CDM process, PIC is advised to comply with the local A-CDM procedures.

ANSPs

5.6.4 In accordance with ICAO PANS-ATM provisions, flights with an ATFM slot allocation should be given priority for take-off to facilitate compliance with the CTOT.

5.6.5 CTOT shall be included as part of the initial ATC clearance. In collaboration with PIC, Singapore ATC shall ensure that every opportunity and assistance is granted to a flight to meet the allocated CTOT and CTO at Kabul FIR entry waypoint.

5.6.6 Singapore ATC retains responsibility for the tactical management of flights that are subjected to this ATFM measure. In discharging tactical responsibilities, Singapore ATC will manage non-ATFM compliant flights using delayed pushback and start clearances, non-preferred routes and/or flight level.

5.6.7 CTOT compliance window for facilitation of BOBCAT flights is defined to be -5/+10 minutes. As far as practicable, ATC shall manage flights to depart as close to the CTOT as possible.

5.7 COORDINATION BETWEEN AIRCRAFT OPERATOR / PILOT-IN-COMMAND, ANSPs AND BANGKOK ATFMU

5.7.1 The PIC shall include the CTOT in the initial ATC clearance request.

5.7.2 PIC shall adjust cruise flight to comply with slot parameters at the Kabul FIR entry waypoint, requesting appropriate ATC clearances including speed variations in accordance with the published AIP requirements.

5.7.3 Prior to departure, in circumstances where it becomes obvious that the allocated Kabul FIR entry waypoint slot parameters will not be met, a new slot allocation should be obtained as soon as possible primarily via aircraft operators / flight dispatches. Early advice that the Kabul FIR slot parameters would be missed also enables the slots vacated to be efficiently reassigned to other flights.

5.7.4 A missed slot results in considerable increased coordination workload for ATC and PIC and should be avoided. To minimise coordination workload in obtaining a revised slot allocation, the following procedures are recommended:

a. If the flight is still at the gate, coordination should take place via aircraft operators / flight dispatchers to Bangkok ATFMU;
b. If the flight has left the gate, coordination to Bangkok ATFMU may also take place via the ATS unit presently communicating with the flight.

5.7.5 The Bangkok ATFMU (VTBBZDZX) shall be included in the list of AFTN addressees for NOTAMs regarding any planned activities that may affect slot availability (e.g. reservation of airspace / closure of airspace, non- availability of routes, etc.).

5.7.6 The Bangkok ATFMU (VTBBZDZX) shall be included in the list of AFTN addressees for ATS messages (e.g. FPL, DEP, DLA, CHG, CNL) relating to flights subject to ATFM procedures.

5.8 SYSTEM REQUIREMENT

5.8.1 Aircraft operators and Singapore ATC are required to have a device capable of connecting to the BOBCAT website https://www.bobcat.aero via the internet, using the following minimum web browser software (supported with security patches):

a) Microsoft Edge version 129 or newer; or
b) Google Chrome version 137 or newer; or
c) Safari version 18.5 or newer

5.9 ATFM USERS HANDBOOK

5.9.1 Supporting documentation, including detailed information in respect of the ATFM operations described above and other pertinent information has been included in the Bay of Bengal and South Asia ATFM Handbook (the “ATFM Users Handbook”), available at https://www.bobcat.aero

5.9.2 ANSPs and aircraft operators shall ensure that they are conversant with and able to apply the relevant procedures described in the ATFM Users Handbook.

5.10 CONTINGENCY PROCEDURES

5.10.1 In the event that an aircraft operator or Singapore ATC is unable to access the BOBCAT website, the Bangkok ATFMU shall be contacted via the alternative means (telephone, AFTN) described in paragraph 5.12.

5.10.2 Contingency procedures for submission of slot request, including activation of Contingency Slot Request Templates (CSRT), are included in the ATFM Users Handbook.

5.10.3 In the event of BOBCAT system failure, Bangkok ATFMU shall notify all parties concerned and advise that ATFM slot allocation procedures are suspended. In this event, all parties concerned will revert to the existing ATM procedures as applicable outside the daily period of ATFM metering.

5.11 BOBCAT SYSTEM FAULT REPORTING

5.11.1 An ATFM system fault is defined as a significant occurrence affecting an ATS unit, an aircraft operator or Bangkok ATFMU resulting from the application of ATFM procedures.

5.11.2 Aircraft operators and Singapore ATC experiencing an ATFM system fault should complete an ATFM System Fault Report Form from the ATFM Users Handbook and forward it to the Bangkok ATFMU at the address indicated on the form. The Bangkok ATFMU will analyse all reports, make recommendations / suggestions as appropriate and provide feedback to the parties concerned to enable remedial action.

5.12 BANGKOK AIR TRAFFIC FLOW MANAGEMENT UNIT (ATFMU) CONTACT INFORMATION

5.12.1 Bangkok ATFMU may be contacted as follows:

Unit Name	:	Bangkok ATFMU
Telephone	:	+66 2 287 8024
Contingency Mobile	:	+66 8 1829 5256
E-mail	:	atfmu@bobcat.aero
AFTN	:	VTBBZDZX