ATFM TRAINING GUIDE

Chapter 1 - Introduction

General

Air Traffic Flow Management (ATFM) is an enabler of Air Traffic Management (ATM) efficiency and effectiveness. ATFM contributes to the safety, efficiency, cost effectiveness and environmental sustainability of an ATM system. ATFM enhances safety by balancing traffic demand against available capacity, thereby enabling the safe management of air traffic especially in a constrained environment.

As traffic grows, an increasing number of States begin to implement ATFM. As ATFM becomes more widely adopted, it is worth remembering that ATFM's effects are trans-boundary in nature and therefore the operation needs to be coordinated between States. Therefore, ATFM systems need to be compatible and interoperable, with the development of coordinated and harmonized training requirements being the first step in ensuring harmonized ATFM implementation.

In developing a training program, it is important to recognize that ATFM provides a vital support to Air Traffic Control (ATC) services and affects the operations of all ATM stakeholders. ATFM service should therefore be provided by personnel with sufficient knowledge and understanding of an ATM system in which they operate. The comprehensive effects of ATFM on all stakeholders also means that suitable ATFM knowledge should be provided for all stakeholders, not just ATFM service personnel. This is in line with the *ICAO Manual on Collaborative Air Traffic Flow Management (Doc 9971)* which suggests that other non-ANSP stakeholders should also be made aware of and understand the ATFM services and the specific roles they carry in the process.

This document provides guidance for States/ANSPs in systematically developing their ATFM training programs through a set of harmonized training requirements. It describes the requirements for ATFM staff and stakeholder training at various levels befitting the role they play in an ATFM environment. The proposed training requirements are designed to support both local application of ATFM and ATFM operations at the regional level.

Note that the material in this document is a general guidance focusing on ATFM concepts, principles, and procedures. Each State/ANSP will have to add locally specific training requirements and materials especially in relation to the specific ATFM system, equipment, and local procedures used.

ICAO and EUROCONTROL sources were consulted for the development of the training concepts and methodology presented herein. The proposed training syllabus is derived with the support of in-depth ATFM service expertise.

Purpose and Scope of the Document

The purpose of this document is to provide a guideline for the development of ATFM training process and materials by States/ANSPs, and to ensure regional ATFM service personnel and stakeholders have a similar level of knowledge and experience in ATFM.

In many cases, an individual may already possess the required competence and experience in a particular domain and may not need to follow a formal training course on the subject. Nevertheless, a process to confirm the individual's competence should still be followed. The document addresses the following:

- Who is to be trained?
- What pre-requisite skills are required or can be obtained?
- What are the job responsibilities and required competencies?
- What is the required content of ATFM training?
- What is the level of training depending on the level of responsibilities to be exercised?

Structure of the Document

This ATFM training guide consists of 3 chapters and 2 attachments:

- Chapter 1 – Introduction
- Chapter 2 – ATFM Training Structure
- Chapter 3 – Job Responsibilities, Competencies, Training Requirements

- Attachment 1 – Recommended Training Modules (Ab-Initio and Basic)
- Attachment 2 – Example Training Program: Japan

Chapter 2 – ATFM Training Structure

A Model of ATFM Training

ATFM training is the method by which ATFM staff can obtain the appropriate skills to operate an ATFM system and provide ATFM services that are effective, harmonized, and consistent. The training should be provided not only to ATFM unit staff but also to other stakeholders who will need to operate in an ATFM environment, to ensure that all relevant personnel are aware of and understand their roles and responsibilities within an ATFM process. Operational personnel to whom ATFM training should be provided, in addition to the ATFM unit staff, therefore include:

- ANSP
  - ATCs
- Airspace Users
  - Flight Operations/Dispatch Staff
  - Pilots
- Airport Operators
  - Airside Operations Staff
  - Ground Handling Agents
- Military
  - Military ATCs
  - Military Pilots
- Regulatory Body (CAAs and equivalent)
  - Regulators
  - Auditors

An ATFM service is provided by staff at different levels, each with its own training requirements. The different levels of ATFM responsibilities include operations management and supervision, ATFM planning and execution, and essential support staff. Other support functions, CDM partners, and general ATM personnel should also be considered when developing training requirements.

This guidance proposes six-level (taxonomy levels) training objectives as a basis for training requirement development. Different ATFM or ATFM-related personnel can then be assigned the training courses that will provide the required levels of knowledge in various areas appropriate to their functions within the ATFM process. The six levels are:

Level	Objective
Level 0	Learners to be aware of the materials
Level 1	Learners to possess the basic knowledge of the subject and to be able to memorize and retrieve the essential points
Level 2	Learners to have the ability to understand and discuss the subject intelligently, and able to apply the knowledge in certain events
Level 3	Learners to possess thorough knowledge of the subject and the ability to apply it in the development and execution of plans

Level	Objective
Level 4	Learners to be able to integrate the knowledge and establish action plans/methods to resolve a problem in a familiar situation
Level 5	Learners to be able to analyze new situations/complex problems and apply the learned principles to develop resolution strategies

(Source: EUROCONTROL Specification for the ATCO Common Core Content Initial Training)

A matrix should be constructed to determine the level of training and competency required for personnel responsible for the various ATFM function. A partial matrix template is shown below, with the levels shown for illustrative purpose.

Personnel / Subject	Ops Manager	Supervisor	ATFM Planner	ATFM Execution	Ops Support	CDM Partner	General ATM Personnel
ATM	2	2	2	2	2	1	1
ATFM	2	3	4	3	2	2	1
ATC Ops	2	2	2	1	1	1	1
Airport Ops	2	2	2	2	1	1	1
Airline Ops	2	2	2	2	1	1	1
Meteorology	2	2	3	3	2	1	1
ICAO Provisions	3	2	2	2	2	1	1
ATFM Tools	2	2	3	3	3	2	1
Capacity Assessment	2	2	2	1	1	1	1
Airspace Design	2	2	2	1	1	1	1
...	...	...	...	...	...		...

Phases of ATFM Training

ATFM training can be divided into several phases. This document concentrates on training requirements for Ab-Initio and Basic training; other phases are only discussed briefly.

Ab-Initio Training

Ab-initio training is intended to ensure that new ATFM staff possess the necessary contextual knowledge in order to follow the more detailed job-related training. In many cases, staff may already possess some knowledge (e.g. ATC staff will possess the necessary ATC knowledge, airline operations personnel the necessary aircraft operations knowledge). The possession of the necessary ab-initio subject knowledge should be assessed upon recruitment / assignment. In cases where staff already possess the necessary contextual knowledge, they may be exempted in whole or in part from elements of the ab-initio training.

Basic Training

Basic training is the main phase during which the core ATFM and associated operational topics are covered comprehensively. Basic training also covers more detailed knowledge of subjects related to ATFM than in the ab-initio training. At the successful completion of basic

training, the staff member should have all the relevant knowledge to proceed to on-the-job training before performing his/her roles in the ATFM operation.

On-the-Job Training

For an ATFM staff to be able to apply the knowledge from the basic training course in an operational environment, supervised practice in the form of an on-the-job training (OJT) is required. The main purpose of OJT is to reinforce the theoretical knowledge and to help assure staff member's competency to perform the ATFM functions to the required standards. OJT can also follow advanced or refresher training.

Advanced Training

As ATFM functions develop, several advanced ATFM analysis and application techniques are used. Some staff, having progressed in their ATFM careers, will also require a higher level of knowledge and skills for their functions. The advance training modules will therefore be required. The purpose of advanced training is to augment the skills and knowledge of ATFM personnel in dealing with either more specific complex problems or with a wider breadth of issues.

Recurrent/Refresher Training

It is essential that ATFM personnel update his or her competencies in accordance with the latest operational requirements, procedures, and new methodology/technologies through regular recurrent training. ATFM personnel can also be absent from their function for an extended period; recurrent/refresher training should also be administered prior to return-to-service for this case as well.

Training Requirements for ATFM Instructors

To ensure effective provision of ATFM training, ATFM instructors must not only possess thorough knowledge of the subject matters but must also be able to convey the knowledge in a structured and comprehensible way. Where possible, ATFM instructors should also be trained on the principles and methods of effective teaching.

If a State is implementing the ATFM service for the first time and therefore do not have instructors with the expertise needed to provide the training, different solutions should be considered. A *train-the-trainers* package can be provided by the ATFM system provider if a software/system were to be procured.. For more in-depth knowledge of the procedures and processes involved, staff responsible for the training may also be sent to attend courses given by trainers having the experience required to train ATFM staff at training institutions elsewhere.

Chapter 3 – Job Responsibilities, Competencies, Training Requirements

General

Introduction

The first steps in the process of designing detailed training requirements are to:

- Identify job responsibilities and associated performance and measurement criteria,
- Identify the competencies required to meet these job responsibilities and performance.

With full understanding of job responsibilities, it is possible to determine what the competencies are of a fully competent staff member. Items that may be needed to perform this analysis include:

- the specific job or position description or summary,
- specific ATFM organization performance requirements or competencies, and
- standard operating procedures that apply to an individual's position or responsibilities.

When the pre-requisites described above are identified and analyzed, it is possible to design the training required to address the gaps through the development of learning objectives for each competency area. Based on the identification of the learning objectives, a curriculum can then be designed.

Linkages between ATC and ATFM

Before looking at the job responsibilities of an ATFM Unit, it is crucial to understand ATFM linkage with ATC operations. ATFM is a cross-domain activity, and with its comprehensive focus on demand/capacity balancing activity, there is a very strong linkage between ATC operations and ATFM service.

In general, an ATC supervisor is accountable for the provision of ATC services within an area (enroute sector, TMA, aerodrome) for which this service is being provided. As part of that responsibility, he/she is normally also accountable for all strategic and tactical ATFM decisions. In a smaller ATC unit, the supervisor may keep that responsibility, whereas in a larger unit, this can be delegated to an *Airspace Manager*, either being the Flow Management Position (FMP) within the unit or the supervisor of a separate ATFM Unit (ATFMU).

For the airspace manager, either the FMP or the ATFMU supervisor, to be able to make strategic and tactical ATFM decisions, a large measure of ATC knowledge and preferably ATC background is necessary. While the requirement for the airspace managers to have an ATC background may be less critical as ATFM operations mature and issues well documented, it is still important that the training provided ensures the staff fully understand and are able to discuss ATC operations so that the expected outcomes can be achieved.

Over time, the objective should be to develop the ATFMU to become an integral part of ATC operations so that the unit is seen as the manager of the airspace, responsible for the delivery of the right amount of demand and the optimal use of capacity.

Tasks and Competencies

Main Tasks of an ATFM Unit

The main objective of an ATFM unit is ensuring an effective management of airspace availability and capacity, through the optimization of traffic demand and complexity against the ATC capacity.

Such objective requires that the ATFMU maintains a strategic and tactical overview of the network (airspaces and airports within and adjacent to its area of responsibility), being responsible for the development of tactical ATFM strategies in response to demand and capacity issues.

The main tasks of an ATFM unit therefore include:

- Receiving and analysing all ATFM data and associated parameters,
- Planning and coordinating capacity adjustment,
- Developing and distributing ATFM Daily Plan,
- Coordinating tactical ATM resource capacity adjustments in consultation with ATC Supervisors,
- Managing proper execution of ATFM measures,
- Ensuring proper integration of traffic demand inputs,
- Ensuring proper configuration of ATFM support systems,
- Ensuring optimisation of resources through effective CDM process,
- Providing focus and specialist expertise for planning, coordinating, and implementing capacity management and contingency measures, and
- Conducting post operations analysis of ATFM operations.

Competencies for ATFM Staff

To perform the ATFM tasks discussed above, staff needs to possess a number of competencies. They need to have full knowledge of the FIR and/or airports for which the service is provided. They also need to understand the factors impacting ATM resource capacity, as well as the impacts of the ATFM solutions they propose. Most importantly, they need to be able to coordinate and cooperate closely with ATCs, airport operators, airspace users, and other relevant stakeholders effectively.

The required competencies for ATFM staff should include the ability to:

- Determine an accurate picture of air traffic demand,
- Receive, verify, evaluate, enter, and store all relevant ATFM data,
- Monitor the evolution of demand versus capacity,
- Identify all shortfalls and opportunities for capacity optimization,
- Determine the need for ATFM measures in all phases of ATFM,
- Develop and publish ATFM plans with all relevant information,

- Create, maintain, monitor, and adjust all relevant ATFM scenarios and measures,
- Ensure that stakeholders – especially Airspace Users – are provided with advice and guidance for minimising delays and disruption, and
- Know and adhere to all relevant operational instructions, procedures, and letters of agreement.

Training Requirements

This section provides a set of requirements for Ab-Initio and Basic training phases, which can be used by States/Administrations/ANSPs as bases for their training program development.

Ab-Initio ATFM Training

Ab-Initio Training is intended to ensure that new ATFM staff possess the necessary contextual knowledge to follow the more detailed job-related training. In many cases, staff may already possess some knowledge (e.g., ATC staff will possess the necessary ATC knowledge, airline operations personnel the necessary aircraft operations knowledge). The possession of the necessary ab-initio subject knowledge should be assessed upon recruitment / assignment. In cases where staff already possess the necessary contextual knowledge, they may be exempted in whole or in part from elements of the ab-initio training.

Basic Requirements

There are several basic requirements or pre-requisites for the successful conduct of ab-initio ATFM training, including:

- Pre-requisite skills and experience (e.g. experience in ATM, aircraft operations, airport operations),
- Complementary skills (IT, written and oral communication, operations analysis, statistics experience),
- Medical requirements,
- Language requirements

These basic requirements should normally be assessed as part of the ATFM staff recruitment process. Detailed definition of these basic requirements is beyond the scope of this document. However, materials are readily available in the public domain from other ATM-related functions that can be adapted for ATFM recruitment.

Training Content

The focus of ab-initio training should be on the Level-1 and Level-2 understanding of ATFM principles and other related materials. The modules recommended to be covered during the ab-initio training is provided in ***Attachment 1*** to this guidance. As ATFM is a collaborative process involving not just the ANSP but also other stakeholders (airspace users, airport

operators), these stakeholders and their operations should also be part of the training content.

Basic ATFM training

Basic training is the main phase during which the core ATFM and associated operational topics are covered comprehensively. Basic training also covered more detailed knowledge of subjects related to ATFM than in the ab-initio training. At the successful completion of basic training, the staff member should have all the relevant knowledge to proceed to on-the-job training before performing his/her roles in the ATFM operation.

When deciding on training content for a specific Basic Training course, it is important to consider:

- the position that the trainees are going to be trained for, i.e., the job responsibilities,
- the competencies required to carry out the tasks, and
- the background of the trainees, i.e., the competency level.

Recommended Training Modules

Based on the requirements for Ab-Initio and Basic trainings discussed above, ***Attachment 1*** to this guidance provides a set of recommended modules that can be considered by States/Administrations/ANSPs when designing their ATFM training program. Note that the document does not provide a detailed curriculum since it has to be individually prepared to match the needs of specific local environments. States/Administrations/ANSPs should use the set of recommended modules as a starting point and tailor their training programs to be suitable for their needs.

Additionally, ***Attachment 2*** to this guidance provides a description of how one State (Japan) has organized its training for ATFM positions, including the items to be demonstrated by the trainee during the OJT period. This is given as an example for other States/Administrations/ANSPs for the development of their ATFM training programs.

Attachment 1 – Recommended Training Modules

General

This attachment provides a set of recommended training modules that can be adapted by States/Administrations/ANSPs in developing their Ab-Initio and Basic training programs. Note that the document does not provide a detailed curriculum since it has to be individually prepared to match the needs of specific local environments. States/Administrations/ANSPs should use the set of recommended modules as a starting point and tailor their training programs to be suitable for their needs.

Ab-Initio ATFM Training Modules

Training Area	Subject	Objective	Topics	References
Regulatory Framework	Aviation Law & Institutional Background	To understand the regulatory context of national, regional, and global aviation; particularly in relation to the ATM environment	International Aviation Structure & Organizations National Aviation Structure National Regulatory Framework	Chicago Convention, Annex 11 Local legislations & rules
	Local & Regional ATFM Arrangement	To understand the regulatory framework of air traffic flow management (ATFM) at the national and regional levels	National ATFM Infrastructure Asia/Pacific Regional ATFM Arrangement	Local legislations & rules Asia/Pacific Seamless ANS Plan Asia/Pacific Framework for Collaborative ATFM
Air Traffic Management	Air Traffic Management (ATM) Basics	To understand the basic principles of air traffic management and all the underlying services	Air Traffic Services (ATS) - Air Traffic Control Services - Advisory Services - Flight Information Services - Alerting Services	Annex 11 - ATS Doc 4444 - PANS-ATM
			Air Traffic Flow Management (ATFM) - ATFM Background & Concept	Doc 9971 - Manual on Collaborative ATFM

Training Area	Subject	Objective	Topics	References
			Airspace Management (ASM) - ASM Background & Concept	Circular 330 (?)
	Aeronautical Information Service (AIS) Basics	To understand the basic principles of aeronautical information service	Flight Plan Management	
			Aeronautical Information Management - AIP, AIC - NOTAM	
	Communications, Navigation, Surveillance (CNS) Basics	To understand the basic principles of communications, navigation, and surveillance systems as well as the modern CNS concepts including PBN and PBCS; and to appreciate how the loss of these systems can affect ATM capacity, necessitating the use of ATFM solutions	Communication Systems - VHF, HF, UHF - CPDLC	
			Navigation Systems - NDB, VOR, DME - ILS, MLS - GNSS	
			Surveillance Systems - PSR, SSR - ADS-B, ADS-C	
			Modern CNS Concepts - PBN - PBCS	
Air Traffic Flow Management	Air Traffic Flow Management Introduction	To understand the basic principles of air traffic flow management and collaborative decision making, and be ready to further the knowledge in the next phase of training	ATFM Background	Doc 9971 - Manual on Collaborative ATFM
			ATFM Objectives	
			ATFM Benefits	
			ATFM Principles	
			CDM Concept & Processes	

Training Area	Subject	Objective	Topics	References
Meteorology	Meteorology for Aviation	To understand the basic principles of meteorological phenomena and their impacts on flight and ATM operations. To understand also the aviation meteorological information services and their products, which are essential to the safe flight operations	Basics of Meteorological Phenomena	
			Aviation Meteorology Products - METAR, TAF - SIGMET, AIRMET - Significant Weather Charts - Satellite & Radar Images	
			Meteorological Impacts on Aviation - Impacts on Flights - Impacts on ATM System Capacity	
Stakeholder Operations	Airport Operations	To understand the basic principles of airport management and operations, and to appreciate the need for coordination between ATFM service provider and airport operators	Aerodrome Infrastructure	
			Aerodrome Maintenance	
			Aerodrome Capacity Management	
			Airport Scheduling and Slot Coordination	
			Disruption/Crisis Management	
	Airline Operations	To understand the basic principles of airline management and operations, and to appreciate the need for coordination between ATFM service provider and airspace users	Airline Management and Infrastructure	
			Airline Operating Models	
			Airline Flight Scheduling	
			Flight Planning	
			Flight Operations	

Basic ATFM Training Modules

Training Area	Subject	Objective	Topics	References
Regulatory Framework	Local & Regional ATFM Arrangement	To understand the regulatory framework of air traffic flow management (ATFM) at the national and regional levels	National ATFM Infrastructure	Local legislations & rules
			Asia/Pacific Regional ATFM Arrangement	Asia/Pacific Seamless ANS Plan Asia/Pacific Framework for Collaborative ATFM
Air Traffic Management	(n/a)	(n/a)	(n/a)	(n/a)
Air Traffic Flow Management	Foundation of ATFM	To understand the foundations of air traffic flow management, including the philosophy, objectives, and benefits of ATFM operations, and to introduce basic terms and definitions related to ATFM	ATFM Philosophy	Doc 9971 - Manual on Collaborative ATFM
			ATFM Objectives	
			ATFM Benefits	
			ATFM Principles	
			Linkages with other services/processes (ATS, ASM, A-CDM)	
	Foundation of CDM	To understand and appreciate the principle of collaborative decision making (CDM) and to understand the means by which all ATFM stakeholders can collaborate and coordinate	Principles of CDM: Objectives, Benefits, and Requirements	Doc 9971 - Manual on Collaborative ATFM
			ATFM Stakeholders, Roles, and Responsibilities	
			Stakeholder Communications in ATFM Process	

Training Area	Subject	Objective	Topics	References
	ATM Planning	To understand the concept of capacity, factors impacting capacity, and capacity optimization solutions	Concepts of Capacity - Baseline/Declared Capacity - Operational Capacity	Doc 9971 - Manual on Collaborative ATFM
			Factors Impacting Capacity	
			Capacity Assessment Process	
			Capacity Optimization Techniques & Solutions	
	ATFM Process	To understand the various phases of ATFM operations and relevant processes, outcomes, and roles and responsibilities of ATFM service personnel and stakeholders; and to also understand the requisite information for each ATFM phase	Overview of the ATFM Process	Doc 9971 - Manual on Collaborative ATFM Asia/Pacific Framework for Collaborative ATFM Local ATFM Operating Procedure
			Strategic ATFM Operations	
			Pre-Tactical ATFM Operations	
			Tactical ATFM Operations	
	ATFM Solutions	To understand the various demand-capacity balancing solutions that can be applied in various ATFM phases, along with the required supporting infrastructure - such as data exchange agreement and operating procedures - to enable their usage	Capacity Optimization Solutions (e.g. Resectorization, Dynamic sectorization)	Doc 9971 - Manual on Collaborative ATFM
			Demand Distribution Solutions (e.g. Rerouting, Fix Balancing, Level Capping)	
			Demand Regulation Solutions (e.g. Ground Delay Program, Ground Stop, Minimum Departure Intervals)	

Training Area	Subject	Objective	Topics	References
	ATFM Operations Analysis	To understand the framework for ATFM post-operations analysis, and how the analysis can be used to identify challenges and areas for improvements in ATFM operations	ATFM Post-Operations Analysis - Impact Assessment - Compliance Monitoring - Effectiveness Analysis	Asia/Pacific ATFM Post-Operations Analysis Recommended Framework
			ATFM Benefits Analysis	
			Stakeholder Engagement Analysis	
	ATFM Tools	To know how to use the ATFM support systems to carry out ATFM operations	ATFM Data and Data Exchange	Local ATFM Operating Procedure
			ATFM Support Systems	
	ATFM in Contingency Situation	To understand how appropriate ATFM solutions can be used to manage contingency situations	ATM Contingency Plans and Procedures	Local ATFM Operating Procedure
			Adverse Weather Operations	
			ATFM in Adverse Conditions	
	Foundation of A-CDM	To understand the basic concept of A-CDM and relevant processes, and to also understand the linkages between ATFM operations and A-CDM process	A-CDM Concept & Processes	Doc 9971 - Manual on Collaborative ATFM CANSO Guide on A-CDM CANSO Guide on ATFM/A-CDM Integration
			Linkages between ATFM & A-CDM	
			A-CDM Support Tools	
			ATFM/A-CDM Integration	
Meteorology	(n/a)	(n/a)	(n/a)	(n/a)
Stakeholder Operations	(n/a)	(n/a)	(n/a)	(n/a)

Attachment 2 – ATFM Training for ATM Officers in Japan

The **Air Traffic Management Center (ATMC)** is the organization of Japan Civil Aviation Bureau (JCAB) providing ATFM services to the aircraft flying Fukuoka FIR. As soon as he or she is transferred into the ATMC, a rookie ATM officer starts initial training for an assistant position. The training course includes, but are not limited to:

- Concept of Air Traffic Management
- Organizational structure and regulatory bases of ATMC
- Outline of ATM services (i.e., ASM, ATFM, Oceanic ATM, and CDM)
- Knowledge and understanding of the present ATM environment (i.e., FIRs, Sectors of ACCs, TMAs, ATS routes, Training/Restricted areas, Navigational aids, Operations and performances of aircraft, Information processing system/tool/network related to ATM services, Communication procedures, etc.)

The special training for ATFM positions is scheduled following the initial training. The ATFM training consists of two parts. The first part consists of classroom lectures and practical simulator trainings. The second part consists of on-the-job trainings.

The ATFM training starts from the classroom lectures and practical simulator trainings, which are typically programmed as follows:

Day	**Topics**
Day 1	ATFM system and other associated equipment (*management and coordination procedures of standard routes and alternative routes*)
Day 2	Capacity value calculation procedures (*weather and ATFM*)
Day 3	Monitoring and prediction of traffic volume (*flow control procedures*)
Day 4	Algorithm of Expected Departure Clearance Time (EDCT) calculation (*handling procedures related to diversions at major airports*)
Day 5	Cross border ATFM (*characteristics of traffic flow and ATC operating procedures in ACC sectors*)
Day 6	Specifications of airports/aerodromes and ATC operating procedure (*ATM operations plan (OP) and CDM*) (*simulator: extracting relevant information/lists, setting capacities*)
Day 7	Regulations and agreements on ATFM (*simulator: flow management of ACC sectors*)
Day 8	In-house operating procedures (*simulator: flow management of RJTT/RJAA*)
Day 9	Recently introduced/amended procedures (*simulator: flow management of international ATS routes*)
Day 10	Case studies (*final checks*)

The on-the-job training (OJT) is phased and standardized. The trainee and the training supervisors are required to use “OJT check sheet” so that the trainee can master all required skills for ATFM services systematically. The check sheet used in Japan is provided herewith.

Note 1: In the OJT check sheet, the acronym “EDCT” is used. EDCT stands for Expected Departure Clearance Time, which is equivalent to the commonly known Calculated Take-Off Time (CTOT). EDCT is specific to the ATFM system used in Japan.

Note 2: JCAB is developing a new ATM training program that will comply with the competency-based training and assessment method following PANS-TRG procedures. Once developed, the current training program discussed here will be replaced and this document will be updated accordingly.

OJT check sheet			phase A ・B ・C	month	Starting date of the phase													
					A:						B:				C:			
ATFM	crew	graduating class	name	Number of mark" 4" earned by previous month	date	date	date	date	date	date	date	date	date	date	date	date	date	date
					hour	hour	hour	hour	hour	hour	hour	hour	hour	hour	hour	hour	hour	hour
					SV	SV	SV	SV	SV	SV	SV	SV	SV	SV	SV	SV	SV	SV
				4	d1	d2	d3	d4	d5	d6	d7	d8	d9	d10	d11	d12	d13	

phase			Monitoring traffic volume															
A			able to manipulate TEAM and display necessary information timely															
A			able to calculate workload value of sectors per aircraft															
A			able to extract relevant departure flight plans for flow control initiatives															
A			able to evaluate EDCT flow controls before starting/ending the initiatives															
A			able to make the intended target highlight on the screen															
	B		able to evaluate EDCT flow controls including a groundstop															
	B		able to evaluate flow controls thru assignment of departure intervals															
	B		able to evaluate flow controls thru assignment of inflow intervals															
	B		able to except particular aircraft from flow controls or demand tallying process before/during initiatives															
	B		able to monitor airports/sectors with traffic flow characteristics taken into account															
	B		able to analyze flight plans correctly															
	B		checking combine/de-combine status of sectors and conditions of inflight aircraft by manipulating FPVD															
	B		able to plan and input the pre-tactical operation of variable sectors															
		C	able to perceive RWY operation patterns of RJTT/RJAA and input correctly															
		C	able to input capacity values correctly in accordance with present MET conditions or RWY in use															
		C	able to change capacity values in accordance with expected scenarios															
		C	able to predict the change of traffic demand graph and cope with it when traffic is surged against prediction															
		C	able to evaluate intended flow controls with the initiatives planned in the other ATFM position taken into account															
		C	able to cope with the unexpected, such as RWY closure															

			Flow control procedures															
A			able to figure out and input FROM-TO of EDCT flow controls															
A			able to figure out and input START-END of EDCT flow controls															
	B		able to coordinate about the start of flow controls with related ATC facilities															
	B		Conveying just enough information (i.e. flow controlled area, measure, start time, end time, FROM-TO, max demand value, capacity value) to an ATM supervisor before starting initiatives timely															
	B		able to make flow controls on inflight aircraft (i.e. assigning inflow intervals, specifying airspeed/altitude/route, assigning airborne holding)															
	B		able to make flow controls on departures by assigning departure intervals															
	B		able to figure out appropriate FROM-TO of flow controls on airports															
	B		able to figure out appropriate FROM-TO of flow controls on sectors															
	B		able to figure out appropriate FROM-TO of flow controls on ATS routes															
	B		able to adjust EDCT appropriately as needed															
	B		balancing the amount of delay of EDCT and arising no reverse in departure sequence in the respective airports															
	B		able to evaluate and decide the end time of flow controls appropriately															
	B		able to coordinate about the end of flow controls with related ATC facilities															
	B		able to cope with the change in ending time of flow controls (including input timing of "TO")															
	B		able to cope with EDCT exceeding the ending time of flow controls															
		C	able to cope with reversed departure sequence arisen by the capacity change during EDCT flow controls															
		C	able to make flow controls on departures by using the groundstop feature															
		C	able to conduct time frame coordination															
		C	able to make a judgement on whether ongoing ATC restrictions should be changed to ATFM initiatives, and able to cope with the change															

[Marks] 1: incapable/unknowing 2: lack of skill/understanding 3: barely able 4: able 5: well enough

The mark "4" indicates 70-80%, and "5" indicates beyond 80%, which are acceptable level.

When marking "5", the training supervisors should fill in own initials to the right colomn. The "5" marked training items will be exempted in the subsequent OJT.

The training items rarely happen can be substituted by oral tests in the OJT. The mark through oral tests shall be expressed by an encircled number.

Acquiring "4" three times or more, or acquiring "5" can complete the training item. After completing all the training items of the phase, the OJT moves on to the next phas

[Abbreviations] TEAM : Trajectorized Enhanced Aviation Management ...Japanese ATM systems that calculate the required delay and assign EDCTs to appropriate aircraft, EDCT: Expected Departure Clearance Time,

ATFM

phase				4	d1	d2	d3	d4	d5	d6	d7	d8	d9	d10	d11	d12	d13
			Cross Border ATFM														
A			able to extract aircraft groups bound for particular destination via particular ATS route														
	B		able to adequately communicate with foreign ANSPs														
	B		able to make a judgement on whether the ATFM initiatives are consistent with the stipulations of LOA (i.e. flow controlled airport, reason, lead time for coordination, measure)														
	B		able to coordinate with related ATC facilities about the flow controls on G585 (SAPRA) requested from Incheon ACC														
	B		able to coordinate with related ATC facilities about the flow controls requested from Taipei ACC														
		C	able to cope with the unexpected or any change in ATFM initiatives requested by foreign ANSPs														
			Operating procedures for handling diversions														
A			able to notify facilities concerned without omission in accordance with the phase of diversions														
A			able to input start/end diversion to TEAM														
A			able to display number of spots available all day in the phase 1														
	B		able to allocate airports for diversion appropriately in response to requests														
	B		able to manage the case when aircraft request diversion to RJOO														
	B		able to manage the case when the width or length of diverting aircraft is unclear (including A346, B777, B773, B77W, etc)														
	B		able to manage the case when aircraft request diversion to RJTY or RODN														
		C	able to manage the case when aircraft request diversion to airports not registered in TEAM														
		C	able to manipulate TEAM when aircraft canceled diversion														
		C	able to make a judgement and coordination about ending respective phases of diversion														

			Acquiring/providing adequate information																	
A			able to extract necessary NOTAMs quickly																	
A			able to display MET data of particular airports																	
	B		Keeping good watch on the situations being faced in the other ATFM positions																	
	B		able to get information about restricted areas, training/testing areas, etc																	
		C	able to exchange information with the other ATFM positions that will be affected by the own flow controls decided and being started shortly																	
			Miscellaneous																	
	B		able to take over the ongoing ATFM services accurately																	
		C	able to handle rarely happened situations																	

[Marks] 1: incapable/unknowing, 2: lack of skill/understanding, 3: barely able, 4: able, 5: well enough

The mark "4" indicates 70-80%, and "5" indicates beyond 80%, which are acceptable level.

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