



GUIDANCE MATERIAL FOR DIRECT APPROVAL OF AIRCRAFT TYPE TRAINING

CAAT-GM-PEL-DAT

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Approved by

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ABBREVIATIONS

AMC	Acceptable Means of Compliance
CAAT	The Civil Aviation Authority of Thailand
EASA	European Union Aviation Safety Agency
FAA	Federal Aviation Administration
GM	Guidance Material
MTO	Maintenance Training Organisation
MTOE	Maintenance Training Organisation Exposition
NAA	National Aviation Authority
PAPSI	Prospective Applicant's Pre-assessment Statement of Intent
TCAR	Thailand Civil Aviation Requirements

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0. INTRODUCTION

0.1 Scope and Applicability

The Civil Aviation Authority of Thailand (CAAT) is the Competent Authority for direct approval of aircraft type training as the Regulation of the CAAT Issue 25 and TCAR PEL Part-66 & Part-147. CAAT is therefore responsible for the final approval and for establishing procedures detailing how applications and approvals are managed.

This Guidance Material (GM) is applicable to organisations with their principal place of business located in Thailand, and that need to develop:

- The complete type training course (theoretical and practical)
- Differences type training (theoretical and practical)

This GM is not applicable to organisations that hold a CAAT Part 147 approval. These organisations must apply for a change to their approval if they wish to develop or modify a type training course.

The provisions of this GM are complementary to the approval requirements and do not supersede or replace any associated regulatory requirements.

0.2 Purpose

The purpose of this GM is to describe the process for direct approval of aircraft type training and oversight activities.

The holder of a CAAT aircraft maintenance licence in the category B1, B2 or C can request the endorsement of an aircraft type after satisfactory training, if that training is directly approved by the CAAT.

The direct approval of aircraft type training is only done on a case-by-case basis, and it is not granted for long-term periods, since it is not a privilege of the organisation providing the training.

The approval is given for a single training course session. If the organisation wants to repeat the training, a new application will be required. However, the CAAT reserves the right to refuse the application, if the organisation persistently applies for direct approval of aircraft type training without seeking approval as a Maintenance Training Organisation (MTO).

The application for direct approval must be made before the training has started.

The CAAT will consider to approve directly a training course, only in the cases where:

- There is no course available in a CAAT approved Part 147 MTO.
- The aircraft type is considered as an “orphan” aircraft with no support from a Type Certificate holder.
- The type training courses are no longer available. This is the case for old and out-of-production aircraft models, with few units still circulating and no business interest existing for Part-147 MTO to organise a course.

0.3 Associated Instructions

CAAT has developed associated provisions (guidance, forms, checklists, and templates) that detail specific matters, which need to be considered as an integral part of this GM. This information is available on the CAAT website (www.caat.or.th)

0.4 Communication

All documents and correspondence between the maintenance training organisation and CAAT shall be in English. The official e-mail is pel_to@caat.or.th.

0.5 Management of Approvals by CAAT

All process phases (management of approvals, including issuance of audit reports and findings management) are conducted by PEL inspectors and/or PEL-TO personnel.

0.6 References

- Air Navigation Act B.E. 2497
- Regulation of the CAAT Issue 25 on the Qualifications and Privileges of Aircraft Maintenance Licence (AML)
- Requirement of the CAAT Issue 45 on the Application for and Issuance of Personnel Licence and Rating Endorsement
- Thailand Civil Aviation Regulation (TCAR) on Aircraft Maintenance Licence (AML) Requirements (TCAR PEL PART-66)
- Acceptable Means of Compliance to Thailand Civil Aviation Regulation (TCAR) on AML Requirements (AMC to TCAR PEL Part-66)
- Thailand Civil Aviation Regulation (TCAR) on Maintenance Training Organisation (MTO) Certificate Requirements (TCAR PEL PART 147)
- Acceptable Means of Compliance to Thailand Civil Aviation Regulation (TCAR) on Maintenance Training Organisation (MTO) Certificate Requirements (AMC to TCAR PEL Part 147)

1. DIRECT APPROVAL PROCESSES

Application will be considered using the following processes:

- Application process
- Document evaluation process
- Demonstration and inspection process
- Approval process

1.1 Application process

An applicant needs to submit to CAAT, an official letter/statement indicating the intention to initiate the approval process. The official letter should be submitted via pel_to@caat.or.th.

The applicant will be required to meet (face to face meeting, video conference, etc.) with CAAT to discuss the application and approval processes in order to ensure that all applicable regulations and requirements are met.

The initial application package must be included the detailed training procedure (Direct Course procedure) with associated NAA/EASA MTOE and the completed initial version of compliance review and approval checklist, demonstrating that the theoretical instruction and the practical assessment will be delivered to the standards of TCAR PEL Part-66 and Part-147, as applicable.

The detailed Direct Course procedure must be presented in a separate document to the CAAT for approval.

In addition, the applicant must submit with the following documents, if they are not included in the procedure.

- Sample of the training course material for the theoretical training
- Sample of the examination questions for the theory training
- Completed Training Needs Analysis
- Sample of the course completion certificate
- Sample of the practical assessment
- Nomination of the instructors/examiners/assessors with evidence of their relevant experience
- Sample of the logbook to be used for the practical training
- Any other documents that are referred in the procedure

When incorrect or incomplete information is supplied, the applicant will be notified as soon as possible, detailing the omissions and errors. In cases where an application is refused, the applicant will be notified of this by CAAT official letter together with the associated reasons. CAAT will acknowledge acceptability of the formal application.

A CAAT audit team, with an appointed lead auditor, will carry out the approval process and advise a main contact point, which should be used for discussions relating to technical issues.

The number of auditors is normally limited to two; however, in some cases this may be increased based on the following criteria:

- Complexity of the approval
- Number and location of sites to be audited
- Size of the organisation

- Nature of the Type training
- Appropriate technical experts/subject matter experts
- Specific situations that may arise

CAAT staff under training may participate in approval teams at no direct cost to the applicant.

1.2 Document Evaluation Process

1.2.1 Review of Submitted Documentation

a) Detailed training procedure (Direct Course procedure) with associated NAA/EASA MTOE

The Direct Course procedure must describe the training facilities (classrooms, maintenance), the instructional equipment (simulator, ...), the qualifications of the personnel responsible for the conduct of the training course (instructor, examiner, assessor), the course syllabus, the training need analysis (TNA), the examination process (security of questions, invigilation), the content and storage of records, the document given to the student at completion of the training.

An acceptable template for the detailed Direct Course procedure is described in the following contents.

Procedure Content

PART 1 - ORGANISATION

- Commitment from the course provider that access to training facilities is extended for CAAT inspectors to audit the proper performance of the approved course.
- Organisation chart
- Description of facilities
- Management personnel responsible for the delivery and preparation of the course
- Duties and responsibilities of management personnel, Instructors, Knowledge examiners and Practical assessors
- List of instructors and examiners
- Qualification of the instructors, examiners and assessors
- Content and retention of records of the qualified instructors, examiners and assessors
- Course title and description
- Preparation, control & issue of training course certificates
- Documentation and records provided to the student to justify the satisfactory completion of the training course and related assessment

PART 2 - TRAINING PROCEDURES

- Preparation of course material
- the material and documentation provided to the student (assess where possible if the training documentation/material came from a reputable source);
- Preparation of classrooms and equipment
- Preparation of workshops/maintenance facilities and equipment
- Conduct of theoretical training & practical training (during basic knowledge training and type/ task training)
- Content and storage of training records

PART 3 - EXAMINATION AND ASSESSMENT PROCEDURES

- Organisation of examinations
- Security and preparation of examination material
- Preparation of examination rooms
- Conduct of examinations (basic knowledge examinations, type/ task training examinations and type examinations)
- Conduct of practical assessments (during basic knowledge training and type/ task training)

- Marking and record of examinations
- Storage of examination records

PART 4 - APPENDICES

- Example of documents and forms used
- Syllabus of training course

b) Proposed Training Package

CAAT will review the proposed Training Package to ensure compliance with TCAR PEL Part-66/Part-147 and applicable requirements.

Note:

- If any of the above draft documents are not acceptable, CAAT will cease the review and send the appropriate documents back to the applicant for revision.
- After satisfactory completion of the review of the submitted procedure and associated documents, the CAAT will notify to the applicant the audit schedule, if necessary.

c) Nominated instructors/examiners/assessors

CAAT will verify the compliance of the nominated instructors/examiners/assessors with the applicable requirements.

1.2.2 Preparation for the CAAT Audit

After receipt of an acceptable:

- draft of the Direct Course procedure with associated NAA/EASAMTOE
- associated documents (Instructor/Examiner/Assessor List, Internal procedures, etc.)
- completed Compliance Review and Approval Checklist
- Training Package

CAAT will initiate the demonstration and inspection activities.

CAAT will liaise regarding a suitable schedule for the audit program. The applicant is required to provide any necessary administrative support, such as for obtaining Visas (letters of invitations), hotel reservations, transportation, etc.

1.2.3 Inspection Fee Payment

CAAT will notify the fee details to the applicant together with an invoice through email. The inspection fee payment must be completed before the CAAT audit.

1.3 Demonstration and Inspection Process

1.3.1 Conducting the Inspection

The audit will be conducted in accordance with the standard equivalent to that of TCAR PEL Part-66/Part-147 and relevant procedures and manuals.

The following points will be addressed:

a) Course Provider

The responsibilities of the course provider must be clearly defined in the course procedure.

The applicant will nominate a person that will take responsibility and accountability to ensure that the

course procedures are followed during the conduct of the training. A statement of commitment is required. The statement will confirm that access to the training facilities is extended to CAAT inspectors for the purposes of an audit during the performance of the approved course.

If the organisation has a quality management system, a statement of compliance from the quality manager will be required, confirming that the organisation has the necessary means and equipment to conduct the course as prescribed in the Direct Course procedure. Otherwise, this statement must be signed by the nominated responsible person.

The qualification and experience of the instructors, examiners and assessors must be described for each person to a standard equivalent to that of TCAR PEL Part-147. CAAT will require to see evidence of this experience and qualification.

The training personnel must show a professional integrity, responsible attitude, and ethical approach towards training activities.

The practical assessor must hold an aircraft maintenance licence relevant to the aircraft type being taught. In the case the licence is endorsed with an aircraft type of similar technology, the assessor must demonstrate adequate understanding and knowledge of the differences in the aircraft types.

The practical assessor will have a minimum of 2 year of maintenance experience on the subject aircraft type, or other aircraft type of equivalent technology.

The training personnel must receive sufficient training on new training methods and associated tools, such as maintenance training simulator and virtual reality, if these methods are used for the subject course.

A general knowledge of TCAR PEL Part-66 and Part-147 requirements, an appropriate level of understanding in the language of the training topic and material, and a detailed knowledge of the course procedure are required for all training personnel.

The Direct Course procedure will describe the teaching methods and the instructional equipment, that will be used during the training.

For the theoretical part of the training, it is acceptable to teach with maintenance training device and virtual reality.

For the practical training and assessment, the organisation must have access to an operational aircraft of the type being taught. An equivalent type is not acceptable.

If the training organisation does not an aircraft maintenance organisation certificate for the aircraft type, a contract will be required between the training organisation and another maintenance organisation for the duration of the training. The contract will stipulate as a minimum:

- Maintenance organisation location and capability
- Conditions of access to the aircraft by the training personnel and the students
- Availability of an authorised maintenance engineer from the maintenance organisation to assist the instructor for opening and closing inspection panels; in no case should the instructor, assessor and students remove or install aircraft components
- Debrief on safety and security within the maintenance facilities
- Dates, time and period of access to the aircraft

The Direct Course procedure will describe in detail the documentation and training material that the students will receive. If the training material is provided in digital format, the organisation is required to ensure that all students have the means to access this format. Otherwise, alternate support must be provided, such as printed copy of the same material.

The training material must be finalised at the time the CAAT approves the Direct Course procedure. In case the training material requires some significant changes, the organisation must inform the CAAT of these significant changes before the commencement of the course.

The Direct Course procedure must also describe the documentation and records to be provided to the student to justify the satisfactory completion of the training course and related assessment. In addition to the Certificate of Completion, these records shall be sufficiently detailed to demonstrate to the CAAT that the content and duration of the approved course have been met, and that the practical assessment has been successfully passed.

b) Course content and duration

The objective of the theoretical training is to gain a detailed theoretical knowledge of the aircraft systems, structure, operations, maintenance, repair, and troubleshooting in accordance with the approved maintenance data. The student shall be able to demonstrate the use of manuals and approved procedures, including the knowledge of relevant inspections and limitations.

The objective of the practical training is for maintenance staff to gain the required competence in performing safe maintenance, inspections and routine work according to the maintenance manual and other relevant instructions (for instance, MEL, ETOPS checks, troubleshooting, repairs, adjustments, replacements, rigging and functional checks). It includes the demonstration of the relevant use of technical literature and documentation, and of specialist/special tooling and test equipment.

The duration and coverage of the syllabus must be justified through the training need analysis (TNA), identifying all the areas and elements where there is a need for training, as well as the associated learning objectives, considering the design philosophy of the aircraft type, the operational environment, the type of operations and the operational experience.

The levels of knowledge and associated objectives are described in point 2 of Appendix III to Part 66. These levels of knowledge are progressive:

- Level 1: A brief overview of the airframe, systems and powerplant as outlined in the Systems Description Section of the Aircraft Maintenance Manual/Instructions for Continued Airworthiness.
- Level 2: Basic system overview of controls, indicators, principal components, including their location and purpose, servicing and minor troubleshooting. General knowledge of the theoretical and practical aspects of the subject.
- Level 3: Detailed description, operation, component location, removal/installation and BITE and troubleshooting procedures to maintenance manual level.

The syllabus for the theoretical training shall include, as a minimum, the ATA chapters described in point 3.1(e) of Appendix III to Part 66, as applicable to the aircraft type, including type variations, new technology, significant design changes, experience from operation of type.

The practical tasks shall be representative of the aircraft and systems, and should be selected because of

their frequency, complexity, variety, safety, criticality, novelty, and service experience.

The table in point 3.2(b) of Appendix III to Part 66 describes the practical tasks that are considered important to ensure that the operation, function, installation, and safety significance of key maintenance tasks is adequately addressed on a generic aircraft type.

A minimum of 50% of those practical tasks should be covered. There should be a balanced mix of simple tasks (LOC, FOT, SGH) and more complex tasks (R/I, TS).

Some Removal/Installation tasks will actually not be performed on the aircraft to avoid damaging the aircraft systems, when the same task is repetitively done by the students. However, these R/I tasks should not be omitted, and should be taught in sufficient details to inform the students on all the steps and cautions required if they had to perform the task.

The minimum duration of the theoretical training is prescribed in point 3.1(c) of Appendix III to Part 66 for each category of licence, as applicable to the aircraft group. For instance, for Aeroplanes with a maximum take-off mass above 30000 kg, the B1.1 course should not be less than 150 hours.

For large aeroplanes with a MTOM equal or above 30000kg, the total duration for the practical element of a type rating training course should not be less than two weeks, considering the number of systems to train on. A shorter duration meeting the objectives of the training and taking into account pedagogical aspects (maximum duration per day) may be acceptable if clearly justified in the TNA.

The practical training may be integrated to the theoretical training, for instance, the LOC tasks could be done to facilitate the understanding of the systems diagram. However, the practical training should not be performed before the theoretical training has started, as the student needs the appropriate theoretical knowledge before interfacing with the aircraft systems.

The maximum number of training hours per day (Human Factors principle to be considered) and the maximum number of trainees per practical instructor

c) Examination/Assessment procedure

The Direct Course procedure must describe the examination/assessment process for the theoretical training and the practical training in accordance with the standards of Appendix III of Part 66.

The organisation shall nominate a person in the role of an examination/assessment manager, who will take responsibilities to ensure the security of all the examination documentation and examination process. The records of students, examination papers and results must be maintained in a secure cabinet.

The examination manager will ensure that the examination questionnaires are selected from a secure database, no sooner than the day of the examination.

The examination location must meet the requirements for a secure examination process:

- There is appropriate segregation between examinees to ensure that the examination material of one examinee is not visible to another examinee
- There is sufficient visibility of each examinee from any point in the examination room
- There is no training material or any other source of information related to the examination (visual aids, mock-ups, components,...)
- The examinees do not have in their possession any items that may help them to obtain answers to the question (mobile phone, equipment, manuals, ...)

The examination shall be performed with at least one examiner present. The examiner shall not have been involved in the training of the students.

After completion of the theoretical training, a written examination is required, to the process described in the Appendix III of Part 66:

- Format of the examination is of the multi-choice type. Each question shall have 3 alternative answers of which only one is the correct answer.
- The total time is based on the total number of questions and the time for answering is based upon a nominal average of 90 seconds per question.
- The incorrect alternatives shall seem equally plausible to anyone ignorant of the subject. All the alternatives shall be clearly related to the question and of similar vocabulary, grammatical construction and length.
- The level of examination for each chapter shall be the one defined in point 2 of Appendix III of Part 66.
- The examination shall be of the closed book type. No reference material is permitted.
- The minimum number of questions is related to the course length with at least one question for each hour of instruction.
- The minimum examination pass mark is 75 %. Penalty marking (negative points for failed questions) is not permitted.
- End of module phase examinations cannot be used as part of the final examination.

The examination and assessment shall ensure that the student has achieved the required competence, such as:

- Discuss with confidence the aircraft and its systems.
- Safe performance of maintenance, inspections and routine work according to the maintenance manual and other relevant instructions and tasks as appropriate for the type of aircraft (troubleshooting, repairs, adjustments, replacements, rigging and functional checks such as engine run, ...)
- Correct use all technical literature and documentation for the aircraft.
- Correct use of specialist/special tooling and test equipment, perform removal and replacement of components and modules unique to type, including any on-wing maintenance activity

For the practical training, the student must use a logbook to record the content, duration and detail of the practical tasks. The format and use of the logbook must be described in the Direct Course procedure. As a minimum, the logbook must include the following items:

- Student biographical details
- logbook filling instructions
- Aircraft type and powerplant
- Licence category
- Start and end date of the training, including interruptions, if any
- Name of instructor and practical assessor
- Practical training tasks as required in point 3.2 of Appendix III of Part 66
- Practical assessment records

In case of failure at the examination, the conditions for consecutive attempts must be described in the Direct Course procedure.

1.3.2 Audit Report and Findings

The audit findings and evidence collected will be reviewed against the current/intended scope of approval. Findings and corrective action timescales and the audit conclusions will be prepared for presentation to the applicant.

A meeting will be held to present the audit findings and conclusions to the applicant in order to ensure that they are understood and accepted. The applicant will be given an opportunity to discuss any non-compliances and timeframes.

A draft audit report will normally be provided to the applicant at the meeting. In cases where this is not possible, CAAT will clearly debrief the applicant during the meeting on the number of findings, level and due date, including a description of each finding raised against the applicable requirement. A formal notification of findings will be sent to the applicant.

Should the audit lead to significant or numerous findings, this would show an insufficient level of compliance on the direct approval of aircraft type training. In that case, CAAT may terminate the application and will inform the applicant accordingly.

When CAAT is satisfied that corrective actions have been adequately implemented, the CAAT will then proceed to the approval.

1.4 Approval Process

The approval will consist of the following and be formally communicated to the applicant:

- A one-off direct approval letter for aircraft type training.
- An acceptance of Direct Course procedure, Training Package, and associated documents/lists.

2. LIST OF ASSOCIATED DOCUMENTS

Document Title	Reference Number
Compliance Review and Approval Checklist for Theoretical Type Training & Examination in a non-approved CAAT Part 147 Organisation	TBD
Compliance Review and Approval Checklist for Practical Type Training & Assessment Element in a non-approved CAAT Part 147 Organisation	TBD

2.1 Compliance Review and Approval Checklist for Theoretical Type Training & Examination Element in a non-approved CAAT Part 147 Organisation

Applicant Name:		Course Name:		Intended the AML endorsement:	A/C type:	
				CAAT Category "B1", "B2" or "C"		
	Requirements			Checked & compliant	Reference of the document provided	Additional comments
Type training procedure	Is there a detailed procedure describing how the type training is delivered (i.e. classrooms, training equipment, instructors qualifications, Training Need Analysis etc.) meeting the requirements of CAAT Part 66 and CAAT Part 147, as appropriate?			<input type="checkbox"/>		
Course content and duration	Is the course content equivalent to CAAT Part 66 Appendix III?			<input type="checkbox"/>		
	Are the course syllabus levels equivalent to CAAT Part 66 Appendix III?			<input type="checkbox"/>		
	Are the theoretical training tuition hours compliant with the minimum ones addressed in the CAAT Part 66 Appendix III paragraph (3) (c)			<input type="checkbox"/>		
	Are both content and duration justified through a comprehensive Training need Analysis as described in CAAT Part 66 Appendix III?			<input type="checkbox"/>		
Course provider	Record the name of the course supplier (Manufacturer, training school, other)			<input type="checkbox"/>		
	Are the following elements addressed/described by the course provider: 1. The teaching methods and instructional equipment; 2. The material and documentation provided to the student; 3. The qualification of instructors, examiners; 4. The documentation and records provided to the student to justify the satisfactory completion of the training course and related assessment.			<input type="checkbox"/>		
Examination	Is the minimum pass mark 75 %?			<input type="checkbox"/>		
	Is the number of multi choice questions per hour of training and the level of questions for each chapter equivalent to the one addressed in the CAAT Part 66 Appendix III paragraph (4) and are they type related?			<input type="checkbox"/>		
	Is the number of alternative answer to each multi choice question equal to the one addressed in the CAAT Part 66 Appendix III paragraph (4). (Number of answers is 3).			<input type="checkbox"/>		

2.2 Compliance Review and Approval Checklist for Practical Type Training & Assessment Element in a non-approved CAAT Part 147 Organisation

Applicant Name:		Course Name:		Intended the AML endorsement:		A/C type:	
				CAAT Category "B1", "B2" or "C"			
	Requirements			Checked & compliant	Reference of the document provided	Additional comments	
Approval	Is the organisation providing the practical element of the type training holding a valid certificate which includes the relevant A/C type at the time the training takes place?			<input type="checkbox"/>			
	Is the certificate valid (at the time the training takes place)?			<input type="checkbox"/>			
	Is the Aircraft type available at the time of the training?			<input type="checkbox"/>			
Practical training Procedure	Is the training done according to a detailed procedure and standard: 1. ensuring that content and duration is in accordance with Appendix III to CAAT Part-66? 2. containing a "generic" practical training syllabus for the relevant A/C type and for the relevant staff category?			<input type="checkbox"/>			
	Is the procedure including/describing: 1. the teaching methods and instructional equipment in use; 2. the material and documentation provided to the student; 3. a qualification procedure for trainers and assessors as per CAAT Part 147? 4. The documentation and records to be provided to the student to justify the satisfactory completion of the training course and related assessment;			<input type="checkbox"/>			
	Does the procedure specifies the maximum number of Training Hours per day (HF principal to be considered) and the maximum number of trainees per practical instructor?			<input type="checkbox"/>			
	Does the procedure contain a final Assessment process and procedure to ensure that the required competence in performing safe maintenance, inspections and routine work according to the maintenance data is acquired for the A/C type subject of the training.			<input type="checkbox"/>			
Assessment	Has the assessment permit to evaluate the knowledge and skills of the trainee and confirm his/her ability to perform maintenance on this A/C type? (assessment result)			<input type="checkbox"/>			
	Has the assessment been performed by a Qualified assessor.			<input type="checkbox"/>			