



CIVIL AVIATION ADVISORY PUBLICATION

CAAP 12

FLIGHT SIMULATORS (FS) AND OTHER SYNTHETIC TRAINING DEVICES (STD)

GUIDANCE INFORMATION REGARDING THE USE OF FLIGHT SIMULATORS AND OTHER TRAINING DEVICES FOR UAE OPERATORS

1. PURPOSE

The purpose of this CAAP is to provide guidance and policy information to persons, users, organizations or enterprises and owners seeking qualification and approval for training and test on flight simulators. The information in this publication will ensure compliance with the UAE Civil Aviation Regulations and conformance with international standards. There is also information provided on other training devices which constitute part of Synthetic Training Devices (STD).

2. LEGISLATION

2.1 Regulations

2.2.1 The seven categories of CAR STD are named as follows:

- (a) CAR STD 1A - is the regulation for Aeroplane Flight Simulators (FS)
- (b) CAR STD 2A - is the regulation for Aeroplane Flight Training Devices (FTD)
- (c) CAR STD 3A - is the regulation for Aeroplane Flight and Navigation Procedure Trainers (FNPT)
- (d) CAR STD 4A - is the regulation for Basic Instrument Training Devices (BITD)
- (e) CAR STD 1H - is the regulation for Helicopter Flight Simulators (FS)
- (f) CAR STD 2H - is the regulation for Helicopter Flight Training Devices (FTD)

- (g) CAR STD 3H - is the regulation for Helicopter Flight and Navigation Procedure Trainers (FNPT)

2.2.2 The following is a list of STD regulatory requirements that need re highlighting.

- (a) CAR OPS 1/3.005 (e) – All STD, such as Flight simulators or Flight Training Devices (FTD) replacing an aero plane for training and /or checking purposes are to be qualified in accordance with CAR STD requirements and user approved by the Authority for the training and testing to be conducted.
- (b) CAR– STD1A.015 Application for Simulator Qualification - The STD operator requiring evaluation shall apply to the Authority giving 3 months notice. In exceptional cases this period may be reduced to one month at the discretion of the Authority.
- (c) CAR –STD 1A.020 Validity of Flight Simulator Qualification
 - (1) An STD qualification is valid for 12 months unless otherwise specified by the Authority
 - (2) An STD qualification revalidation may take place at any time within 60 days prior the expiry of the validity of the qualification document. The new period of validity shall continue from the expiry date of the previous qualification document.
- (d) CAR –STD 1A.025 - Rules governing Flight Simulator Operators

Quality System

- (1) A Quality System shall be established and a Quality Manager designated to monitor compliance with and the adequacy of, procedures required to ensure maintenance of the Qualification Level of the STD. Compliance monitoring shall include a feedback system to the Accountable Manager to ensure corrective action as necessary.
 - (2) The quality System shall include a Quality Assurance Programme.
 - (3) The Quality System and the Quality Manager shall be acceptable to the Authority.
 - (4) The Quality system shall be described in relevant documentation.
- (e) CAR STD 1A.040 – Changes to qualified Flight Simulators.
 - (1) Requirements to notify major changes to a flight simulator - the operator of a qualified STD shall inform the Authority of proposed major changes.
 - (2) Upgrade of a Flight Simulator – a flight simulator may be upgraded to a higher qualification level. Special evaluation is required before the award of the special higher Level of Qualification.

- (3) Relocation of a Flight Simulator – in instances where a flight simulator is moved to a new location, the Authority shall be advised before the planned activity along with a schedule of events related thereto.
- (4) Deactivation of a currently qualified Flight Simulator – in the event a STD operator plans to remove a flight simulator from active status for prolonged periods, the Authority shall be notified and suitable controls established for the period the flight simulator is inactive.

2.2 Terminology

2.2.1 Because of the technical complexity of STD qualification and approval for training and testing, it is essential that standard terminology is used throughout. The following principal terms shall be used and further terms are contained in AC STD 1A/3H. 005

- (a) Synthetic Training Device (STD) – A training device which is either a Flight Simulator, a Flight Training Device, a Flight and Navigation Procedures Trainer, or a basic Instrument Training Device.
- (b) Flight Simulator – A full size replica of a specific type or make, model and series aircraft flight deck, including the assemblage of all equipment and computer programme necessary to represent the aircraft in ground and flight operations, a visual system providing an out of the flight deck view, and a force cueing motion system. It is in compliance with the minimum standards for Flight Simulator Qualification and approval for training and test.

2.3 CAAP compliance

This CAAP 12 document amplifies the requirements as stated in the above CARs. As some of the text in this CAAP document include UAE legislative and policy requirements, compliance is required wherever the word “shall” is used in this document.

In the context of this CAAP, the ‘Authority’ means the GCAA. Whenever a foreign authority is utilized for qualification and approval of STD including flight simulators, the term ‘Authority’ may also apply to this foreign Authority.

3. STATUS OF THIS CAAP

This is A/L 3 dated 01 July 2006 to the first and second edition of CAAP 12, AIRCRAFT SIMULATORS, dated 01 January, 2003 and 01 September 2003 respectively and includes the latest STD approvals.

4. APPLICABILITY

This guidance and policy material applies to the use of STD by UAE operators of aeroplanes and helicopters.

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6. REFERENCES

This CAAP should be read in conjunction with the following references, which are available on the internet or at GCAA offices.

- ICAO Doc. 9625
- JAR STD 1A and 1 H (simulators)
- JAR STD 2A & 3A (training devices)
- Australia CASA FSD1.
- Canada TC TP9685.
- UK CAA CAP 453.
- USA FAA AC120-40B.
- USA FAA AC 120-45 (training devices)

7. STD POLICY

7.1 Flight Simulator Requirements

7.1.1 Unless specifically authorized by the Authority, all operators of turbojet aircraft, aeroplane over 10000 kg, helicopter over 5000 kg and aircraft having a maximum approved passenger seating configuration of more than 19, shall utilise flight simulators for transition, recurrent and upgrade training. Operators of these aircraft shall have a regular flight simulator programme every six months.

7.1.2 An operator may be permitted to conduct a Proficiency Check (PPC/OPC) in the aircraft instead of a flight simulator and usually for one occasion only within a 12 month period provided there is sufficient justification.

7.1.3 The flight simulator used must be representative of the type aircraft and, if applicable, the particular variation of the type for which the training or test is being conducted. The Authority may permit various differences, such as engine type or model variation, upon application.

7.2 Flight Simulator and Other STD Approval Requirements

7.2.1 General. Under the rules of CAR STD any device other than actual aircraft for which the training and testing are being carried out, require that the device be qualified and approved. The processes of Qualification and Approval shall be undertaken separately to achieve a clear distinction between the technical excellence of the STD and its suitability for training and testing.

In order for the operator to receive a Certificate of Qualification, the STD shall be subjected to an evaluation which shall be conducted in three ways namely

- (a) Objective checks known as validation tests
- (b) Functional tests
- (c) Subjective tests

The Qualification philosophy adopted is based upon the premise that both the STD manufacturer's personnel and the Operator's personnel will have carried out in-depth testing of all the systems and sub systems recording their result by using an Acceptance Test Manual (ATM) sometimes referred to as Acceptance Test procedures (ATP). The ATM/ATP is written by the STD system engineers, as part of the manufacturing process, is then validated by the operators test team before the tests are finally run by each team. The final Qualification Test Guide testing by the Authority is simply the end of the exercise.

The data necessary to design the STD has to meet an acceptable standard and approved. It has to be the data provided by the aircraft manufacturer and is frequently the data to which the aircraft is built, obtained from the engineering model and then validated. In the absence of data from the manufacturer, an alternate source in acquiring such data can be considered for approval.

At the initial evaluation after correction of any deficiencies, The STD plotted result is 'frozen' to become the Master Qualification Test Guide" (MQTG). The MQTG shall be used to confirm, at later evaluation, that the performance of the STD is maintained at the same level.

Following the Qualification testing by the STD manufacturer and operator personnel, a written report for the operator of the STD is to be raised. Tests which are unable to complete satisfactorily and comparison between STD performance and aircraft shall be highlighted. Once the defects are listed including comments, the STD shall be recommended to the GCAA to be qualified to a certain level.

The Qualification Certificate, of itself, does not permit the STD to be used for training and testing. The STD shall be subject to further checks to determine its suitability for training and testing. Another letter, known as User Approval, will be issued to the operator /user, approving the qualified STD to be used for the types of training and testing laid down by that level of Qualification and in accordance with the criteria to be found in CAR OPS.

7.3 UAE Flight Simulators

- 7.3.1 Requirement. Qualification and Approval for a Flight Simulator, for which a credit is sought, will only be given to a Training Organization of a CAR OPS 1 and 3 operators or a Training Organization having a specific approved arrangement with a CAR Ops 1 and 3 operators.
- 7.3.2 Regulatory Approval Process for Flight Simulators. To be approved by the GCAA, all UAE based simulators must be firstly qualified by an approved foreign Authority capable of performing this task. The qualification may be conducted jointly but a report and a Certificate of Qualification shall be issued by the foreign Authority. The GCAA will then issue a Certificate of Qualification based on the foreign qualification granted. Generally the privileges and limitations will be identical to that granted by the foreign Authority under its basis of qualification. The GCAA Certificate of Qualification will be the same as the foreign Authority's date of validity, although an extension of validity of up to 60 days may be approved with sufficient justification and with the approval of that foreign Authority. If the Flight Simulator is found to be representative of the airplane flown by the operator, a User Approval will be issued. The Certificate of Qualification (for each STD) will be issued to the Training Organization having a specific arrangement with the CAR OPS 1/3 operator and the User Approval to the CAR OPS 1/3 operator. The Qualification Certificate and User Approval will be valid for 12 months.

7.4 Foreign Flight Simulators

Except as specified below, a foreign flight simulator or other training devices may not be utilized for any training or test of UAE licensed flight crew unless it has been inspected and approved by the GCAA within the previous two years. For these Flight simulators, only an assessment on suitability for training and test is required. The flight simulator, however, shall have a current Qualification Certificate, issued by the relevant State, which will be used as a basis for recognition. A User Approval will be issued to the operators for this purpose and if required, a copy to the Training Organization..

7.5 Other Training Devices

Other training devices within or outside the UAE, shall also be user approved before training and/or test conducted in such training devices can be recognized. The User Approval shall be issued to the Training Organization and the CAR OPS 1/3 operator for STD within the UAE and to CAR OPS 1/3 operator for STD outside the UAE.

7.6 FAR 142 Organization

- 7.6.1 Recognition. The Authority will approve a valid FAA 142 organization upon application, together with the associated simulators and other training devices located at the facility.
- 7.6.2 Inspection. Simulators located at Foreign Training Centres, which are approved under FAR 142, have to be inspected once in every two years. The Training Centre is required to have a valid Training Centre Certificate including its flight simulators Qualification Certificate validity issued by the FAA. The GCAA will conduct a

random inspection (representative) on the flight simulators and other training devices at the location and it would validate all applicable STD at that location.

For example, an inspection of a FAA 142 approved Flight Safety International Training Centre and applicable simulators in Seattle, USA would re-validate Flight Safety International Training Centres in Seattle and its STD for a further period of two years.

- 7.6.3 Examiners. The GCAA would recognize all instructors and examiners approved by under the FAR 142 for that particular Foreign Training Centre. The GCAA would recognize skill tests, type rating tests and proficiency checks conducted by the approved. Foreign Examiners, who are not FAR 142 or JAR FCL approved (see paragraphs 7.6 and 7.7), are required to be checked by the GCAA every 3 years.
- 7.6.4 Training and Checking. All training and checking must be to the applicable FAR 135 or FAR 121 standard for commanders and co-pilots. The relevant forms must be signed by the Training Centre Examiner.

7.7 JAR FCL Organizations

- 7.7.1 Recognition. The GCAA will approve a valid JAR FCL Type Rating Training Organizations (TRTO) upon application, together with the associated simulators and other training devices located at the facility, provided the responsible JAA Member State regulatory authority has embodied JAR FCL in their national law.
- 7.7.2 Inspection. Simulators and other training devices, located at a TRTO, which are approved under JAR FCL 1 or 2, have to be inspected individually every two years. The TRTO must possess a valid approval issued by a JAA member regulatory authority, which has embodied JAR FCL 1 in law, and that the applicable flight simulators and other training devices retain their JAR STD 1 (or 2) evaluation validity. The GCAA will conduct a random inspection on representative flight simulators and other training devices and would validate all flight simulators and training devices at that particular location
- 7.7.3 Examiners. The GCAA would recognize all instructors and examiners approved by a JAA member regulatory authority for that particular organization, which has embodied JAR FCL in law.
- 7.7.4 Training and Test. All training and test must be to the applicable JAR standard. Foreign Examiners, who are not JAR FCL approved (see paragraphs 7.5 and 7.6), are required to be checked by the GCAA every 3 years.

7.8 Other Foreign Training Organization

The GCAA must first agree in principle that the Training Organization and its STD are acceptable. To derive at this conclusion, the Training Organization, through the operator concerned, shall produce evidences that the Qualification assessment, Training and Checking requirements and Examiners are equivalent to the GCAA standard. All requirements as stated in paragraphs 7.6 and 7.7 shall also apply.

7.9 Type Rating Privileges

The privileges granted by a foreign Authority may be adequate for initial, recurrent and upgrade training, but may not meet either their legislative requirements or the GCAA CAR requirements for rating purposes. For example, large transport aircraft may require a base check on the actual aircraft before a rating can be issued. This is a common requirement when the simulator used is basic (e.g.: L1329; L382) or the simulator performance is predictive, such as with new variants of an aircraft in service. Applicants should contact the GCAA to determine the base check requirements for a particular aircraft type. The applicable GCAA CAAP 12, JAR FCL or FAA Doc 8081 Performance Test Standards will be used to determine credits for those foreign simulators for which requirements cannot be established.

7.10 Zero Flight Time Training (ZFTT)

7.10.1 General

- (a) Approval for ZFTT will only be given to a Training Organization of a CAR OPS 1/3 operator or a Training Organization having a specific approved arrangement with a CAR OPS 1/3 operator.
- (b) The Training organization shall ensure that the student pre-requisites are met before starting the Type Rating Course.
- (c) The Type Rating will be restricted to that operator until flying under supervision has been accomplished.

7.10.2 Approval for Type Rating Course using ZFTT

- (a) The simulator to be used shall be qualified in accordance with CAR STD and user approved for ZFTT by the GCAA. User Approval will only be given if the flight simulator is representative of the aero plane flown by the operator.
- (b) The flight simulator approved for ZFTT shall be serviceable according to the Quality System criteria of the STD operator (see AMC STD 1A.025) Some equipment may be unserviceable provided that it is not required during the simulator lesson. The motion and the visual shall be fully serviceable.
- (c) Following the completion of a ZFTT conversion course a pilot shall;
 - (1) Commence line flying under supervision within 21 days; and
 - (2) Conduct his initial four take offs and landings in the aeroplane under the supervision of a TRI (A) occupying a pilot's seat..
- (d) Unless specified otherwise, a specific simulator session including a minimum of six additional takeoffs and landings included in the Type Rating Course shall be conducted.
- (e) For an initial approval to conduct ZFTT, the operator shall have held a CAR OPS 1/ Air Operator's Certificate for one year. This period may be reduced at the

discretion of the Authority where the operator and the TRTO have experience of type rating training.

- (f) Approval for ZFTT shall only be given if the operator has 90 days operational experience of the aeroplane type. In the case of the ZFTT provided by the training organization having a specific approved arrangement with the CAR OPS 1 operator, the 90 days operational experience requirements will not apply if the TRI (A) involved in the additional takeoffs and landing requirements in the CAR OPS 1.945 has operational experience acceptable to the Authority on the aeroplane type.
- (g) The licence endorsement should be entered on the licence after the skill test, but before the first 4 take offs and landings in the aeroplane. At the discretion of the Authority, provisional or temporary endorsement and any restriction could be entered on the licence.

7.10.3 Required Pilot Experience

A pilot undertaking ZFTT course shall have completed on a multi turbo jet transport category aeroplane or on a multi pilot turbo prop aeroplane having a MTOM of not less than 10 tones or a approved passenger seating configuration of more than 19 passengers, at least:

- (a) 1500 hours flight time or 250 route sectors if the flight simulator qualified to level C is used during the course, or
- (b) 500 hours flight time or 100 route sectors if the flight simulator qualified to level D is used during the course.

7.10.4 Training and Test

A pilot undertaking a ZFTT course shall:

- (a) Commence Line Flying Under Supervision as soon as possible within 21 days (Maximum), after completion of the skill test. If Line flying Under Supervision has not been commenced within the 21 days, the operator shall provide appropriate training acceptable to the Authority.
- (b) Complete the six take offs and landing in a flight simulator, qualified in accordance with CAR STD and user approved by the GCAA, not later than 21 days after the completion of the skill test.
- (c) This simulator session must be conducted by a TRI (A) occupying a pilot's seat. When approved by the Authority, the number of take offs and landings may be reduced. If these take offs and landings have not been performed within the 21 days, the operator shall provide refresher training acceptable to the Authority.
- (d) Conduct the first four take offs and landings of the Line Flying Under Supervision in the aeroplane under the supervision of a TRI (A) occupying a pilot's seat. When approved by the Authority, the number of take offs and landings may be reduced.

7.11 Specific Functions

Operators, which require recency or recurrent training for specific functions, such as Low Visibility Operations (LVO), Head Up Display (HUD) or ZFT, shall ensure that the simulator is approved for that function and fitted with the necessary hard/soft ware to support that function.

8. APPLICATION

8.1 Qualification

A Training Organisation of a CAR OPS 1 and 3 operators or a Training Organisation having a specific approved arrangement with a CAR Ops 1 and 3 operators which requires a Qualification for a Flight Simulator, or the addition thereof, must apply to the GCAA giving at least 60 days notice.

8.2 User Approval

CAR OPS 1 or 3 operator, which requires user approval of STD, or the addition thereof, must apply to the GCAA giving at least 14 days notice if the STD is within the UAE and 30 days notice if the STD is outside the UAE.

Supporting information and foreign qualifications and approvals, as well as aircraft model, cockpit layout, engine, system and performance differences, should be included in the application. Should an inspection were to take place by the GCAA, all costs shall be borne by the operator.

9. APPROVAL

9.1 STD Qualification Certificate

A sample of the STD Qualification Certificate issued to a Training Organisation of a CAR OPS 1 and 3 operators or a Training Organisation having a specific approved arrangement with a CAR Ops 1 and 3 operators is as Attachment 1.

9.2 STD User approval

A sample of the STD User Approval issued to CAR OPS 1 and 3 operators is as per Attachment 2 (UAE STD) and 3 (Foreign).

9.3 Training Organization

A Training Organisation based in the UAE requires approval under Civil Aviation Law, Article 27 requires a licence from the GCAA to conduct aviation training. The GCAA licences these facilities by the use of a Training Centre Certificate together with Training Specifications detailing the privileges. A fee of Dhs 10,000 for 5 years is charged in accordance with a Cabinet decree.

10. VALIDITY

10.1 General

Qualification tests for renewing the flight simulator Qualification Certificate may take place at any time upon request within the 60 days prior to the expiry of the validity. The period of validity shall commence from the date of inspection. Other training devices do not have a validity date but are subject to periodic auditing of the operator's training programme.

10.2 UAE Based

A UAE flight simulator approval is valid for 12 months unless otherwise specified by the GCAA.

10.3 Foreign Based

A foreign flight simulator approval is valid for 24 months unless otherwise specified by the GCAA.

SAMPLE LETTER 1- CERTIFICATE OF QUALIFICATION UAE SIMULATORS AND SPECIFICATIONS



GCAA

دولة الامارات العربية المتحدة
الهيئة العامة للطيران المدني
UAE General Civil Aviation Authority

General Civil Aviation Authority

**Synthetic Training Device
Qualification Certificate**

No.

On behalf of the United Arab Emirates General Civil Aviation Authority

It is hereby certified that the following STD

Aircraft Type (...name of aircraft ...)

Operated by (...name of STD Operator...)

Located at (...name of place and country...)

Has, subject to the conditions of the attached specification, satisfied the qualification requirements prescribed in (...CAR –STD 1A/1B...) and is hereby approved for the purposes so specified in CAR OPS 1.005 (e)

This certification is not transferable, and unless revoked, suspended or varied shall continue in effect until

(Date/month/Year))

Issued at: GCAA, Dubai

Signature: _____
Capt. Mohamed Al Sam
Chief of Flight Operations

Date:

**SPECIFICATIONS**

(Training, testing and checking considerations)

a	Type/variant of aircraft:	b	STD Qualification Level:
c	Visual system	d	Motion System:
e	Engine Fit:	f	Instrument Fit
g	TCAS Fit		
h	Description	Yes/No/NA	
	CAT I RVR 550 m DH 200 ft		
	CAT II RVR 300 m DH 100 ft		
	CAT IIIB RVR 75 m No DH		
	LVTO RVR 125 m		
	Recency		
	Zero Flight Time		
	IFR – Training / Checks		
	Type Rating (License Skill Tests)		
	Proficiency Checks (Licensing Proficiency Checks/Operator Proficiency Checks)		
	Auto-coupled Approach		
	Auto – land / Roll Out Guidance		
	ACAS I/II		
	Wind shear Warning System/ Predictive Wind shear		
	WX – Radar		
	HUD/ HUGS		
	FANS		
	GPWS/ EGPWS		
	ETOPS Capability		
	GPS		
	F1180 Simulator approved items		

Issued at: GCAA, Dubai

Signature: _____

Capt. Mohamed Al Sam
Chief of Flight Operations

Date:



**SAMPLE LETTER 2
(USER APPROVAL)**

Ref No:

Date:

**APPROVAL
TO USE A QUALIFIED SYNTHETIC TRAINING DEVICE
(FLIGHT SIMULATOR)**

The General Civil Aviation Authority hereby approves the use of the following GCAA Qualified Synthetic Training Device (Flight Simulator) for the purpose so specified in CAR OPS (... I/3...) and CAR -STD 1(...A/H...) as applicable.

GCAA Simulator ID code:		Other codes:	
Aircraft Type		Qualification level	
Operator			
Location		Evaluation Date	

This approval is valid until (...date...) unless previously varied, suspended or revoked and is subject to the following conditions;

Conditions:

1. The approval device shall be used only for the purpose specified in paragraph 2 by:

(...name of operator...)

2. This approval is granted for the conduct of the following items

- (a) License Skill Test and License Proficiency checks in accordance with CAR OPS (... I/ 3...) Subpart N
- (a) Operator Proficiency Check in accordance with CAR OPS (... I/3...) Subpart N
- (b) Recent Experience I accordance with CAR OPS (... I/3...) subpart N
- (c) LVO training and testing to Category (...2/3...), or as stated in the above company's Operations Specifications if more restrictive.
- (d) Zero Flight Time Training and Testing in accordance with the companies TRTO approval (see item 4 below)
- (e) Flight Engineer's Training and Testing.

3. Restriction/Limitations

- (a) No TCAS training or testing
- (b) No LVO training or testing

- (c) No HUD/HUGS training or testing
- (d) No FAN Training or Testing
- (e) No GPWS/EPGWS training or testing
- (f) No ETOPS training or testing
- (g) No GPS training or testing
- (h) No RNP training or testing
- (i) No RVSM training or testing

(Note: delete those not applicable)

4. Zero Flight Time training and testing (ZFTT) for the grant of type rating may only be undertaken where a specified ZFTT approval has been issued as a schedule to the company's TRTO Approval or to a User Organization.

5. Form FO/CHK – (...B/H...) details the tests, which must be completed before the type can be included in a pilot's license. All aircraft training and aircraft landings must be completed in accordance with the TRTO Approved Type Rating Course.

6. The approval is dependent upon the continued qualification of the STD to the qualification level specification, and the regular update of the Navigation Database.

7. A copy of this document must be displayed in the simulator suite

Dated:

Signed: _____
Capt Mohamed Al Sam
Chief of Flight operations