Democratic Socialist Republic of Sri Lanka

Civil Aviation Authority of Sri Lanka

Implementing Standards

(Issued under Sec. 120,Civil Aviation Act No. 14 of 2010)

Title :Flight Simulator Approvals & Qualification

Reference No. : CA-IS-2012-OPS-003   **S.N**. : 010   **Date** :02nd October 2012

Pursuant to Sec. 120 of the Civil Aviation Act No.14 of 2010, Director General of Civil Aviation shall have the power to issue, whenever he considers it necessary or appropriate to do so, such Implementing Standards for the purpose of giving effect to any of the provisions of the Civil Aviation Act, any regulations or rules made thereunder including the Articles of the Convention on International Civil Aviation which are specified in the Schedule to the Act.

Accordingly, the undersigned being the Director General of Civil Aviation do hereby issue the Implementing Standards as mentioned in the Attachment   hereto (Ref: CA-IS-2012-OPS-003-Att-01], for the purpose of giving effect to the provisions in the aforementioned Act and Standards & Procedures described under Article 37 of the Convention, which are specified in the Attachment.

These Implementing Standards shall come into force with immediate effect and remain in force unless revoked.

Attention is also drawn to sec. 103 of the Act , which states inter alia that failure to comply with Implementing Standard is an offence.

H.M.C. Nimalsiri
Director General of Civil Aviation and
Chief Executive Officer

Civil Aviation Authority of Sri Lanka
04, Hunupitiya Road
Colombo 02.

Enclosure: Attachment No. CA-IS-2012-OPS-003-Att-01

Implementing Standards

Flight Simulator Approvals & Qualification

1. REFERENCES

- *Section 66 of Civil Aviation Act No. 14 of 2010*
- ASN 47
- ICAO DOC. 9652
- JAR FSTD 1A
- EASA - CS FSTD (A) –July 2012
- Operations Inspector Handbook SLCAP 4200

2. PURPOSE

CAASL requires that persons proposing to use a qualified flight simulator in training, testing or checking program must apply to CAASL for approval to use the flight simulator. In considering such an application, CAA is required by the regulations to consider the differences between the aircraft and flight simulator, and the person's operating and training competencies and suitability for CAASL approved training programmes. The purpose of this Implementing Standards is to provide flight simulator users who are seeking approval with guidance on the type and quality of information to be included in the application to CAASL. It also provides advice on the application method and information requirements for foreign flight simulator approval.

3. STATUS OF THIS IMPLEMENTING STANDARD

3.1. This is the first issue of this Implementing Standards, incorporating the requirements for qualification and validation of a FSTD.

4. FLIGHT SIMULATOR APPROVALS

4.1. Application.
Applicants for Flight Simulator Approvals should apply to the Director General Civil Aviation Authority in the application provided (Appendix A)
- a) Flight Simulator User Details;
- b) Flight Simulator Approvals sought;
- c) a copy of the Training and Checking Organisation approval (if relevant);
- d) a copy of the Training Syllabus which specifies the flight simulator-based training sequences (if relevant);
- e) A list of all configuration differences existing between the flight simulator and the applicant's aircraft (if relevant);
- f) proposals for differences training (if relevant);
- g) Flight Simulator Operator;
- h) Flight Simulator Identification details;
- i) Flight Simulator Qualification Level; or the level sought
- j) a copy of the Flight Simulator Qualification Certificate (if available)

Notes:

1. The Application may reference material previously supplied to, or issued by, CAA during the process of Training and Checking Organisation approval, Training Syllabus approval, Flight Simulator Qualification, and/or Operator approval.

4.2. The applicant should also state that the flight simulator is suitable for use in its training program, and has been assessed for:

    a) available visual and navigational databases; and

    b) Instructor training requirements for use of the flight simulator's Instructor's Station.

5. RECOGNITION OF FOREIGN FLIGHT SIMULATORS

5.1. The International Civil Aviation Organization (ICAO) Manual of Criteria for the Qualification of Flight Simulators (MCQFS) Document 9625-AN/938 establishes an international standard for aeroplane flight simulators. MCQFS was intended to provide the means for the National Aviation Authorities of other States to accept the qualifications granted by the State which conducted the initial and recurrent evaluation of an aeroplane flight simulator, when considering approval for the use of that aeroplane flight simulator by applicants from their own State.

5.2. Sri Lanka's aeroplane flight simulator standards (Flight Operations Inspector Handbook) are consistent with MCQFS. CAA should recognise aeroplane and helicopter flight simulator qualifications granted by other States where their:

    a) Flight Simulator Standards are consistent with FOIH, and

    b) National Aviation Authority has an acceptable level of oversight of the operation of the flight simulator.

5.3. If an applicant wishes to use a flight simulator that is qualified by one of the above listed States, then CAA requires evaluations of that flight simulator as per the requirements of the SLCAP4200. to ascertain that approved CAASL training programmes can be conducted in that particular simulator and also the differences if any of the operators fleet with the simulator.

5.4. When an application from an Operator for use of a Simulator in another State is received the CAA will assign a suitably qualified inspector to evaluate the Simulator with a team from the operator to assess the suitability of the Simulator by functional and subjective tests.(Refer 7.5)

6. FLIGHT SIMULATOR QUALIFICATION BY CAASL

6.1. INTRODUCTION

Flight Simulators may be subject to:

    a) Operator Testing;

    b) Initial Evaluation and qualification

    c) Recurrent Evaluation; and

    d) Special Evaluation.

6.2. Operator Testing is conducted by the Flight Simulator Operator to ensure that the flight simulator complies with their specifications etc. Operator Testing normally involves conducting tests in the Acceptance Test Manual (ATM) and the Qualification Test Guide (QTG). The Flight Simulator Operator conducts this testing to ensure that the flight simulator meets the required standard, specific training requirements, and is ready for evaluation by CAA.

6.3. An Initial Evaluation is conducted by CAA to qualify the flight simulator for use. This evaluation consists of a technical review of the QTG and a subsequent on-site evaluation of the flight simulator.

6.4. Recurrent Evaluations are conducted periodically by the CAA to ensure that the flight Simulator continues to meet its qualified level.

6.5. Special Evaluations are conducted as a result of major modifications or relocation, requests for upgrade, or the flight simulator failing to maintain its qualification level. The content of the Special Evaluation depends on the circumstances, and should be determined by CAA.

7. INITIAL EVALUATION

7.1. Qualification Test Guide (QTG)

7.1.1. Flight Simulator Operators are encouraged to submit an advance copy of the QTG to CAASL, at the earliest opportunity, to ensure that the proposed tests and validation data are suitable.

7.1.2. The substantially complete QTG should be submitted to CAA not less than 15 working days prior to the proposed date of commencement of the on-site evaluation. All Validation, Functions and Subjective Test results contained in the QTG should have been conducted on-site within the last 90 days. Declaration should be submitted before commencement of the on-site evaluation confirming that Operator Testing is complete, listing all outstanding discrepancies and providing QTG updates (as necessary).

7.1.3. CAA should advise the Flight Simulator Operator of the outcome of their technical review of the QTG. Any significant discrepancies should be addressed before commencement of the on-site evaluation.

7.2. Composition of Evaluation Team

7.2.1. CAA should appoint the Evaluation Team Leader. The Evaluation Team Leader should have completed an approved Flight Simulator Evaluation Course.

7.2.2. The Evaluation Team Leader is responsible for the conduct of the on-site evaluation and for certifying the results achieved.

7.2.3. The Evaluation Team may be made up of a combination of both CAA and non-CAA staff. For the duration of the evaluation, any non-CAA Evaluation Team members should be considered as acting on behalf of CAA. It is strongly recommended that individual team members should have completed an approved Flight Simulator Evaluation Course.

7.2.4. The Evaluation Team should consist of at least the following members:

    a)   a flight simulation specialist (Inspector) who is familiar with the scope and content of Qualification Test Guides; and

    b)   a check pilot who is type rated and current on the aircraft type; and

c) a training pilot or suitably qualified person who is familiar with the operation of the flight simulator as a training device, particularly with regard to the Instructor Station.

Note: Non-CAA staff should participate in appropriate team member roles.

7.3. **Content of On-site Evaluation.** The on-site evaluation should consist of an evaluation of the following:
   a) Validation Tests;
   b) Functions and Subjective Tests; and
   c) the proper functioning of the instructor station, seating, lighting, radio communications, navigation aids, and intercom facilities.
   d) Simulator Building is adequately equipped with fire and smoke protection, emergency exits, emergency lightings
   e) Uninterrupted power supply (UPS)

7.4. **Validation Tests**
The on-site evaluation should re-run a representative sample of the Validation Tests in the QTG. This sample size should be approximately 33%. A selection of Validation Tests should also be run manually to verify the integrity of the automatic test procedures.

7.5. Functions and Subjective Tests

7.5.1. The on-site evaluation should evaluate a representative sample of Functions and Subjective Tests.

7.5.2. The Functions and Subjective Testing should be structured into several flights, with the purpose being to evaluate the flight simulator's reliability and usability as a training device. The overall fidelity including the integration of the visual and motion systems should be evaluated. Any user specific training maneuvers or scenarios should be incorporated into the flight profiles. This evaluation should cover those areas essential for flight crew member training, testing and include:

   a) flight deck configuration (physical layout, placards, engine, autopilot, flight management system. etc.);
   b) handling qualities;
   c) performance; and
   d) systems functionality during normal and non-normal operations.

7.5.3. During Functions and Subjective Testing, the normal aircraft crew complement should occupy the operating flight crew seats. At least one pilot should be current on the aircraft type and model. That pilot should be competent to assess the flight simulator's performance both as a representation of the particular aircraft and as a training/testing/checking device.

7.6. Instructor Station and Supporting Facilities

7.6.1. Evaluation of the instructor station, together with the seating, lighting, radio communications, navigation aids and intercom facilities, should be conducted on an ongoing basis throughout the on-site evaluation. Additionally, the Instructor Station should be assessed to ensure that its operation does not present an unnecessary

distraction from observing the activities of the flight crew whilst providing adequate facilities for the tasks.

7.6.2. Evaluation of supporting facilities would include the simulator housing, emergency lighting, escape routes in case of emergency (fire etc.), Standby power and Air-conditioning.

7.7. Qualification

7.7.1. At the conclusion of the on-site evaluation, where major discrepancies remain unresolved, the Evaluation Team Leader may at his or her discretion decline to qualify the flight simulator.

7.7.2. Where minor discrepancies remain unresolved, a process and timescale for rectification of all discrepancies outstanding at the conclusion of the on-site evaluation should be agreed to between the Flight Simulator Operator and the Evaluation Team Leader.

7.7.3. The Evaluation Team Leader should certify in the QTG that all tests except those recorded as outstanding have been completed to the standard required for the appropriate Qualification Level. An Evaluation Report detailing the findings of the evaluation should be produced. A template for the Evaluation Report is enclosed at Appendix B.

7.7.4. All outstanding discrepancies arising from the on-site evaluation together with the outstanding discrepancies from operator testing should be entered into the flight simulator's maintenance management system.

7.7.5. Upon satisfactory completion of the on-site evaluation, CAA should issue a Qualification Certificate. A template for the Qualification Certificate is enclosed at Appendix C. The qualification certificate is valid for 1 year. CAA would review the flight simulator's reliability in-service and the progress in correcting outstanding discrepancies after the flight simulator has been qualified for 60 days.

7.8. Support Staff
The Flight Simulator Operator should provide sufficient support staff to assist the Evaluation Team with the conduct of the on-site evaluation

8. RECURRENT EVALUATIONS

8.1. Composition of Evaluation Team

8.1.1. CAA should appoint the Evaluation Team Leader. The Evaluation Team Leader should have completed an approved Flight Simulator Evaluation Course.

8.1.2. The Evaluation Team Leader is responsible for the conduct of the Recurrent Evaluation and for certifying the results achieved.

8.1.3. The Evaluation Team may be made up of a combination of both CAA and non- CAA staff. For the duration of the evaluation, any non-CAA Evaluation Team members should be considered as acting on behalf of CAA. It is strongly recommended that individual team members should have completed an approved Flight Simulator Evaluation Course.

8.1.4. The Evaluation Team should consist of at least the following members:

    a) a flight simulation specialist (Inspector) who is familiar with the scope and content of Qualification Test Guides;

    b) a check pilot who is type rated and aircraft current on the aircraft type;

    c) a training pilot or suitably qualified person who is familiar with the operation of the flight simulator as a training device, particularly with regard to the Instructor Station.

Note: CAA staff may participate in any arranged Recurrent Evaluation in an appropriate team member role.

8.2. Content of Recurrent Evaluation.

The Recurrent Evaluation should consist of an evaluation of the following:

    a) Flight Simulator Operator's Quality System;

    b) overall flight simulator reliability and serviceability;

    c) current unserviceabilities and defects;

    d) modification status;

    e) Validation Tests;

    f) Functions and Subjective Tests;

    g) the proper functioning of the instructor station, seating, lighting, radio communications, navigation aids, and intercom facilities.

8.3. Quality System

8.3.1. The Evaluation Team should review the effectiveness of the Flight Simulator Operator's Quality System, with regard to the specific flight simulator, including:

    a) reports, findings and follow up actions; and

    b) corrective and preventative measures.

Note: The Operator's Quality System should be subject to an annual audit by CAA. This audit should normally be conducted independently from any recurrent evaluation.

9. OVERALL FLIGHT SIMULATOR RELIABILITY AND SERVICEABILITY

9.1. The Flight Simulator Operator should provide metrics describing the flight simulator's performance since the previous Recurrent Evaluation. Further guidance may be found in Aeronautical Radio Inc (ARINC) Report 433-1 Standard Measurements for Flight Simulator Quality.

9.2. The Flight Simulator Operator should provide a summary of all significant flight simulator defects that have occurred since the previous Recurrent Evaluation

9.3. The Evaluation Team should review the defect history, the reported overall performance and consider their effects on the future Qualification Level.

10. CURRENT UNSERVICEABILITIES AND DEFECTS

10.1. The Evaluation Team should assess whether any current unserviceability or defect which affects the Qualification Level of the flight simulator.

11. MODIFICATIONS

11.1. The Flight Simulator Operator should provide a summary of all flight simulator modifications which have occurred since the previous Recurrent Evaluation.

11.2. The Evaluation Team should confirm that the Master QTG Validation Tests, if applicable, have been updated to reflect the incorporation of the flight simulator modifications.

11.3. The Evaluation Team should assess whether any modifications affect the Qualification Level of the flight simulator.

11.4. Validation Tests
The Recurrent Evaluation should re-run a representative sample of the Validation Tests in the QTG. This sample size should be approximately 10 - 15%.

12. FUNCTIONS AND SUBJECTIVE TESTS

12.1. The Recurrent Evaluation should assess a representative sample of Functions and Subjective Tests. The Functions and Subjective Testing should be structured into one or more flights, with the purpose being to evaluate the flight simulator's reliability and usability as a training device. The continuing overall fidelity including the integration of the visual and motion systems should be evaluated. A sample of specific training manoeuvres or scenarios should be incorporated into the flight profiles. This evaluation should include a selection of those areas essential for flight crew member training, testing and checking including:
   a) flight deck configuration;
   b) handling qualities;
   c) performance; and
   d) systems functionality during normal and non-normal operations.

12.2. During Functions and Subjective Testing, the normal aircraft crew complement should occupy the operating flight crew seats. At least one pilot should be current on the aircraft type and model. That pilot should be competent to assess the flight simulator's performance both as a representation of the particular aircraft and as a training/testing/checking device.

12.3. Instructor Station and Supporting Facilities
Evaluation of the Instructor Station, together with the seating, lighting, radio communications, navigation aids and intercom facilities, should be conducted on an ongoing basis throughout the Recurrent Evaluation.

13. MAINTAINING QUALIFICATION STANDARDS

13.1. At the completion of the Recurrent Evaluation, where major discrepancies remain unresolved that are likely to have a significant impact on the continuing use of the flight simulator, the Evaluation Team Leader may at his or her discretion decline to re-qualify the flight simulator.

13.2. A process and timescale for rectification of all discrepancies outstanding at the conclusion of the Recurrent Evaluation should be agreed to by the Flight Simulator Operator and the Evaluation Team Leader.

13.3. An Evaluation Report detailing the findings of the evaluation should be produced. A template for the Evaluation Report is enclosed at Appendix B.

13.4. All outstanding discrepancies arising from the Recurrent Evaluation should be entered into the flight simulator's maintenance management system.

14. SPECIAL EVALUATIONS

A special evaluation of an FSTD may be required by CAA in some circumstances, for example following a significant update or upgrade, a relocation or return to service after deactivation, or possibly due to known poor performance of the device over a period of time. Special evaluations are tailored to the issue that has driven the decision to evaluate, and may include additional QTG review as well as subjective evaluation.

15. CONTINUATION OF AN FSTD QUALIFICATION

15.1. The Civil Aviation Authority shall continuously monitor the organisation operating the FSTD to verify that:

a) the complete set of tests in the MQTG is rerun progressively over a 12-month period;

b) the results of recurrent evaluations continue to comply with the qualification standards and are dated and retained; and

c) a configuration control system is in place to ensure the continued integrity of the hardware and software of the qualified FSTD.

15.2. The Civil Aviation Authority shall conduct recurrent evaluations of the FSTD in accordance with the procedures detailed in evaluation checklists (appendix B). These evaluations shall take place:

For a Simulator based in Sri Lanka;

a) every year, in the case of a full flight simulator (FFS), flight training device (FTD) or flight and navigation procedures trainer (FNPT); the start for each recurrent 12-month period is the date of the initial qualification. The FSTD recurrent evaluation shall take place within the 60 days prior to the end of this 12-month recurrent evaluation period;

b) every 3 years, in the case of a BITD(Basic Instrument Training Device)

For a Foreign Simulator;

Following initial evaluation, special evaluation may be required in paragraph 14 – special evaluation

Appendix A

CIVIL AVIAITON AUTHORITY OF SRI LANKA
APPLICATION FOR QUALIFICATION OF A
SYNTHETIC TRAINING DEVICE

Type of Evaluation (Tick whichever is applicable)	Initial		Recurrent		Special	
Synthetic Training Device Type	FFS Aeroplane					
	FTD Helicopter					

a) This form is to be completed in full and returned to Operations of the Civil Aviation Authority. With the relevant fee 30days prior to the evaluation.

b) The Civil Aviation Authority requires minimum of 60 days' notice before any evaluation may be conducted

c) The application is to be made as part of and in accordance with the current ASN implementing standards and the relevant EASA requirements – Synthetic Training Devices (JAR-FSTD)

d) Please complete all sections

e) Failure to with either A,B,C or D may result in a delay

SECTION 1	Synthetic Training Device Details	
Aircraft Type		
Manufacturer		
STD Serial Number		
Year of Manufacture		
Engine Types	a)	
	b)	
	c)	
Visual System		
Motion system		
Qualification Level or the level sought		
STD sponsor		
Configuration differences existing between the Flight simulator and the applicants aeroplane		

SECTION 2	Operator Details		
Company Name			
Address			
Telephone			
Fax			
E-mail			
Location of FSTD			
Quality Manager			

SECTION 3	Dates
The following dates are available for evaluation	
Minimum of 4 dates	
If dates agreed with Civil Aviation Authority what they are	
Briefing reporting time	
Simulator timings (During normal working hours and not on weekends and holidays)	

SECTION 4	Declaration		
I certify that the details I have given on this form are in accordance with the current Implementing Standards and JAR-FSTD A and are true to the best of my knowledge and belief.			
Applicants Signature		Name	
Position		Date	

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Date Received		Fee Taken	Yes		Receipt No:
			No		....

Date Instructed:

....

Received by:

....

Address for Submissions:

Deputy Director Flight Operations
Civil Aviation Authority of Sri Lanka
No. 04, Hunupitiya Road
Colombo -02.

Contact Details for enquires:

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Or
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