



APPLICATION & PROCESS:
APPROVAL OF AVIATION TRAINING DEVICES

Purpose— This advisory circular (AC) provides guidance for organizations and instructors to receive the approval of the Rwanda Civil Aviation authority (RCAA) to use aviation training devices and software to provide instruction under Parts 7, 9 and 14 of the Rwanda Civil Aviation Regulations.

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- Advisory Circulars are intended to provide advice and guidance to illustrate a means, but not necessarily the only means, of complying with the Regulations, or to explain certain regulatory requirements by providing informative, interpretative and explanatory material.
- Where an AC is referred to in a 'Note' below the regulation, the AC remains as guidance material,
- ACs should always be read in conjunction with the referenced regulations.

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SECTION 1 GENERAL

1.1 STATUS OF THIS ADVISORY CIRCULAR

This is original issuance [1]2017 of this AC.

1.2 BACKGROUND

- A. Any flight simulation training device to be used by a Rwanda aircraft operator for qualification for flight crews (pilots, flight engineers, navigators, cabin crews, etc.) or ground crews (maintenance/avionics personnel, etc.) is subject to RCAA approval, prior to use in an approved training curriculum.
- B. This advisory circular also addresses the process for obtaining approval for a Rwanda aircraft operator to utilize a simulator that has been previously approved for use by another operator (Rwanda or otherwise).
- C. Other aviation training devices included in curriculums approved by the RCAA will be evaluated using the process outlined in this AC.

1.3 APPLICABILITY

This AC is applicable to all individuals, operators, organizations and other aviation entities desiring to provide training and qualification required by the Rwanda Civil Aviation Regulations.

1.4 RELATED REGULATIONS

The following regulations are directly applicable to the guidance contained in this advisory circular—

- RCAR Part 7, Personnel Licensing
- RCAR Part 9, Approved Training Organizations
- RCAR Part 14, AOC Personnel Qualification

1.5 RELATED PUBLICATIONS

For further information on this topic, individuals are invited to consult the following publications—

- 1) Rwanda Civil Aviation Authority (RCAA)
 - ◆ AC 09-001, Approved Training Organizations

Copies may be obtained from the RCAA Flight Safety Services.

- 2) International Civil Aviation Organization (ICAO)
 - ◆ Annex 1, Personnel Licensing
 - ◆ Document 9841-AN/456, Manual of Approval of Flight Crew Training Organization
 - ◆ Document 9868, Training-

Copies may be obtained from Document Sales Unit, ICAO, 999 University Street, Montreal, Quebec, Canada H3C 5H7.

1.6 DEFINITIONS & ACRONYMS

1.6.1 DEFINITIONS

- A. The following definitions are used in this advisory circular—
 - 1) **Approved training.** Training conducted under special curricula and supervision approved by a Contracting State that, in the case of flight crew members, is conducted within an approved training organization.
 - 2) **Aviation Training Device.** Any device used in approved training curriculums and/or qualification, proficiency or competency modules that provides for simulation of an actual task or event. The term “simulator” will be used interchangeably in this AC to mean any type of ATD.
 - 3) **Flight simulation training device.** Any one of the following three types of apparatus in which flight conditions are simulated on the ground—
 - (a) **Flight simulator**, which provides an accurate representation of the flight deck of a particular aircraft type to the extent that the mechanical, electrical, electronic, etc. aircraft systems control functions, characteristics of that type of aircraft are realistically simulated;
 - (b) **Flight procedures trainer**, which provides a realistic flight deck environment, and which simulates instrument responses, simple control functions of mechanical, electrical, electronic, etc. aircraft systems, and the performance and flight characteristics of aircraft of a particular class;
 - (c) **Basic instrument flight trainer**, which is equipped with appropriate instruments, and which simulates the flight deck environment of an aircraft in flight in instrument flight conditions.
 - 4) **Flight Training Equipment.** Flight simulation training devices and aircraft.
 - 5) **Fly-Off.** This phrase is used to describe the actual physical operation of an FTSD by the RCAA inspector.
 - 6) **Hands-On.** This phrase is used to describe the actual physical operation of the ATD by the RCAA inspector.
 - 7) **Process.** Set of interrelated or interacted activities which transform inputs into outputs.
 - 8) **Quality.** The totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs.
 - 9) **Quality of training.** The outcome of the training that meets stated or implied needs within the framework of set standards.
 - 10) **Quality assurance.** All those planned and systematic actions necessary to provide adequate confidence that all training activities satisfy given standards and requirements, including the ones specified by the approved training organization in relevant manuals.

- 11) **Specialty curriculum.** A set of courses that is designed to satisfy a personnel qualification requirement of this set of aviation regulations
- 12) **Operations specifications (ATO).** A document issued by the Authority to an approved training organisation that prescribes the organization's training, checking, and testing authorizations and limitations, and specifies training programme requirements.

1.6.2 ACRONYMS

The following acronyms are used in this manual—

- 1) **AOC** – Air Operator Certificate
- 2) **AMO** – Approved Maintenance Organization
- 3) **AMT** – Aviation Maintenance Technician.
- 4) **ATD** – Aviation Training Device
- 5) **ATG** – Approved Test Guide
- 6) **ATO** – Approved Training Organization
- 7) **RCAA** – Rwanda Civil Aviation authority
- 8) **FTSD** – Flight Training Simulation Device
- 9) **ICAO** – International Civil Aviation Organization
- 10) **LOA** – Letter of Authorization
- 11) **MATG** – Master Approved Test Guide
- 12) **RCAR(s)** – Rwanda Civil Aviation Regulation(s)

1.7 GENERAL APPLICATION CONSIDERATIONS

1.7.1 APPLYING FOR THE APPROVAL

- A. Before using an ATD (including FTSDs), the organization must request approval of the simulator or other training device in writing, specifying the intended application.
- B. If the submitted documentation is acceptable, the RCAA will evaluate the device with respect to its intended use and commonality with equipment or aircraft used by the organization.
- C. If the RCAA determines that the FTSD or ATD is satisfactory for the intended purpose, they will issue an approval to the requesting organization specifying the applications for which the device may be used.

1.7.2 OWNERSHIP

- A. The requesting organization does not have to own or otherwise have physical possession of the ATD. As long as it has been evaluated and approved specifically for the use of the requesting organization, it may be owned and operated by another organization.
- B. However, in order to request approval for use of an FTSD flight simulator by a Rwanda aircraft operator, it must have a current initial Approval Test Guide (ATG) and recurrent approved Master Approval Test Guide (MATG) (or JAA equivalents),

These document should meet the standards issued by the FAA, EASA or other acceptable simulator approving agency.

- C. It will be the requesting organization's responsibility to assure that the simulator continues to meet the standards and applications originally approved.

If RCAA determines that the basis for original approval are degraded, the approval will be immediately withdrawn.

SECTION 2 CONTENTS OF APPROVAL REQUEST

2.1 FOR ALL AVIATION TRAINING DEVICES

The requesting organization should submit a cover letter and the following—

- 1) Identification of the training device;
- 2) Location of the training device;
- 3) Specific simulation purpose of the training device;
 - ◆ The specific aircraft type, if a flight simulator.
- 4) The training curriculum or curriculum segment for which the simulator will be used;
- 5) The specific events and/or procedures for which approval is requested;
- 6) The quality assurance checklist to ensure that the device will be routinely re-evaluated; and
- 7) If a service provider is involved, the functions that organization will provide.

2.2 FOR FLIGHT SIMULATORS

The requesting organization should submit a cover letter and an ATG which includes—

Refer to Appendix A of this AC for the recommended format of the flight simulator cover letter.

- 1) A title page with the organization owning or operating the simulator and FAA/EASA approval signature blocks;
- 2) A simulator information page, for each configuration in the case of convertible simulators, providing—
 - (a) The operator's simulator identification number or code;
 - (b) Airplane model and series being simulated;
 - (c) Aerodynamic data revision;
 - (d) Engine model and its data revision;
 - (e) Flight control data revision;
 - (f) Flight Management System identification and revision level;
 - (g) Simulator model and manufacturer;
 - (h) Date of simulator manufacture;
 - (i) Simulator computer identification;
 - (j) Visual system model and manufacturer; and
 - (k) Motion system type and manufacturer;
- 3) Table of contents;
- 4) Log of revision and/or list of effective pages;
- 5) Listing of all reference source data; and

- 6) Glossary of terms and symbols used.

SECTION 3 PROCEDURE FOR RCAA EVALUATION & APPROVAL

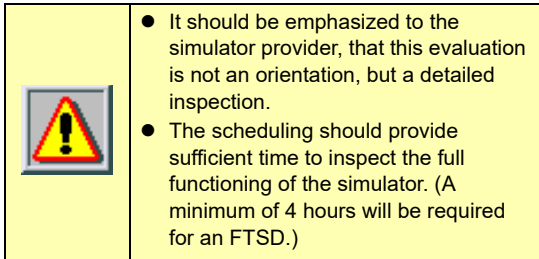
When the RCAA receives a letter of request from an organization desiring to use an ATD, the following process will be followed—

3.1 REVIEW APPLICATION DOCUMENTS

- A. The RCAA will review the contents of the requesting organization's application—
- 1) Review the letter of request;
 - 2) Consider the task and events for which the ATD is intended;
 - 3) Review the specifications and functions of the ATD.
- B. For flight simulators—
- 1) Review the ATG and the MATG;
 - 2) Contact the issuing CAA to determine that the documents are accurate and the most current;
 - 3) Review the ATG and MATG to determine that the simulator is suitable for the aircraft operator's training program; and
 - 4) Review the detailed layouts of the aircraft operator's cockpit for the requested aircraft for later comparison with the simulator.

3.2 CONTACT SIMULATOR PROVIDER

- A. That RCAA will notify the requesting organization of the proposed schedule for the ATD evaluation.
- B. The requesting organization must make arrangements for the evaluation by—
- 1) Contacting the simulator and make arrangements for an inspection;
 - 2) Ensuring that a qualified simulator instructor will be available to support the inspection; and
 - 3) Confirming arrangements to travel to the simulator.



3.3 GENERAL INSPECTION OF SIMULATOR

- A. Before the "hands-on" inspection, the RCAA will determine the operational status of the ATD by—
- 1) Inspecting the simulator's maintenance records to determine if there is a history of recurring failures.
 - 2) Visually inspecting the simulator for overall condition and cleanliness.
 - 3) Visually inspecting the simulator for compatibility with requesting organization's equipment that is to be replicated.
- B. Additionally, before a "fly-off" inspection, the RCAA will—

- 1) Visually inspect the simulator using the aircraft operator's cockpit layouts to determine if the configuration matches the operator's aircraft.
- 2) Ensure that the simulator's parameters are set to match the make, model, and series of the operator's aircraft.
- 3) Review the aircraft operator's approved training manual to confirm that all requested maneuvers can be performed, including the visual maneuvers.



If a satisfactory difference program has not been developed, a letter of denial shall be issued.

3.4 REQUIRED RCAA HANDS-ON (OR FLY-OFF) EVALUATION

- A. All ATDs will be subject to an actual "hands-on" evaluation by a RCAA inspector to ensure that it realistically simulates the actual function or event to the level specified in the curriculum.
- B. For an FTSD inspection, the RCAA inspector will, with the assistance of the qualified simulator instructor, perform a "fly-off" evaluation by—
 - 1) Operating the simulator through a series of approaches/maneuvers as necessary to establish to determine if all systems appear to be operating normally;
 - 2) Ensuring that the simulator is capable of critical events specified by the RCAA; and
 - 3) If malfunctions are found, determining why they have not been documented and corrected.

The actual maneuvers will be identified by the RCAA based on the organization's proposed use of the simulator.

3.5 RCAA APPROVAL

If the ATD is found to be acceptable, the RCAA will issue an LOA or operations specifications authorizing the requesting organization to use it in the appropriate curriculum or specific qualification, proficiency or competency module.



If the ATD is not acceptable, the RCAA will issue a letter of denial detailing the basis for denial.

SECTION 4 OTHER CONSIDERATIONS

4.1 ATD BECOMES INELIGIBLE FOR USE

The organization may not use the ATD to provide training, checking or experience if it—

- 1) Becomes Inoperative;
- 2) Is malfunctioning;
- 3) No longer properly simulates the event or procedure for which it is approved.

4.2 ATD INCORPORATED IN QUALITY ASSURANCE SYSTEM

- A. The using organization must incorporate the ATD in their quality assurance system.
- B. The checklist that includes the annual quality assurance evaluation of the ATD must be submitted with the original application.
 - Any discrepancies noted during the quality audits and the subsequent correction will be provided to the RCAA.

4.3 RCAA ON-GOING VALIDATION OF ATD QUALIFICATION

- A. The aviation training device will be included in the annual inspection program administered by the RCAA.
- B. The ATD must always be operational, except when in maintenance status and restricted from use in training or checking.



If the RCAA becomes aware of the use of the ATD when its status is questionable, the approval will be summarily withdrawn.

SECTION 5 ADDITIONAL FTSD CONSIDERATIONS

5.1 APPROVAL DOCUMENTS

The requesting organization must provide approval documents from the civil aviation authorities providing surveillance/qualification of the device. In the case of the—

- United States FAA: Approval Test Guide (ATG),
- European Aviation authorities: Master Approval Test Guide (MATG))

5.2 AIRCRAFT VS. SIMULATOR DIFFERENCES

- A. The requesting organization must provide detailed layouts of their aircraft cockpit and detailed layouts of the simulator, for comparison purposes?
- B. The requesting organization should provide a difference document—
- 1) Make/Model/Series
 - 2) Engines (Manufacturer, thrust, type, etc.)
 - 3) Instrumentation (Analog vs. Digital, Total Glass CP, etc.)
 - 4) Fuel System (number of tanks, jettison capability, range)
 - 5) Electrical System (number of generators, backup generator)
 - 6) Hydraulics (number of hydraulic pumps, RAT)
 - 7) Lift/Drag Devices (leading edge, trailing edge, spoilers, etc.)
 - 8) Air-conditioning & Pressurization (Number of Packs, Pack Operation)
 - 9) Switches (Toggle vs. Push Button)
 - 10) Gauges (Round Dial or Digital)
 - 11) Navigation/communication (GPS, FMS, HF, EFB, etc.)

5.3 SOPs & CHECKLISTS TO BE USED

- A. The crews and their instructors should use the organization's aircraft manuals (standard operating procedures and checklists).
- B. Only in very unusual situation would the SOPs and checklists of the training provider be permitted for use by the crews of the aircraft operator.



- It is unacceptable for the aircraft operator crews to be using the simulator provider's checklists.
- Aircraft operator personnel must be trained and checked using the SOPs and checklist approved for the operator

5.4 QUALIFICATIONS OF INSTRUCTORS & CHECK AIRMEN

- A. All personnel used by the organization for the conduct of flight emulator training or checking will be specifically qualified in the operation of that simulator prior to their use.
- B. The requesting organization should provide the following information about the simulator instructor and check airman who will be used with the simulators—
 - 1) Identify which organization will provide the instructors and check airmen;
 - 2) Each individual's qualifications, medical certificate, currency, experience (resume provided);
 - 3) If not provided by the requesting organization—
 - (a) Outline the process by which the instructor(s) will become familiar with the Rwanda aircraft operator's procedures/checklists/abnormals/training and checking programs;
 - (b) How will the requesting organization ensure that the instructor(s) are able to accurately communicate with the trainees.

5.5 MAINTENANCE & MECHANICAL IRREGULARITIES

5.5.1 MAINTAINED IN ADEQUATE CONDITION

Any simulator approved for use of any organization to meet the requirements of any training curriculum segment or training/ checking/experience module must—

- 1) Maintain the performance, functional and other characteristics that are required for RCAA approval;
- 2) Be modified to conform with any modification to the airplanes being simulated that results in a change of performance, function or other characteristics required for RCAA approval;
- 3) Be given a daily functional preflight check before being used; and
- 4) Have a daily discrepancy log kept with each discrepancy entered in that log by the appropriate instructor or check airman at the end of each training or check flight.

A differences briefing list is required for all flight simulators that are not configured or perform as the organization's aircraft.

5.5.2 APPLY MEL PROCEDURES

Each flight simulator and training device is to be treated like the actual aircraft or aircraft component except as indicated below.

- 1) Limitations described in both the simulator (or training device) MEL and aircraft MEL must be observed when conducting a lesson or skill test with inoperative components.
- 2) The operators aircraft MEL procedures must be observed throughout the course of each training and checking event.

5.5.2.1 DECISION TO CONTINUE Skill Test

Following a simulator or training device malfunction—

- 1) For a flight check or knowledge examination to commence or continue, components sufficient to all minimally required maneuvers and procedures must be fully operational.
- 2) If the minimum required components are not available, the skill test or knowledge examination must be discontinued and rescheduled to resume when inoperative components have been rendered operational.

5.5.3 DECISION TO CONTINUE TRAINING

In order for training to continue following a simulator or training device malfunction, the circumstances must satisfy at least one of the following criteria—

- 1) Components sufficient to all required maneuvers and procedures must be fully operational.
- 2) The lesson format must be adjusted to avoid events requiring the use of inoperative components.

5.5.4 GENERAL DECISION MAKING

For training requiring the use of a flight simulator or other training device—

- 1) Only mechanical deficiencies acceptable under the approved Minimum Equipment List (MEL) may be deferred.
- 2) The identical procedure for a Deferred Maintenance Item (DMI) must be followed completely.
- 3) One or more deficiencies culminating in a reduction of a flight simulator below Level "C" status, renders the device unusable as anything more than a Flight Procedures Trainer (FPT).

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APPENDIX A

Sample Letter of Request

(Company Letterhead)

(Date)

RCAA Address

Dear Mr. _____:

_____ **(Name)** Airlines requests evaluation of our _____ **(Type)** airplane simulator for Level _____ qualification. The **(Name)** simulator with _____ **(Name)** visual system is fully defined on page _____ of the accompanying initial Approval Test Guide (ATG) and the currently approved Master Approval Test Guide (MATG) (Or EASA equivalents).

We have completed tests of the simulator and certify that it meets all applicable requirements of RCAR Part 7 and 8 and the equivalent FAA or EASA requirements. Appropriate hardware and software configuration control procedures have been established. Our pilots have assessed the simulator and found that it conforms to the _____ **(Name)** Airlines _____ **(Aircraft Type)** airplane cockpit configuration and that the simulated systems and subsystems function equivalently to those in the airplane. Our pilots have also assessed the performance and flying qualities of the simulator and find that it represents the aircraft to be simulated.

(Added comments as desired.)

Sincerely,

(Signature of Director of Operations)

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