



APPLICATION & PROCESS:
PERFORMANCE-BASED COMMUNICATIONS

Purpose— The purpose of this advisory circular (AC) is to provide guidance to aircraft operators regarding the—

- 1) **International standards for Required Communications Performance (RCP); and**
- 2) **Requirement to have RCAA approval for such operations.**

Performance-based communications is now an ICAO global standard for operators, with emphasis on reduced separation oceanic and remote environments.

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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.

SECTION 1 POLICY & GENERAL INFORMATION

1.1 STATUS OF THIS AC

This AC is an original issuance.

1.2 BACKGROUND

- A. In 2007, the ICAO published Standards in Annex 6 (Part I and Part III) and Annex 11 establishing the requirement for operators to receive approval by the State before operations in airspace with a designated RCP type.
- B. The requirement is that, for flights in defined portions of airspace or on routes where an RCP type has been prescribed, the aircraft will have communication equipment which will enable it to operate in accordance with the prescribed RCP type. The operator must be authorized by the State of Registry for operations in such airspace.

1.3 APPLICABILITY

The requirement for RCAA approval before operations in defined RCP airspace applies to operators of Rwanda-registered aircraft involved in general aviation, aerial work and commercial air transport.

1.4 RELATED REGULATIONS

The following Rwanda Civil Aviation Regulations (RCARs) are applicable to the requirement and approval of Required Communications Performance—

- Part 6 – Required Instruments and Equipment
- Part 10 – Operations of Aircraft
- Part 12 – AOC Certification and Administration

1.5 RELATED PUBLICATIONS

These publications are source documents for this advisory circular—

- 1) Civil Aviation Authority of Rwanda
 - ◆ AC 10-013, Application & Process: Controller-Pilot Data Link Communication
- 2) International Civil Aviation Organization (ICAO)
 - ◆ Doc 9869 AN/462 – Manual on Required Communications Performance (RCP)
 - ◆ Annex 6, Part 1, International Commercial Air Transport – Aeroplanes
 - ◆ Annex 6, Part 3), International Operations – Helicopters

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

1.6 ACRONYMS & DEFINITIONS

1.6.1 ACRONYMS & ABBREVIATIONS

The following acronyms apply to this advisory circular—

- 1) **AC** = Advisory Circular
- 2) **AOC** = Air Operator Certificate
- 3) **ATM** = Air Traffic Management

- 4) **MEL** = Minimum Equipment List
- 5) **MMEL** = Master Minimum Equipment List
- 6) **PBC** = Performance Based Communications
- 7) **RCP** = Required Communications Performance
- 8) **RCP Type** = Required Communications Performance Type
- 9) **RCAR** = Rwanda Civil Aviation Regulations

1.6.2 DEFINITIONS

The following definitions apply to this advisory circular—

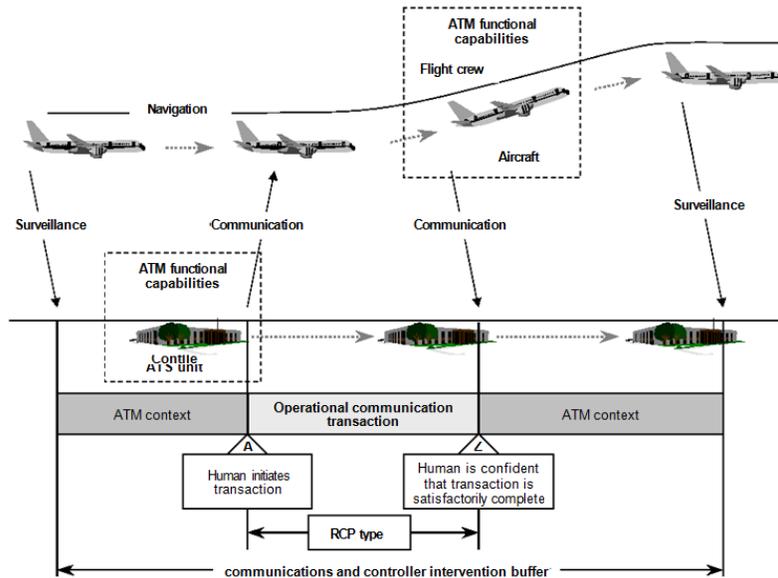
- 1) **Availability** – The probability that an operational communication transaction can be initiated when needed.
- 2) **Communication** – The accurate transfer of information between sender and receiver, the content of which can be readily understood by both.
- 3) **Communication Process Time** – The maximum time for the completion of the operational communication transaction after which the initiator should revert to an alternative procedure.
- 4) **Continuity** – The probability that an operational communication transaction can be completed within the communication transaction time.
- 5) **Integrity** – The probability that communication transactions are completed within the communication transaction time with undetected error.
- 6) **Required Communications Performance (RCP)** – A statement of the communication performance necessary for an aircraft to perform a given operation within a defined airspace or for a defined procedure or operation.
- 7) **Required Communications Performance Type (RCP type)** – Denotes communication service and aircraft capabilities; a label (e.g. RCP 240) that represents the values assigned to RCP parameters for communication transaction time, continuity, availability and integrity.

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SECTION 2 PBC CONCEPT EXPLAINED

2.1 COMMUNICATION-CONFIRMATION-ACTION

- A. The diagram below illustrates the determination of RCP type. It is based on the time required to safely complete a “communications transaction.” That time varies depending on the type of equipment used. For example, voice is faster than data link to complete a transaction.



- B. The RCP for a given area will depend on the type of equipment used to make the communications transaction.
- C. At the present time, those RCP types are expressed as the transaction time in seconds.
- For example, RCP-20 = transaction time of 20 seconds.
- D. According to the transaction time probabilities contained in the following analysis, the equipment and the operator, must be consistently capable of meeting these transaction

RCP type	Transaction time (sec)	Continuity (probability/flight hour)	Availability (probability/flight hour)	Integrity (acceptable rate/flight hour)
RCP 10	10	0.995	0.99998	10 ⁻⁵
RCP 60	60	0.99	0.9995	10 ⁻⁵
RCP 120	120	0.99	0.9995	10 ⁻⁵
RCP 240	240	0.99	0.9995	10 ⁻⁵
RCP 400	400	0.99	0.999	10 ⁻⁵

times in order to receive approval for the specific RCP.

- E. If an operator requests to be approved for operations in airspace defined as RCP-60, that operator’s personnel must be able to demonstrate transaction times of 60 seconds consistently using the required equipment.



No additional transaction time can be tolerated for factors such as language proficiency or competency with the equipment.

- F. In some areas, there will be two RCP types defined, a primary and an alternative. The operator's communications equipment and personnel must be capable of consistent transaction times for the primary RCP type.

SECTION 3 OPERATIONAL APPROVAL PROCESS

3.1 GENERAL INTERNATIONAL REQUIREMENTS

3.1.1 COMPLETE CERTIFICATION REQUIREMENTS

Prior to operating a civil aircraft of Rwanda registry in airspace defined for an RCP type must first—

- 1) Satisfactorily complete the process for granting of the authorization;
- 2) Obtain an approval document for the specific aircraft or fleet from RCAA.

3.1.2 CERTIFICATION EVALUATION REQUIRED

In making this certification evaluation, RCAA shall take into account the—

- 1) Defined airspace or route to be flown;
- 2) RCP type required in that airspace;
- 3) Suitability of the aircraft communications equipment; and
- 4) Capability of the crew to consistently meet the specified transaction times.

3.1.3 CRITERIA FOR GRANTING THE APPROVAL DOCUMENT

RCAA shall be satisfied that the—

- 1) Communications equipment on the aircraft does not restrict the operator from meeting the required communications performance for the primary and, if applicable, the alternative RCP type;
- 2) Operator has instituted appropriate procedures in respect to continued airworthiness (maintenance and repair) practices and programmes of the communications equipment;
- 3) Operator has instituted appropriate flight crew communication procedures in the operations manual for operations in defined RCP airspace; and
- 4) Operator has ensured that all flight crew personnel used in the defined airspace are capable of consistently meeting the transaction times.

3.2 GENERAL RWANDA REQUIREMENTS

3.2.1 CERTIFICATION PROCESS

- A. While all certification proceeds through the same 5-phase process, whether is a single document or a completely new airline, the lines between the phases blur in a simple certification.
- B. Granting of RCP authorizations is a simple process. The applicant will provide the required formal application as prescribed by RCAA.
- C. The certification team will then accomplish the document conformance.
- D. Document conformance is considered complete when all submitted documents have been—
 - 1) Evaluated;
 - 2) Found to be acceptable for use in aviation; and

- 3) Issued a formal instrument of approval or acceptance.

3.2.2 INSPECTION & DEMONSTRATION

- A. The specific aircraft to be used will be inspected for communications equipment capability and reliability.
- B. If there is any doubt that the operator's personnel and equipment may not be capable of meeting the required transaction times, the applicant will be issued an LOA to conduct RCP operations under the close supervision of RCAA inspector personnel.

Past performance of the operator's personnel with the communications equipment required to meet the primary RCP type will be a key factor in the type of demonstration required.
- C. The demonstrated transaction times will be considered before granting the RCP type(s).

3.2.3 FINAL CERTIFICATION ACTIONS

- A. This is the period of time that RCAA completes the necessary documentation to formalize the approval of the applicant for RCP types in specific aircraft type(s) and, if necessary, in specific areas or on certain routes.
- B. That approval will be in the form of—
 - 1) For general aviation operators; an LOA valid for a period of 24 months; and
 - 2) For AOC holders, a revision to the—
 - (a) Master (formal) ops specs; and
 - (b) Aircraft Display Ops Specs (for each type of aircraft).

SECTION 4 CONTENTS OF FORMAL APPLICATION PACKAGE

4.1 GENERAL REQUIREMENTS

The following documents will be considered individually—

- 1) Letter of request for RCP approval
- 2) Summary of relevant past operating history (where available);

4.2 FOR AIRCRAFT TYPE

The following documents must be submitted for each aircraft type—

- 1) Description of aircraft communications equipment that will be used to meet PBC;
 - 2) Operations manuals (or proposed revisions to existing manuals) providing specific procedures or procedure steps to include RCP;
 - 3) For AOC holders, training programs that include initial and recurrent training that provides pilots with adequate knowledge of RCP requirements;
 - 4) Proposed Minimum Equipment List (MEL) revisions for RCP, if applicable;
 - 5) Current Master Minimum Equipment List (MMEL)
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4.3 AVAILABLE FOR CONSULTATION

The following documents (for each type of aircraft) must be available at the applicant's facilities for consultation—

- 1) Maintenance manuals;
- 2) Standard practices manuals; and
- 3) Illustrated parts catalogues.

- RCAA inspectors shall have unobstructed ability to refer to these documents.
- If this criteria is not met, copies of these manuals will be required to be submitted to the RCAA offices as a part of the application.

End of Advisory Circular

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