



TECHNICAL GUIDANCE MATERIAL

for

for Electronic Service Organization (ESO) Category B Approval

SUBJECT: TECHNICAL GUIDANCE MATERIAL FOR DEVELOPMENT OF AN ESO MOP FOR CATEGORY B APPROVAL

EFFECTIVE DATE: 16 July 2026

1. APPLICABILITY

This technical guidance material document applies to any organisation that intends to apply to the SACAA for approval to become a Category B Electronic Service Organisation as per the SACAR 171 requirements.

1.1 Subpart SACAR 171.01.1 (a) prescribes the —

Regulatory requirements and standards for the approval of organisations that provide, operate, and maintain aeronautical telecommunications equipment used for air traffic services, and radio-navigation services used for air navigation; and operating and technical standards for aeronautical telecommunication services used for air traffic services, and aeronautical radio-navigation services used for air navigation.

1.2 Subpart SACATS 171.01.1 prescribes that —

Where ESO has multiple regional technical operation centres which provide different services and due to the complexity and areas of responsibilities, each regional technical operation centre is required to establish its centre-specific Standard Operating Procedures (SOP) document that is aligned with SACATS Part 171 requirements. (See: 171.02.1: 1. (2) to 1. (4) and 1. (6) to 1. (7). The SOP will form part of the complete ESO MOP as addenda for evaluation and acceptance. The ESO MOP and centre-specific SOP shall be subjected to periodic audits as determined by the Director.

2. PURPOSE

The purpose of this technical guidance material is to assist Category B ESO applicants in developing a manual of procedure and to ensure uniformity. This TGM identifies the information that must be contained in the MOP as required by the SACAR Subpart 171.02.1. It also guides the applicant as to the layout format and way the contents of the MOP shall be structured. Refer to Annexures A and B of this document for the structure and layout of the MOP.

This TGM provides guidelines on how the applicant shall develop its MOP, which shall serve to demonstrate how the ESO will comply with the requirements of its Manual of Procedures, SACARs/CATS and Documents relevant to its operations, and any other relevant regulatory standards to ensure that there are no shortcomings which would adversely affect the safety of aircraft operations.

3. REQUIREMENTS FOR APPROVAL

Note: Director herein refers to Director Civil Aviation (DCA)

3.1 Subpart SACAR 171.01.2 (1) states:

No person or organization shall **install, maintain, repair, modify or calibrate -**

(a) equipment for the use of aeronautical telecommunication services used for air traffic services; or

(b) equipment for the use of aeronautical radio-navigation services, used for air navigation.

Except, under the authority of, and in accordance with the provisions of, an electronic services organization approval with the appropriate rating issued under this part and in accordance with the requirements prescribed in Document SACATS 171 and other regulatory or general requirements as deemed necessary by the Director.

ESO applicants shall include on its MOP classification of services and facilities they intend to provide as prescribed under;

3.2 SACATS 171.01.2: 1. Aeronautical telecommunication services and facilities

(1) Classification of Services (a) (i) – (vii) These are ground-based stations used for supporting air traffic services provided under Part 172 which excludes airborne equipment.

3.3 SACATS 171.01.2: 2. Aeronautical Radio Navigation services

(1) Classification of Services (a) – (b)

(2) Classification of Facilities (a) – (zd)

Note: Radio-navigation services referred to in this document include radio determination (radar surveillance services) supporting ATS.

4. REFERENCE:

4.1 Part 171 of the SACAR states the requirements for the MOP and the South African Civil Aviation Technical Standards (SACATS) Part 171 supplements these regulations by stating the minimum information which shall be contained in the manual of procedures. Other regulatory requirements that may be deemed necessary by the Authority shall be met and these include but are not limited to:

- i. Part 11 – Procedures for Making Regulations and SACATS, Granting Exemptions and Notifying Differences.
- ii. Part 139 – Aerodromes and Heliports (ADFA)
- iii. Part 172 – Airspace and Air Traffic Services (ATS)
- iv. Part 173 – Flight Procedure Design (PANS-OPS)
- v. Part 175 – Aeronautical Information Services (AIS)
- vi. Part 185 – Enforcement (LAC)
- vii. Part 187 – Fees / Charges

5. LIST OF DEFINITIONS AND ABBREVIATIONS USED IN THIS DOCUMENT

5.1 Definitions

TERMINOLOGY	DEFINITION
Accountable Manager	A single, identifiable person within an entity who has full responsibility for the organisation's ongoing compliance with the CAR and has full authority for human resources issues, authority for major financial issues, direct responsibility for the conduct of the organisation's affairs, final authority over operations under certificate and final responsibility for all safety and security issues;
Facility	Means one or more items of equipment, at one or more locations, that provide an aeronautical telecommunication or radio navigation service.
Manual of Procedures	A document endorsed by the head of an organisation that details the organisation's structure and management responsibilities, the scope of work, description of facilities, maintenance procedures, and quality assurance or inspection systems;
Non-Compliance	Failure to comply with, or obey a law, regulation, or any instruction given in terms thereof. Non-compliance may be an act of commission or omission;
Process	Means a set of interrelated or interacted activities which transform inputs into outputs

Procedure	A series of steps followed methodically to complete an activity. This includes: the activity to be done and the individual(s) involved; time, place, and manner of completion; the materials, equipment, and documentation to be used and how the activity is to be controlled;
Quality manual	A document containing the relevant information pertaining to an organisation's quality assurance system;

5.2 Abbreviations

ABBREVIATION	MEANING
CNS	Communication, Navigation, and Surveillance
DCA	Director of Civil Aviation Authority
ESO	Electronic Services Organisation
MOP	Manual of Procedures
SACAA	South African Civil Aviation Authority
SACAR	South African Civil Aviation Regulation
SACATS	South African Civil Aviation Technical Standards
TGM	Technical Guidance Material

6. GENERAL

6.1 Categories of Ratings [SACAR 171.01.6 (b)]

This technical guidance material applies to the following category rating organisations:

- 6.1.1 Category B:** Rating which allows for the supply and installation of any electronic equipment used for Air Traffic, and for Air Navigation Services that form part of a service approved under Part 172 and level 3 maintenance, including commissioning, decommissioning, refurbishing, and upgrading of telecommunication, surveillance and navigation systems to the standard prescribed in the Document **SACATS 171**.

Note 1: ESO applicant shall classify on its MOP the category of ratings in terms of its operation.

Note 2: For more information refer to **SACATS 171.02.8 Privileges - 1. Category B rating (1) and (2)**

6.2 Manual of Procedure (SACAR 171.02.1)

- 6.2.1** An applicant for the issuing of an electronic services organisation approval shall provide the Director with its manual of procedure, which shall comply with the requirements prescribed in SACAR Subpart 2; and contain the information as prescribed in Document SACATS 171.

- 6.2.2** MOP serves as a reference document agreed between the ESO and the authority concerning the standards, conditions, and level of service to be maintained for the aeronautical telecommunication services and aeronautical radio-navigation services.

6.3 Information to be contained in the Manual of Procedure {SACATS 171.02.1 (1)}

The information referred to in CAR 171.02.1 and CAR 171.02.2 which must be contained in the manual of procedure of the applicant, must include the following:

6.3.1 Management {SACATS 171.02.1 (1)}

- (a) Corporate commitment: A statement containing the commitment of the Accountable Manager on behalf of the applicant confirming that:
- (i) The manual of procedures demonstrates the means and methods for ongoing compliance with the requirements of Part 171 of the SACARs and SACATS.
 - (ii) The manual will be always complied with and approved by the DCA.

- (b) Attach a signed appointment letter of an **Accountable Manager** to whom contractual authority has been granted to ensure that all activities undertaken by the organisation are carried out following the applicable requirements prescribed in Part 171.

6.3.2 Management personnel {SACATS 171.02.1 (2)}

A list of the key management personnel and their positions. including names of all Senior Management personnel to Supervisory level and their contact details). These are individuals that are involved in the aeronautical telecommunications and radio-navigation services.

6.3.3 Duties and responsibilities of the management personnel {SACATS 171.02.1 (3)}

A statement containing the duties and responsibilities of each management position mentioned in 6.3.2 above. (i.e., Job Descriptions or Job Profiles).

Note: The ESO shall develop a job description for each of its personnel which shall describe the job purpose, key responsibilities, qualification, experience, and outcome to be achieved by each person involved in the operation of the aeronautical telecommunications and radio-navigation services and facilities.

6.3.4 Management organisation chart {SACATS 171.02.1 (4)}

- (a) The chart must show all line management positions down to the supervisory level.
(b) An organizational chart that shall clearly define lines of accountability and responsibility of personnel concerning the provision of services.

6.3.5 Human resources {SACATS 171.02.1 (5)}

- (a) A statement identifying the human resources employed by the organisation.
(b) This must be a statement describing in brief what each person in the maintenance of Aeronautical Telecommunications and Radio-navigation facilities is responsible for. (e.g., roles and responsibilities).

Note: This is mainly for the technical personnel responsible for planning, performing, supervising, inspecting, or certifying the maintenance activities of the CNS/ATM facilities.)

6.3.6 General description of facilities at each address intended to be approved {SACATS 171.02.1 (6)}

- (a) A description of the facilities and layout is required. This will include the following:
- (i) Headquarters (Building layout and address)
 - (ii) Operations Centres (Building layout and address)
 - (iii) CNS en-route facilities (Building layout and address)
- (b) Building layout must include the following, if applicable;
- (i) Back-up power (Generator or UPS rooms)
 - (ii) Stores facility
 - (iii) Equipment room
 - (iv) Control Tower
 - (v) Approach/Area Hall
 - (vi) Technical Workshop, etc.

Note: The above can be submitted as an Appendix

6.3.7 The organisation's intended approved scope of work {SACATS 171.02.1 (7)}

A statement of the scope of work being applied for by the organisation.

Note: This should be in line with Category B rating

6.3.8 The quality control system which must include {SACATS 171.02.1 (8)}

The applicant shall establish a quality assurance system for the control and supervision of the management of electronic equipment, covered by the application:

- (a) **A clear definition of the level of quality the organisation intends to achieve**
- (b) **A procedure that sets out the level and frequency of the internal reviews and assessments of electronic services organisation personnel**
Internal reviews are those activities conducted internally by the organisation, to evaluate the electronic services organisation's personnel performance.
- (c) **A procedure to record the findings and communicate them to management**
- (d) **A list of responsible persons**
This is a list of all the individuals who are responsible for the quality control system of the maintenance activities of aeronautical telecommunications and radio-navigation services and facilities and their respective positions.
- (e) **Procedures by which other quality indicators such as facility malfunction reports, incidents, occurrences, complaints, and defects are brought into the quality control system and should include the overall procedures adopted in the case of unscheduled interruptions (failures) to services provided. These will include;**
- (i) Technical personnel call-out procedure in and out of working hours;
 - (ii) A specified service recovery time which is to be the basis of the planned response to a failure;
 - (iii) The process to be undertaken should it become obvious that the specified recovery time cannot be achieved;
 - (iv) The planned procedure, if any, to establish an alternate service as a contingency in situations where there is a loss of service for extended periods.
- (f) **Procedures for the control of documents and data associated with service provision**
The procedure shall ensure that documentation or data is accurate, up to date, properly approved, securely stored, easily accessible to authorised personnel and protected from unauthorized changes or loss.
- The procedure shall include, but not limited to the following;
- (i) Amendments to documents
 - (ii) All incoming/ outgoing documentation.
 - (iii) Documentation review and approval
 - (iv) Availability and accessibility of all relevant documentation to authorised personnel
 - (v) Control of obsolete documentation.
 - (vi) Control of all relevant technical manuals and all other documents necessary for the provision and operation of the services are listed in its exposition.
- (g) **Procedures to ensure currency in equipment-related software and the on and off-site safeguarding of the source software**
- (h) **Procedures to establish a security program that minimizes the risk of unauthorized access, entry by animals, or malicious damage to a service or facility**
Establish a security program for the ESO premises and all the aeronautical telecommunications and radio-navigation facilities listed in the applicant's exposition (local and en-routes) and this includes physical security requirements, practices, and procedures to be followed:
- (i) Minimize the risk of destruction of damage to, or interference with the operation of any aeronautical telecommunications and radio-navigation facilities.
 - (ii) Protection of personnel on duty.
 - (iii) Where relevant, signs warning of hazardous radiation shall be erected at appropriate locations.
 - (iv) The security program required shall include such physical security requirements, practices, and procedures as may be considered necessary by the applicant and the authority.

Note: Particulars of the procedures for the protection of aeronautical telecommunications and radio-navigation facilities located on the aerodrome to ensure that their performance will not be degraded, including the

following:

- (i) Arrangements for the control of activities in the vicinity of aeronautical telecommunications and radio-navigation installations.
- (ii) Arrangements for ground maintenance in the vicinity of these installations.
- (iii) Arrangements for the supply and installation of signs warning of hazardous microwave radiation.

(i) Procedure for initially assessing, and maintaining, the competence of those personnel involved in planning, performing, supervising, inspecting, or certifying the maintenance undertaken by the organization

As per ICAO Doc 10057 - Manual on Air Traffic Safety Electronics Personnel Competency-based Training and Assessment

(j) Procedures and practices for the calibration and maintenance of test equipment used in the operation and maintenance of services and facilities

The procedure shall include the following:

- (i) Calibration registers for each critical test equipment indicating calibration date and expiry date thereof.
- (ii) Storage of test equipment
- (iii) Control and requisition process of test equipment

Note: The applicant shall ensure that the test equipment is calibrated by an accredited service provider.

(k) Procedures for management analysis and overview

- (i) The purpose of management analysis and overview is to review the Operational Quality Control System implemented at the applicant's place of operation as well as to ensure its continuing adequacy, suitability, and effectiveness.
- (ii) This should include an evaluation of the performance of the system and should also address any decisions or actions necessary to improve the system.

Note: This is an important tool used by Management to assess opportunities for improvement hence continual improvement of the system.

(l) Procedures for rectifying any deficiencies which may be found

The procedure shall include the following:

- (i) Fault reporting procedures (e.g., system malfunctions and any other CNS/ATM system-related failures).
- (ii) How the organisation manages, and controls CNS/ATM system related to all failures and those that have an adverse effect on the Air Traffic Service operations.
- (iii) The method used to record the corrective action and preventive action.
- (iv) Allocation and acceptance of ownership.
- (v) Monitoring each corrective action to verify timely and effective implementation and completion.
- (vi) Regular reviews of root causes of all corrective actions.

Note: This procedure shall ensure that corrective actions are developed in response to any deficiencies including but not limited to the following;

- (i) system faults,
- (ii) findings,
- (iii) deviations,
- (iv) or concerns identified.

(m) Procedures for documenting the complete review process from the inspection to the satisfactory management review so that this is available to the Director during a safety inspection and audit.

The documented process is to be followed by the ESO upon receipt of the inspection/audit non-compliance safety report indicating how findings will be managed, monitored, rectified, communicated internally and made available to the Director during a safety inspection and audit.

6.3.9 Notification procedure to the Director regarding changes in the organisation's activities/approval/location/personnel. A statement indicating who is responsible for notifying the Director regarding changes, and what changes are subject to notification. {SACATS 171.02.1 (9)}

This notification procedure shall include the change management process that the ESO follows regarding any changes in the organisation. (e.g., New Installations, Equipment Upgrades, De-commissioning of equipment, Equipment/office relocation, changes in policies and procedures, organisational restructuring, etc.)

6.3.10 Manual of procedure amendment procedures. A statement regarding the responsibility and procedure for amendment of the manual of procedure, as well as the associated documents referred to in the manual of procedure. {SACATS 171.02.1 (10)}

Note: Amendments to the manual of procedures and the associated documents referred to in the procedure manual cannot be effective unless they have been received and accepted by the Director.

6.4 Accommodation and facilities (SACAR 171.02.3)

An applicant for the issue of ESO approval shall satisfy the Director that it meets the requirements as prescribed under SACAR 171.02.3 (a), (b), (c), and (d)

6.5 Personnel requirements (SACAR 171.02.4)

An applicant for the issue of ESO approval shall satisfy the Director that it meets the requirements as prescribed under SACAR 171.02.4 (1a, b, c), (2), and (3a, b).

6.6 Equipment, tools and material (SACAR 171.02.5)

An applicant for the issue of ESO approval shall satisfy the Director that it meets the requirements as prescribed under SACAR 171.02.5 (b).

6.7 Application for approval or amendment thereof (SACA 171.02.6)

An application for the issuing of an electronic services organisation approval, or an amendment thereof, shall be—

- (a) made to the Director in the appropriate prescribed form; and
- (b) accompanied by—
 - (i) the appropriate fee as prescribed in part 187; and (This is still outstanding)
 - (ii) the manual of procedure referred to in regulation 171.02.1.

6.8 Issuing of approval {SACAR 171.02.7 (1)}

The Director shall issue an electronic services organisation approval, if the applicant complies with the requirements prescribed in regulations 171.02.1 to 171.02.5 inclusive.

6.9 Privileges (SACAR 171.02.8)

The privileges of an electronic services organisation approval shall be limited to services authorised by the approval and the appropriate specifications as prescribed in Document SACATS 171.

6.10 Period of validity (SACAR 171.02.9)

Refer to SACAR 171.02.9 (1) to (5) for more information.

6.11 Transferability (SACAR 171.02.10)

Refer to SACAR 171.02.10 (1) and (2) for more information.

6.12 Renewal of approval (SACAR 171.02.11)

Refer to SACAR 171.02.11 (1) and (2) for more information.

6.13 Changes in quality assurance system (SACAR 171.02.12)

Refer to SACAR 171.02.12 (1) to (3) for more information.

6.14 Duties of holder of approval (SACAR 171.02.13)

Refer to SACAR 171.02.13 (1) and (2) for more information

6.15 Record of authorised personnel (SACAR 171.02.14)

Refer to SACAR 171.02.14 (1) to (3) for more information

6.16 Services records (SACAR 171.02.15)

Refer to SACAR 171.02.15 (1) to (4) for more information

6.17 Equipment specification (SACAR 171.02.16)

Refer to SACAR 171.02.16 (1) for more information

Note: For continued compliance with the regulatory requirements, the ESO approval holder shall ensure that they comply with the requirements set out in Part 171 SACAR/SACATS Subpart 3 Communication, Navigation, Surveillance.

7. AUTHORISATION

DEVELOPED BY:		
	OLEBOGENG KEAGILE	16 JULY 2026
SIGNATURE OF M: CNS	NAME IN BLOCK LETTERS	DATE
REVIEWED & VALIDATED BY:		
pp 	SANDILE MAPHANGA	16 JULY 2026
SIGNATURE OF SM: ANS	NAME IN BLOCK LETTERS	DATE
APPROVED BY:		
	TEMBISA MAPHIKE	16 JULY 2026
SIGNATURE OF E: ASI	NAME IN BLOCK LETTERS	DATE

END

ESO MANUAL LAYOUT

The basic structure of the manual of procedures and other documents shall be in the following format:

Note: It shall be taken into consideration that while SACAA inspectors provide formal/ informal guidance and advice during the initial contact, it is the responsibility of the applicant to compile the required ESO MOP and acceptably provide all necessary documentation as per the guidance below.

GENERAL INFORMATION	
1. The layout of the ESO Manual and other documents	
1.1. Font to be used	
• Arial Narrow 12 for text	
• Arial Narrow 14 for Subtitles	
• Arial Narrow 16 for Titles	
1.2. Font color Black and all referenced documents must be highlighted in Blue.	
1.3. Page layout	
• Portrait	
• Landscape drawings and any other annex that cannot fit on the portrait layout.	
1.4. Spacing	
• Between lines must be 1.5	
• Between paragraphs must be 2	
1.5. Cover page must have the following information:	
• The name of the ESO	
• The name of the Manual (i.e., CNS ESO MOP)	
• Photograph of the Airport (optional)	
• License number	
• Customer Code (i.e., FAXX)	
• Type of Approval (i.e., CAT B)	
• Company logo (optional)	
<i>Please note that once the ESO MOP has been accepted by the SACAA, kindly attach the letter of approval to the MOP; on the 1st page of the manual.</i>	

PREPARATION OF MANUAL OF PROCEDURE

1. The ESO MOP shall:

- a) Be an electronic document and signed by the Accountable Manager.
- b) Have a system for recording the currency of pages and amendments thereto, including a page for logging revisions.
- c) The applicant must keep at least one complete and current copy of the MOP at their respective place of operation.
- d) The applicant must make a copy of the approved/accepted manual of procedure available for inspection by the SACAA inspector.

Note: The following manuals must be submitted by the applicant if they are separate from the MOP. These manuals must be relevant to the ESO operations.

- a) Training Manuals
- b) Quality Manual
- c) Security Manual
- d) Contingency Procedures Manual

2. ESO MOP Contents

The MOP should be divided into the following sections, as appropriate for the specific organisation. For standardization, it is recommended that the sequence of sections and items within sections follow this outline:

	Title Page
	Table of contents
1)	Introduction
2)	Scope
3)	Purpose
4)	Statement of compliance by Accountable Manager
5)	Authorisation
6)	Record of amendments
7)	List of effective pages
8)	List of Definitions and Abbreviations
8.1)	Definitions
8.2)	Abbreviations
9)	Reference documents

a) Title Page

The title page should include the organisation's name, approval number (if applicable) and an appropriate document identification number. Provision should be made for including the approval date of the basic document and the Signature, Name and Title of the SACAA approving official.

b) Table of contents

This should include the list of appendices and attachments

c) Introduction

Brief introductory description by ESO applicants regarding their services and their background.

d) Scope

Brief description by the ESO applicant regarding their scope of work.

e) Purpose

Brief description by the ESO applicant stating the purpose and reasons for their application.

f) Statement of compliance by Accountable Manager

A statement of compliance indicating corporate commitment on behalf of the applicant.

g) Authorisation

For the Applicant/ESO:	
ORGANISATION NAME:	
DATE OF SUBMISSION:	
APPROVED BY (ACCOUNTABLE MANAGER):	
SIGNATURE:	
For SACAA:	
DATE OF APPROVAL:	
ACCEPTED BY:	
SIGNATURE:	

h) Record of amendments

Details of amendments example:

Amendment Number	Pages Affected	Date Amended	Approved by Name:	Signature
1. 002	Revised MOP	04 February 2009	Mr J. Smith	
2. 003	Parts/Section/Chapter 1,3,5	01 January 2020	Mr. N. Jones	
3. 004	Pages 2,9,10,11,12,15,17	15 June 2021	Mrs. M Coetzee	
4. 007	All pages	03 November 2022	Ms. K. Khumalo	

i) List of effective pages (including all information necessary to determine which pages have been revised or amended). (e.g. Revision Number: 007)

Page Number	Revision Number	Revision Date
All pages	007	03/11/2022
Page 9,10	004	15/06/2021

j) List of Definitions and Abbreviations

k) Reference document