



International Civil Aviation Organization

CAR/SAM Regional Planning and Implementation Group (GREPECAS)

**Sixteenth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/16)**

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**Agenda Item 3: Performance framework for Regional Air Navigation Planning and Implementation**

- 3.1 Global, inter-regional and intra-regional activities concerning air navigation systems in the CAR/SAM Regions

**STANDARD AERODROME INSPECTION METHODOLOGY UNDER THE ISO INTERNATIONAL STANDARD**

**(Presented by Colombia)**

**SUMMARY**

This working paper proposes to member States the adoption of a systematic aerodrome inspection methodology as a guide for operational certification inspections, based on a systematic, transparent, and agreed-upon procedure to make sure the aerodrome meets standard safety levels and the requirements of the norms.

**Assembly decision:** The participants at the GREPECAS/16 meeting are invited to develop and adopt an aerodrome inspection methodology consistent with ISO international standards, to be adopted in the CAR/SAM Regions.

<i>Strategic Objective</i>	This working paper is related to Strategic Objective: A: Safety — Enhance global civil aviation safety
<i>Financial Impact</i>	Certification costs are optimised upon eliminating the possibility of conducting an inspection process that does not meet the required standards.

**1. INTRODUCTION**

1.1 After Japan and the United States, as pioneers in the quality system theory, successfully made progress in the development of quality-based industrial and commercial production, private and public organisations worldwide adopted quality systems to stay competitive in the global market.

1.2 Consequently, quality systems have become a premise for corporate success and a requirement for customer wellbeing and satisfaction derived from the product and/or service received.

1.3 Modern management theories propound that quality is not a state but a continuous improvement process.

1.4 Aerodrome certification is a process intended to achieve safety standards at aerodromes, based on SARP compliance and, in general, on regulations issued by the States to regulate, oversee and control civil aviation, to ensure safe aircraft operations and the provision of quality services.

1.5 Quality is defined as compliance with regulatory requirements and is based, *inter alia*, on the principles of planning, prevention, maintenance of the product and/or service standards required by the customer, control, team work, training, and continuous improvement, following systematic criteria in the production chain and/or service provision.

1.6 These elements must be part of the aerodrome inspection oversight by the State, the quality of which will be subject to meeting the needs, expectations and requirements of the aerodrome operator and of the operational users of the airport. Consequently, the inspector must be efficient in the use of resources, efficacious in complying with inspection objectives, effective in the tasks performed, and profitable in the results obtained.

## 2. DISCUSSION

2.1 The International Civil Aviation Organization (ICAO) has formulated a series of basic instruments to address the aerodrome certification process, of which the following can be highlighted:

- a) *Annex 14*, on planning and design, and on aerodrome and heliport operation and maintenance.
- b) Document 9859, *Safety Management Manual (SMS)*, an important concept that allows the aerodrome to control and minimise the risk involved in the identified hazards.
- c) Document 9774, *Manual on Certification of Aerodromes*, describes aerodrome components that must be inspected, lists the obligations of the aerodrome operator and establishes the functions of the inspector and of the functional area responsible for coordinating the certification process, amongst other aspects.
- d) The *Aerodrome Inspector Handbook* defines the inspector profile, identifies inspection stages, and describes each of the elements that the inspector must take into account when conducting the inspection.

2.2 There are also guides that the States have developed or are developing for the same purpose (methodology for safety case studies; inspector guide; and others) which are undoubtedly part of the inspection process toolkit and are basic documents that every inspector must know and master.

2.3 However, according to quality assumptions, the inspector must have, for each inspection, standard technological tools to plan, do, check and act (PDCA), for purposes of efficient and effective revision and testing of each of the items of the aerodrome compound, so that the inspection may yield the best possible results based on the proposed objectives, and the customer--in this case the aerodrome operator--and the operational users, will be satisfied with the service provided.

2.4 At the international level, there are quality system guides, called ISO (9000 series), with guidelines and patterns to be followed by companies for the implementation of their quality management system for the development of their processes.

2.5 In turn, the Special Civil Aviation Administrative Unit of Colombia (*Unidad Administrativa Especial de Aeronáutica Civil de Colombia*) is working in the development of the quality

chart for the aerodrome certification process, which will be part of the Quality System of the institution, pursuant to regulation NTC-GP1000-2004 of Colombia.

### 3. SUGGESTED ACTION

3.1 Accordingly, the proposal is to develop and adopt an aerodrome inspection methodology, following the ISO international guide, and whose basic elements shall be aimed at:

1. Identifying managerial responsibility (this aspect is identified in the aforementioned ICAO documents on aerodrome certification).
2. Defining the inspection objective.
3. Defining its scope.
4. Describing activities related to the inspection procedure.
5. Identifying (regulatory and operational) inspection documents.
6. Identifying and standardising records (proceedings, inspection, action plan, test and trial recording forms, and other forms).
7. Identifying efficiency and effectiveness indicators.
8. Identifying risk control.
9. Controlling inspection process(identification and assessment of identified non-conformities)
10. The procedure for identifying preventive actions.
11. The procedure for identifying corrective actions.
12. The procedure for identifying improvements.
13. Defining a clear and precise revision procedure.
14. Establishing standard rating parameters that include previously identified and defined acceptance margins for each component of the aerodrome being certified.

3.2 Inspection forms provide the inspector with a systematic tool for reviewing each aerodrome item and recording:

- a. The information found, based on the standard.
- b. The method for inspecting the item.
- c. The rating assigned to the inspected item (including previously identified and defined acceptance margins).
- d. The remarks of the responsible party on the side of the aerodrome operator
- e. The notes of the inspector concerning *adjustments, recommended actions, and comments*.
- f. Finally, the signature of the two parties, namely, the person responsible on the side of the operator and the aerodrome inspector.

3.3 A proposed model follows.

**PROPOSED METHODOLOGY  
AERODROME INSPECTION**

Manual: Technician Maintenance of aeronautical Infrastructure	Airport:	Sub-component: Runway area	RAC standard 14,3,5,3,10,1; 14,3,5,3,10,2; 14,3,5,3,10,3; 14,3,5,3,10,4; 14,3,5,3,10,5; 14,3,5,3,10,9; 14,3,5,3,10,10;
Prepared:	Area: Air navigation visual aids - Lights	Equipment:	Date:
Title 1. Runway threshold lights		Reference a. Maintenance Plan of the aerodrome operator b. ICAO Annex 14	
STANDARD		METHOD	
Verify that RUNWAY THRESHOLD lights meet operating requirements, based on RAC 14 I standards and the recommendations of ICAO Annex 14, for proper operation. The verification will be done by checking: a) the condition of the lamps that make up the RUNWAY THRESHOLD lights, and the possibility of variation of luminous intensity; b) the condition of the areas around the lights; c) the condition of fittings that support the lights.		1- )Through visual inspection, check that at least 90% of lamps that make up the RUNWAY THRESHOLD lighting system is operative: C ___ NC ___ NA___ 2-) In coordination with the control tower, check that at least 3 intensity variations of the RUNWAY THRESHOLD lighting system can be made: C ___ NC ___ NA___ 3-) Through visual inspection, check that diffuser glasses, filters, and lamps are completely clean: C ___ NC ___ NA___ 4-) Through visual inspection, check that the surrounding areas are free of underbrush: C ___ NC ___ NA___ 5-) Through visual inspection, check that frangible supports are well shaped and painted: C ___ NC ___ NA___	
The RUNWAY THRESHOLD lighting system must have at least 90% of lamps operating normally, be properly aligned, and diffuser glasses, filters and lamps must be completely clean. Each lamp must have the proper luminosity. The surrounding areas must be free of underbrush. The supporting structure must be free of corrosion and well painted.			
Rating unit: C / NC / NA  C = Compliant NC = Not compliant NA = Not applicable	FINAL RATING:  C ___ NC ___ NA___  <b>Note:</b> If any item is NC, the final rating will be NC. If no item is assessed, the final rating will be NA.	Adjustments:  Recommended actions:	
Periodicity:			
Observations by the operator			
Person responsible on the side of the aerodrome operator:	Person responsible on the side of civil aviation:	Comments:	

**PROPOSED METHODOLOGY  
AERODROME INSPECTION**

Manual:	Airport:	Sub-component: Runway area	RAC 14.3.3.5 standards
Prepared:	Area: Physical characteristics- Runway strips	Equipment:	Date:
Title 1.Runway end safety area – RESA		Reference a. ICAO Annex 14	
STANDARD		METHOD	
Verify compliance with Part 14 of the Aeronautical Regulations, according to inspector measurements. When selecting the length to be provided, sufficient length should be considered for those cases in which the aircraft exceeds the runway end, and for overruns resulting from a reasonably likely combination of operationally adverse factors. For precision approach runways, the ILS localizer is normally the first obstacle, and runway end safety areas should extend up to such installation. Under other circumstances and in non-precision approach or visual flight runways, the first obstacle may be a road, a railroad, or other man-made or natural feature. In such cases, the runway end safety area should extend as far as the obstacle.		<p>1- ) A runway end safety area (RESA) will be provided at each end of a runway strip when: The code number is 3 or 4; or The code number is 1 or 2 and the runway is for instrument landings. C ___ NC ___ NA ___</p> <p>2- ) The runway end safety area will extend at least 90 m from the end of a runway strip. C ___ NC ___ NA ___</p> <p>3- ) As of the effective date of these aeronautical regulations, new aerodrome construction projects will have a runway end safety area that will extend, from the end of a runway strip, to a distance of at least: 240 m when the code number is 4 120 m when the code number is 3. C ___ NC ___ NA ___</p> <p>4- ) The width of the runway end safety area will be at least twice the width of the corresponding runway. C ___ NC ___ NA ___</p> <p>5- ) As of the effective date of these aeronautical regulations, the width of the runway end safety area in new aerodrome construction projects must be equal to the width of the levelled part of the corresponding runway strip. C ___ NC ___ NA ___</p>	
Rating unit: C / NC / NA  C = Compliant    NC = Not compliant NA = Not applicable	FINAL RATING:  C ___    NC ___    NA ___	Adjustments:   Recommended action:    Comments	
Periodicity:	<b>Note:</b> If any rating item is NC, the final rating will be NC. If no item is assessed, the final rating will be NA.		
Observations by the operator			
Person responsible on the side of the aerodrome operator:	Person responsible on the side of civil aviation:		