Advisory Circular

AIR TRAFFIC SERVICE PROVIDERS SAFETY ASSESSMENT PROCESS

AC ATM–ATSPSAP–01–2025

(First Issue)

Aerodrome & Air Navigation Safety Oversight Office (AANSOO)
Office of the Director General
Civil Aviation Authority of the Philippines
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Advisory Circulars (AC) are intended to provide recommendations and guidance, illustrate a means-but not necessarily the only means of complying with regulatory requirements, or to explain certain regulatory requirements by providing interpretative and explanatory materials.

CAAP will generally accept that when the provisions of an Advisory Circular have been met, compliance with the relevant regulatory obligations has been satisfied.

Where an AC is referred to in a "Note" within regulatory documentation, the AC remains as a guidance material.

ACs should always be read in conjunction with the referenced regulations.

I. PURPOSE

The purpose of this Advisory Circular (AC) is to provide guidance on conducting a safety assessment. Section 2 of this AC describes the process of safety risk management. Section 3 includes checklist designed to assist in navigating the assessment process. Section 4 specifies the individuals responsible for performing safety assessment, while Section 5 outlines the criteria used by the regulator to review the service provider's safety assessment.

II. APPLICATION

AC ATM-ATSPSAP-01-2025 is applicable to Air Traffic Service Providers in their safety assessment.

III. RELATED RULES

This Advisory Circular relates specifically to the requirements of Civil Aviation Regulations Safey Management and Civil Aviation Regulations – Air Navigation Services (CAR-ANS), Part 11.

IV. ACKNOWLEDGEMENT

Aerodrome and Air Navigation Safety Oversight Office (AANSOO) of the Civil Aviation Authority of the Philippines (CAAP) acknowledges the valuable information provided by ICAO through its published Guidance Materials for all Contracting States and through other related best practices developed by international organizations.

V. COPIES OF THIS AC

AC ATM-ATSPSAP-01-2025 is available and can be downloaded at the official website of CAAP at www.caap.gov.ph. A printed copy of this AC can be requested from the Regulatory Safety Standards Division (RSSD) of the Aerodrome and Air Navigation Safety Oversight Office (AANSOO), Civil Aviation Authority of the Philippines, located at MIA Road corner, Ninoy Aquino Avenue, Pasay City, Metro Manila, 1300 with Tel. No.: (02) 8246 4988 local 2040.

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FOREWORD

Safety is the cornerstone of aviation, and Air Traffic Service Providers play a critical role in upholding and advancing global standard in safety. This Advisory Circular (AC) serves as guide to understanding and implementing the safety assessment process to Air Traffic Service Providers.

The safety assessment process is not just about compliance with national regulations and standards, it is a proactive framework for identifying, analyzing and mitigating risks to maintain a safe and reliable air traffic management system.

Air Traffic Service Providers must also recognize the importance of fostering a safety culture, an environment in which reporting is encouraged, transparency is valued, and learning from incidents is prioritize instead of assigning blame. A robust safety culture not only complements the technical aspects of safety assessment but also serves as the foundation for sustained improvements in safety performance.

DEFINITIONS

Accident. An occurrence associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down, in which:

A. a person is fatally or seriously injured as a result of:

   1. being in the aircraft, or

   2. direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or

   3. direct exposure to jet blast,

   except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or

B. the aircraft sustains damage or structural failure which:

   1. adversely affects the structural strength, performance or flight characteristics of the aircraft, and

   2. would normally require major repair or replacement of the affected component,

   except for engine failure or damage, when the damage is limited to a single engine, (including its cowlings or accessories), to propellers, wing tips, antennas, probes, vanes, tires, brakes, wheels, fairings, panels, landing gear doors, windscreens, the aircraft skin (such as small dents or puncture holes), or for minor damages to main rotor blades, tail rotor blades, landing gear, and those resulting from hail or bird strike (including holes in the radome); or

C. the aircraft is missing or is completely inaccessible.

Hazard. A condition or an object with the potential to cause or contribute to an aircraft incident or accident.

Incident. An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.

Safety. The state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level.

Safety Assessment. An element of the risk management process of an SMS that is used to assess safety concerns arising from, inter alia, deviations from standards and applicable regulations, identified changes at an aerodrome or ATS systems or when any other safety concerns arise.

Safety management system (SMS). A systematic approach to managing safety, including the necessary organizational structures, accountability, responsibilities, policies and procedures.

Safety performance. A State or a service provider's safety achievement as defined by its safety performance targets and safety performance indicators.

Safety risk. The predicted probability and severity of the consequences or outcomes of a hazard.

ACRONYMS AND ABBREVIATIONS

AANSOO	Aerodrome and Air Navigation Safety Oversight Office
AC	Advisory Circular
ATC	Air Traffic Controller
CAAP	Civil Aviation Authority of the Philippines
CAR-ANS	Civil Aviation Regulations for Air Navigation Services
CICTT	Commercial Aviation Safety Team ICAO Common Taxonomy Team
ICAO	International Civil Aviation Organization
MOC	Management of Change
MOS-ATS	Manual of Standards for Air Traffic Service
PCARs	Philippine Civil Aviation Regulations
RFFS	Rescue and Firefighting Service
SARPs	Standards and Recommended Practices
SMICG	Safety Management International Collaboration Group
SMS	Safety Management System

REFERENCES

Civil Aviation Regulations Safety Management (CAR-SM)

CAR-ANS Part 11 - Air Traffic Services

Manual of Standards for Air Traffic Services (MOS-ATS)

ICAO Document 9859 – Safety Management Manual

AC 139-AS/SA-01/17 – Aeronautical Study (Safety Assessment)

UK Overseas Territories Aviation Circular

SMICH Safety Assessment Evaluation

Commercial Aviation Safety Team ICAO Common Taxonomy Team (CICTT) Hazard Taxonomy

Commercial Aviation Safety Team ICAO Common Taxonomy Team (CICTT) Aviation Occurrence Categories

1. INTRODUCTION

1.1 Safety assessment involves the identification, analysis, elimination, and/or mitigation of risks to an acceptable level of safety. This process must be in accordance with the Safety Management System (SMS) that the Air Traffic Service Provider is required to establish.

1.2 Within the aviation industry, there are various types of safety assessments, including safety risk assessments, Management of Change (MOC), and aeronautical studies. However, they share a common basic structure. In this document, the term "safety assessment" will be used to refer to these assessments collectively.

1.3 Safety risk assessment and mitigation are key elements of the risk management process of an SMS. They are utilized to address safety concerns arising from, among other factors:

A. Non-compliance with standards, applicable regulations, or requirements (e.g., CAR-ANS, PCARs);

B. Situations in which compliance with a specific requirement cannot be fully achieved due to physical, technical, or cost-benefit limitations;

C. Activities or tasks that fall outside the scope of Standards and Recommended Practices (SARPs);

D. Activities potentially hazardous to civil aircraft;

E. Management of change processes;

F. Any other safety concerns that may arise.

1.4 Such safety concerns can often impact multiple stakeholders; therefore, safety assessments often need to be carried out in a cross-organizational manner, involving experts from all the involved stakeholders. Prior to the assessment, a preliminary identification of the required tasks and the Air Traffic Service Providers to be involved in the process should be conducted.

1.5 If the Air Traffic Service Provider has any doubts regarding the need for a safety assessment, an early discussion with the regulator can clarify the need for one, and help define the key objective(s) or scope. This may save wasted effort later in the process.

1.6 It is important to note that the objective must always be to seek compliance with the requirements. To achieve an acceptable level of safety through alternative means, mitigating measures must be established to ensure a level of safety that is acceptable within the Air Traffic Service Provider's Safety Management System.

2. SAFETY RISK MANAGEMENT PROCESS

2.1 Definition of a safety concern and identification of the regulatory compliance.

2.1.1 Any perceived safety concerns are to be described in detail, including timescales, projected phases, location, stakeholders involved or affected, as well as their potential influence on specific processes, procedures, systems and operations.

2.1.2 The perceived safety concern is first analyzed to determine whether it is retained or rejected. If rejected, the justification for rejecting the safety concern is to be provided and documented.

2.1.3 An initial evaluation of compliance with the appropriate provisions in the regulations applicable to the aerodrome is conducted and documented.

2.1.4 The corresponding areas of concern are identified before proceeding with the remaining steps of the safety assessment with all relevant stakeholders.

2.2 Hazard identification and analysis.

2.2.1 Hazards related to infrastructure, systems or operational procedures are initially identified using methods such as brainstorming sessions, expert opinions, industry knowledge, experience and operational judgement. The identification of hazards is conducted by considering:

A. accident causal factors and critical events based on a simple causal analysis of available accident and incident databases;

B. events that may have occurred in similar circumstances or that are subsequent to the resolution of a similar safety concern; and

C. potential new hazards that may emerge during or after implementation of the planned changes.

2.2.2 Identify all potential outcomes or consequences for each identified hazard.

2.2.3 Define and detail the appropriate safety objective for each type of hazard through:

A. reference to recognized standards and/or codes of practices;

B. reference to the safety performance of the existing system;

C. reference to the acceptance of a similar system elsewhere; and

D. application of explicit safety risk levels.

2.3 Risk assessment and development of mitigation measures.

2.3.1 Risk-assessment

2.3.1.1 The level of risk of each identified potential consequence is estimated by conducting a risk assessment. This risk assessment will determine the severity of a consequence.

2.3.1.2 Understanding the risks is the basis for the development of mitigation measures, operational procedures and operating restrictions that might be needed to ensure safe aerodrome operations.

2.3.1.3 The method for risk evaluation is strongly dependent on the nature of the hazards. The risk itself is evaluated by combining the two values for severity of its consequences and probability of occurrence.

2.3.1.4 The recommended hazard and occurrence taxonomy found in CICTT includes a structured set of hazard categories designed to standardize safety event classification across the aviation industry. While Air Traffic Service Providers may choose to adapt or extend these taxonomies to meet their specific operational needs, any modifications must retain the ICAO code followed by their own preferred codes. Air Traffic Service Providers are encouraged to append their own preferred codes to reflect the unique nature of their operational environment.

Sample: For ATC induced runway incursion the code may be RI-ATC- XXXX; where XXXX is the preferred code by the service provider.

Safety Risk	Severity				
Probability	Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent (5)	5A	5B	5C	5D	5E
Occasional (4)	4A	4B	4C	4D	4E
Remote (3)	3A	3B	3C	3D	3E
Improbable (2)	2A	2B	2C	2D	2E
Extremely Improbable (1)	1A	1B	1C	1D	1E

Figure 1. Example safety risk matrix

Safety Risk Index Range	Safety Risk Description	Recommended Action
5A, 5B, 5C, 4A, 4B, 3A	INTOLERABLE / UNACCEPTABLE	Take immediate action to mitigate the risk or stop the activity. Perform priority safety risk mitigation to ensure additional or enhanced preventative controls are in place to bring down the safety risk index to tolerable.
5D, 5E, 4C, 4D, 4E, 3B, 3C, 3D, 2A, 2B, 2C, 1A	TOLERABLE	Can be tolerated based on the safety risk mitigation. It may require management decisions to accept the risk.
3E, 2D, 2E, 1B, 1C, 1D, 1E	ACCEPTABLE	Acceptable as is. No further safety risk mitigation is required.

Figure 2. Example of safety risk tolerability

2.3.2 Development of mitigation measures

2.3.2.1 Once each hazard has been identified and analyzed in terms of causes, and assessed for severity and probability of its occurrence, it must be ascertained that all associated risks are appropriately managed. An initial identification of existing mitigation measures must be conducted prior to the development of any additional measures.

2.3.2.2 All risk mitigation measures, whether currently being applied or still under development, are evaluated for the effectiveness of their risk management capabilities.

2.4 Development of an implementation plan for the mitigation measures and conclusion of the assessment.

2.4.1 The last phase of the safety assessment process is the development of a plan for the implementation of the identified mitigation measures.

2.4.2 The implementation plan includes time frames, responsibilities for mitigation measures, as well as control measures that may be defined and implemented to monitor the effectiveness of the mitigation measures.

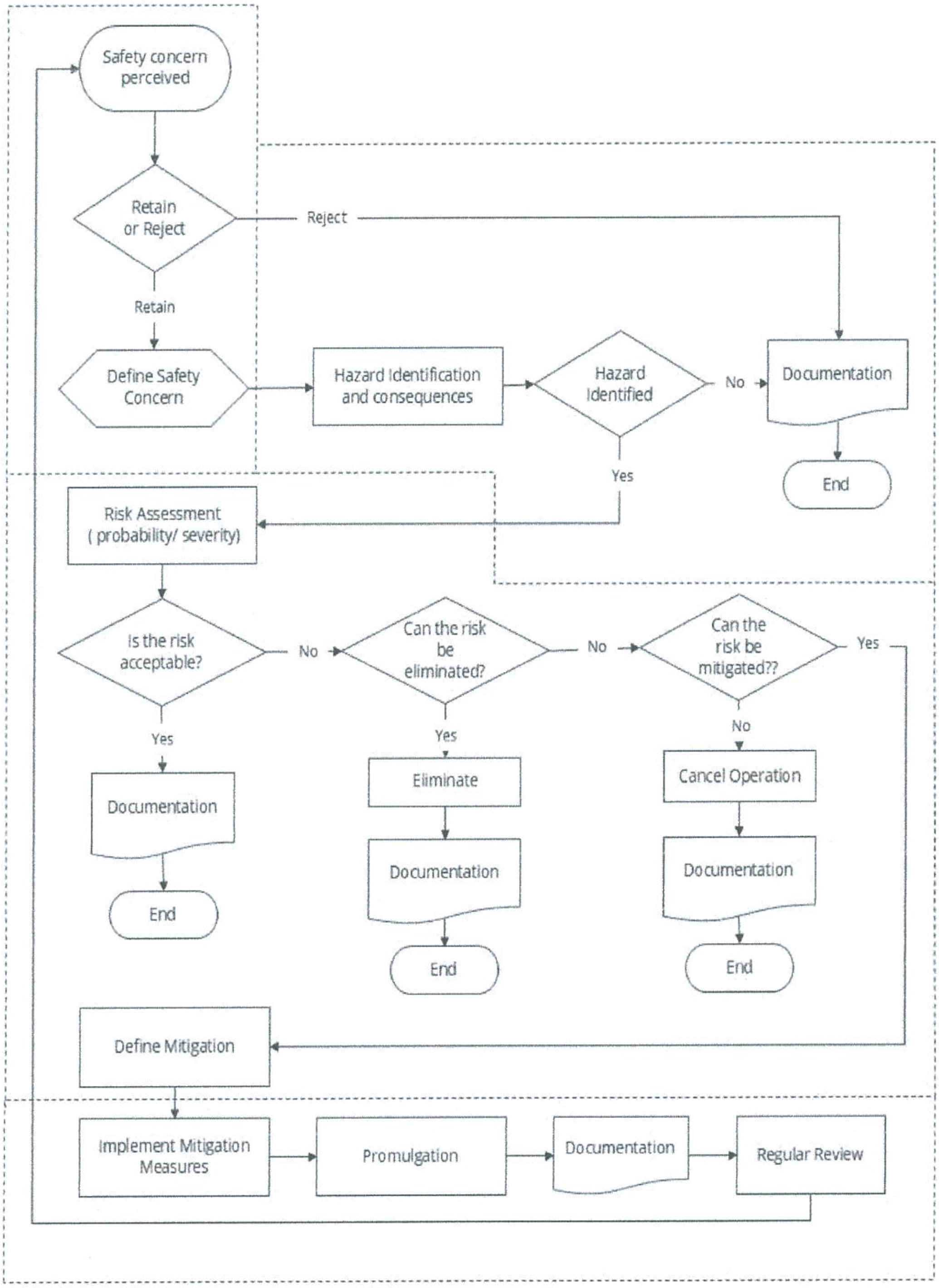

Figure 3 – Safety Risk Assessment

3. SAFETY ASSESSMENT CHECKLIST

3.1 This section may be used as a template or checklist to aid the structure and production of a safety assessment.

Ref.	Section	Example content
1	Safety Concern or Non-Compliance	Triggers may include: • Accident/incident trends • Non-compliance with regulation/standards • Known long-standing non-compliances • Aerial work • New process or equipment • Change of process or equipment • Reporting scheme finding • Activities potentially hazardous to civil aircraft • Incident/investigation report • Feedback or issue raised by an operator/ user or other credible source
2	Introduction	Brief description of the circumstances and issues to be assessed • Are there any factors affecting compliance or the need for an alternative. For example, any special requirements imposed by the operating environment.
3	Objectives and scope	• Purpose of the document. • Statement of the issues. • Objective of the assessment. • What is included in the assessment? • What is excluded and by what justification? • Who conducted the assessment and who contributed to it, including a list of participants in the study and their involvement and/or expertise?
4	Identification of Hazards	A list of all the hazards covered by the study, i.e., all unmitigated/mitigated hazards.

5	Causal Factors	Identification of causal factors. These are the undesirable events that contribute most to the risk, and other factors that influence those undesirable events.
6	Risk	Likelihood and Severity Assessment.
7	Analysis	• Analysis of assessment results • Description of acceptability or unacceptability of risk
8	Mitigation	Risk reduction/removal measures
9	Discussion of Individual Elements	• If doing something different is the reason for not being able to comply and the rationale for the alternative proposal. • The risk assessment (likelihood, severity, and mitigation).
10	Estimate of Effectiveness of Mitigation(s)	• Analysis of mitigation effectiveness. • Test the mitigation using the HIRA process steps 6-9 • If the results are within the ANSP's range of acceptability, proceed to 11
11	Results	• Result of assessment. • The conclusions reached from the assessment. • Reasoning supporting conclusions.
12 13	Recommendation(s) Action Plan	Recommended solution or course of action. Action or implementation plan with timescales.
14	Appendices	Any supporting information, data, drawings to aid clarity or support the assessment.
15	Review Cycle	• Include the frequency at which the assessment will be reviewed to ensure any intervening changes have not been overlooked. • To test ongoing applicability and appropriateness. • Establish a method by which the mitigations/changes are validated and subsequently monitored.

Post-assessment process

Ref.	Task	Rationale
1	Submission to the Regulator	• The ANSP should check and finalize the report for logic, balance and completeness. • Internal peer review may be a useful tool to confirm readiness of the study prior to submission.
2	Regulator Review	• The regulator checks the study for logic, balance and reasonableness. • Regulator feedback may require elements of the assessment to be revisited. Note: If a range of aviation disciplines have been involved in creating the document, the regulator will carry out the review using a range of staff from different disciplines. The regulator accepts the study and not the non-compliance.
3	Post-Assessment	The hazard identified in the assessment should be incorporated into the ANSP's hazard register/ log and be subject of regular review within the SMS

4. WHO SHOULD PERFORM THE STUDY

4.1 The Air Traffic Service Provider responsible for managing the particular issue requiring assessment should lead the study.

4.2 Depending on the technicality or complexity of the issue, the Air Traffic Service Provider may employ the services of a third party to conduct the study. However, the report/output must be owned and submitted by the Air Traffic Service Provider holding the certificate or authorization.

4.3 Depending on the issue, those who should be involved may include ATC, RFFS, Airport Ground Operations Safety Personnel, Security, aircrew, maintenance engineers/CNS and other relevant stakeholders.

5. What happens to the safety assessment

5.1 Prior to the implementation of the change, the safety assessment will be submitted to the regulator for evaluation. This is an independent review.

The assessment will be checked against the regulations/requirements and the arguments used in the assessment considered for appropriateness, applicability and completeness. The regulator may ask for clarification on the elements of the assessment, or where the arguments are considered to be incomplete. This may require further work on the assessment.

5.2 The regulator may provide comment on these elements and record confirmation that the Air Traffic Service Provider understands and is willing to carry any remaining risk (residual risk) within its safety management system. The Air Traffic Service Provider will integrate them into its SMS. The ownership of the assessment rests with the submitting Air Traffic Service Provider.

5.3 A safety assessment, when deemed satisfactory by the regulator, shall be noted and may be placed on file as supporting documentation associated with related acceptance or surveillance obligations to signify the existence and conditions of non-compliance or difference.

5.4 The Air Traffic Service Provider should list all issues and non-compliances, that is, issues and non-compliances controlled through mitigation(s) in the Air Traffic Service Provider's risk or hazard register and subject them to regular review to test for continued validity, and review the assessment in the event of any change that affects their validity.

5.5 It shall be the objective of an Air Traffic Service Provider to make every effort to remove the noncompliance, issue or difference. The safety assessment shall be integrated into the Air Traffic Service Provider's SMS so as to manage the legitimacy and review of the assessment.

Review Checklist	Yes	No	Remarks
1. Address safety concerns, identify safety measures, and make reference to specific SARPS to MOS;	☐	☐	
2. Consultation with stakeholders, senior management team and divisions/departments affected;	☐	☐	
3. The assessment is approved by a senior executive of the ANSP;	☐	☐	
4. Background information on the current situation;	☐	☐	

5. Safety assessment, including identification of hazards and consequences and risk management;	☐	☐	
6. The risk assessment used (e.g. hazard log, risk probability and severity, risk assessment matrix, risk tolerability and risk control/mitigation);	☐	☐	
7. Recommendations (including operating procedures/restrictions or other measures to address safety concerns) of the aeronautical study and how the proposed deviation will not pose a drop in the level of safety;	☐	☐	
8. Estimation of the effectiveness of each recommendation;	☐	☐	
9. Notification procedure, including process flow, time frame and the publication used to promulgate the deviation;	☐	☐	
10. Conclusion of the assessment; 11. Monitoring of the deviation; and	☐ ☐	☐ ☐	
12. Notification to CAAP once the temporary deviation has been corrected.	☐	☐	