

Advisory Circular

SAFETY PERFORMANCE INDICATORS AND TARGET MONITORING

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GENERAL

Advisory Circulars (ACs) are issued by the Director-General of Civil Aviation (DGCA) from time to time to provide practical guidance or certainty in respect of the statutory requirements for aviation safety. ACs contain information about standards, practices and procedures acceptable to CAAS. An AC may be used, in accordance with section 11 of the Air Navigation Act 1966 (ANA), to demonstrate compliance with a statutory requirement. The revision number of the AC is indicated in parenthesis in the suffix of the AC number.

PURPOSE

This AC provides the guidance to demonstrate compliance with, and information related to the establishment of safety performance indices as part of the Safety Management System.

APPLICABILITY

This AC is applicable to an operator who intends to or holds an aerodrome certificate or heliport certificate.

RELATED REGULATIONS

This AC relates specifically to Regulation 24 of the Air Navigation (139 – Aerodromes) Regulations 2023 (“ANR-139”).

RELATED ADVISORY CIRCULARS

AC 1-3 Safety management system

CANCELLATION

This is the first AC issued on the subject.

EFFECTIVE DATE

This AC is effective from 1 March 2023.

OTHER REFERENCES

- ICAO Annex 19 Safety management system
- ICAO Safety management manual (Doc 9859)

1 INTRODUCTION

- 1.1 Regulation 24 of ANR-139 requires an operator to establish and maintain a safety management system (SMS) that consists of all the components and elements specified in the Fifth Schedule and commensurate with the size of organisation and complexity of the operations at the aerodrome. The measuring and monitoring of safety performances is an element in the required SMS framework.
- 1.2 AC 1-3 on Safety management system provides broad guidance on the implementation of an SMS, including the setting of safety performance indicators (SPI) and targets (SPT) to provide measurable ways of ensuring and demonstrating the effectiveness of SMS beyond regulatory compliance.
- 1.3 Further to the guidance provided in AC 1-3, this AC provides guidance to operators on identifying safety performance indicators for the monitoring of the safety performance at the aerodrome.

2 SAFETY PERFORMANCE INDICATORS (SPI)

- 2.1 The operator is to establish lagging and leading SPIs that are relevant to the safety of its operations to measure and monitor its safety performance and validate the effectiveness of its safety risk control measures. The determination of the SPIs should be done systematically and support the achievement of the operator's safety objectives and management's decision-making. The operator should consider using S.M.A.R.T objectives (specific, measurable, achievable, relevant, time-limited) in the development of the SPIs and include a combination of the following to provide a comprehensive picture of the operator's safety performance:
 - (a) Low probability/high severity (e.g. accidents and serious incidents);
 - (b) High probability/low severity (e.g. precursor events and non-conformance reports.); and
 - (c) Process performance (e.g. training and system improvements).
- 2.2 The following are the types of safety performance data that an operator should minimally track as SPIs:
 - (a) Aircraft related occurrences;
 - (b) Ground Handling Occurrences
 - (c) Foreign object debris (FOD) occurrences;
 - (d) Wildlife occurrences (includes sighting and strike reports);
 - (e) Airfield lighting system availability;
 - (f) Runway friction values;
 - (g) AES response times;
 - (h) Vehicles failing to give way to aircraft
 - (i) Non-compliance with Pushback/Towing procedures/ instructions
 - (j) Passenger loading bridge malfunctions/failures;
 - (k) Advances Docking Guidance System malfunction/failures; and
 - (l) Vehicular Occurrences

3 SAFETY PERFORMANCE TARGETS (SPT)

- 3.1 Safety performance targets (SPTs) define short-term and medium-term safety performance management-desired achievements. When establishing the SPTs, the operator should consider the following:
- (a) Regulatory requirements
 - (b) International benchmarking with other similar airports
 - (c) Historical safety data
- 3.2 Once the SPTs are established, the operator should monitor its SPIs regularly using time-series charts. Any adverse trend of a SPI should be analysed and corrected so that the operator's safety objectives may be achieved.
- 3.3 In addition to setting the SPIs and SPTs, the operator should also establish alert triggers for the SPIs to prompt early safety decision-making for improving safety performance. One method which the operator can use is the population standard deviation (STDEVP) principle as mentioned in ICAO Doc 9859.

4 APPROVAL AND REVIEW OF SPI AND SPT

- 4.1 The operator's safety performance indicators, alerts and targets are to be submitted for CAAS' approval. The operator should submit the SPI charts together with the safety performance data stated in para 2. 2 to CAAS on a monthly basis. The operator should identify areas for potential improvement and monitor the SPIs and SPTs and analysed for undesirable trends and triggers reaching of alerts.
- 4.2 The operator should minimally review the safety performance indicators, alerts and targets annually. Any revisions to the indicators, alerts and targets must be submitted to CAAS for approval. The intent of the review is to ensure that the operator's SPIs and SPTs remain relevant and appropriate.