ATM047 – ATM Performance Indicators

Unit 1.2 – ATM PERFORMANCE INDICATORS

Subunit 1.2.1 – GANP Indicators

October - 2024

DECEA
Departamento
de Controle do Espaço Aéreo
Department of Airspace Control

FORÇA AÉREA BRASILEIRA
Asas que protegem o País

GANP INDICATORS

OBJECTIVE

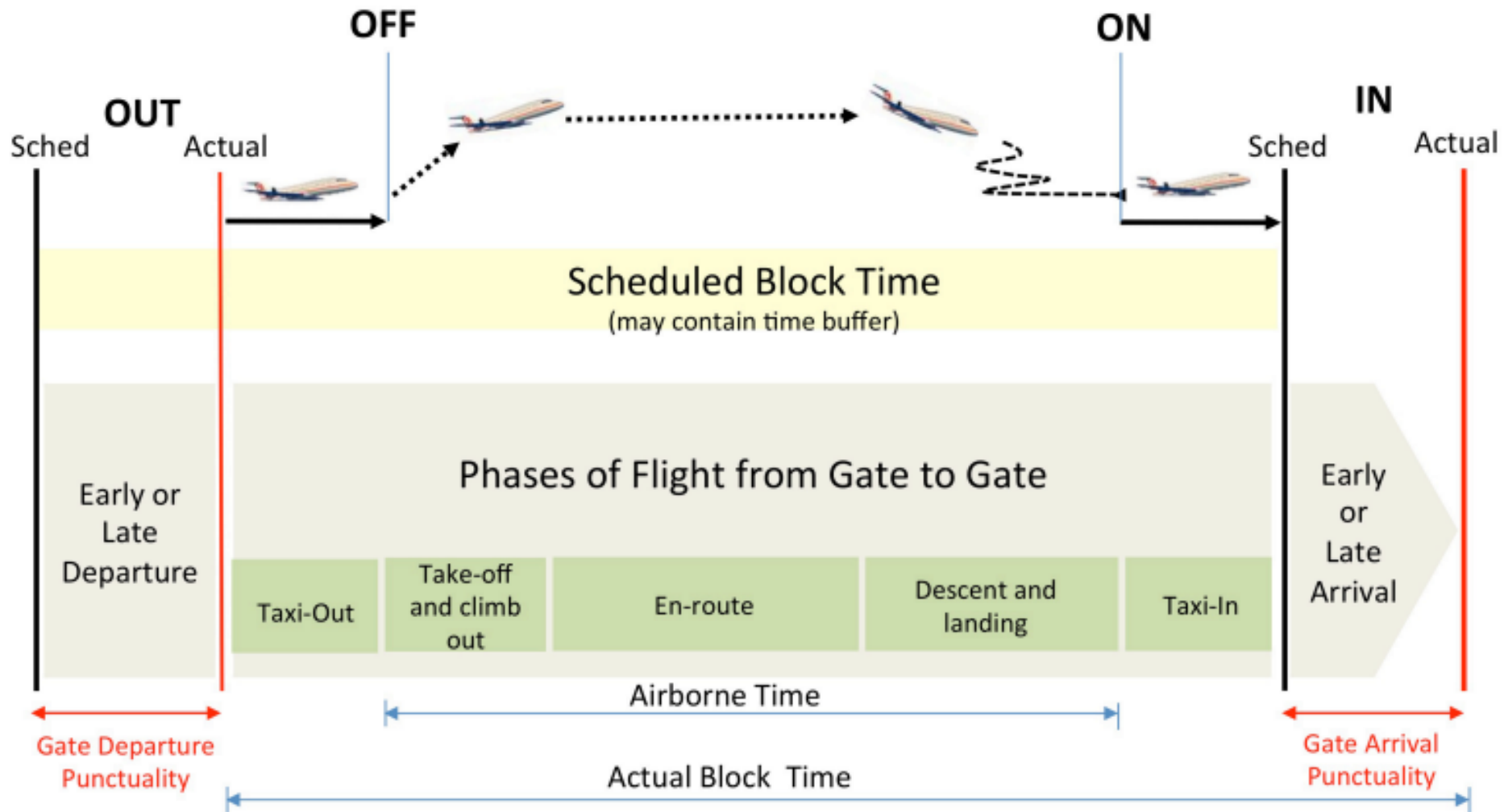Have knowledge on ATM Performance Indicators recommended by ICAO in the Global Air Navigation Plan (GANP).

MCA 100-22
SISCEAB ATM Indicators Methodology (2020)

KPI – GANP INDICATORS

KPI – GANP INDICATORS

SAFETY

A safe, resilient and sustainable aviation system contributes to the economic development of countries and their industries. In the last edition of the GANP, four key Safety performance indicators were included:

KPI 20 – Aircraft Accidents;
KPI 21 – Runway Incursion;
KPI 22 – Runway Excursion; and
KPI 23 – Airprox/TCAS RA/Loss of Separation/Near Mid-Air Collision/Mid-Air Collision.

Source: *Relatório de Performance do SISCEAB 2023*

KPI – GANP INDICATORS

SAFETY

Assessoria de Segurança Operacional no Controle do Espaço Aéreo (ASEGCEA), part of the DECEA structure, is responsible for planning, coordinating, and supervising safety the activities of *Sistema de Controle do Espaço Aéreo Brasileiro* (SISCEAB), as well as those related to human factor.

Source: *Relatório de Performance do SISCEAB 2023*

KPI – GANP INDICATORS

SAFETY

DECEA monitors the indicators related with Air Traffic Services provided by SISCEAB, such as the number of Runway Incursions (RIs), Traffic Collision and Avoidance System-Resolution Advisories (TCAs RAs), Air Traffic Incidents classified as Potential Risk as Loss of Separation (LOS) and Mid-air collision (MAC), while *Centro de Investigação e Prevenção de Acidentes Aeronáuticos* (CENIPA) is in charge of the indicators related with the accident investigation activities of civil aviation and Brazilian Air Force.

Source: *Relatório de Performance do SISCEAB 2023*

KPI – GANP INDICATORS

KPI20	Number of aircraft accidents	📄 ⌄
KPI21	Number of runway incursions	📄 ⌄
KPI22	Number of runway excursions	📄 ⌄
KPI23	Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC)	📄 ⌄

KPI – GANP INDICATORS

KPI20	Number of aircraft accidents	📄 ⌄
KPI21	Number of runway incursions	📄 ⌄
KPI22	Number of runway excursions	📄 ⌄
KPI23	Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC)	📄 ⌄

KPI – GANP INDICATORS

KPI20 – NUMBER OF AIRCRAFT ACCIDENTS

Definition – 'Accident' is defined in ICAO Annex 13, Chapter 1-Definitions; ADREP: Accident Data Report.

Measurement Units – Number of accidents / year.

Operations Measured – Aircraft accidents during all flight phases that occurred in a year within the State/Region of occurrence.

KPI – GANP INDICATORS

KPI20 – NUMBER OF AIRCRAFT ACCIDENTS

Variants

Variant 1 (GASP): Aircraft MTOW > 2 250 kg

1.1 National accident occurrence level.

1.2 1.2 Regional accident occurrence level.

Variant 2: All aircraft

2.1 National accident occurrence level.

2.2 Regional accident occurrence level.

KPI – GANP INDICATORS

KPI20 – NUMBER OF AIRCRAFT ACCIDENTS

Objects Characterized – The KPI is typically computed for individual State, or Region (selection/grouping based on geography).

Utility of the KPI – The KPI is typically computed for individual State, or Region (selection/grouping based on geography).

Parameters – None.

Data Requirement – For each reported occurrence: Date of occurrence; Occurrence Category; State of occurrence.

Data Feed Providers – ICAO ADREP database; iSTARS Application "ADREP et al."

KPI – GANP INDICATORS

KPI20 – NUMBER OF AIRCRAFT ACCIDENTS

Formula / Algorithm

Count accidents if:

a) The local date of occurrence is in between 01 January and 31 December of the year in question;

b) It is of the type that is notifiable to ICAO;

c) The circumstances of the accidents match the definition of Annex 13 definition of 'Accident'; and

d) If variant 1, the aircraft involved in the accident is of maximum take-off mass of over 2 250 kg.

KPI – GANP INDICATORS

KPI20	Number of aircraft accidents	📄 ⌄
KPI21	Number of runway incursions	📄 ⌄
KPI22	Number of runway excursions	📄 ⌄
KPI23	Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC)	📄 ⌄

KPI – GANP INDICATORS

KPI21 – NUMBER OF RUNWAY INCURSIONS

Definition – Number of occurrences at an aerodrome involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and take-off of aircraft. (CICTT Taxonomy definition).

Measurement Units – Number of runway incursions / year.

Operations Measured – The actual number of runway incursions at an aerodrome.

Variants – None.

Objects Characterized – he KPI is computed for individual aerodrome.

KPI – GANP INDICATORS

KPI21 – NUMBER OF RUNWAY INCURSIONS

Utility of the KPI – This KPI gives an indication of the incorrect or unsafe usage of the runways and of the safety performance improvement on the runway.

Parameters – None.

Data Requirement – For each reported occurrence: Date of occurrence; Airport of occurrence.

Data Feed Providers – Airports and airlines.

KPI – GANP INDICATORS

KPI21 – NUMBER OF RUNWAY INCURSIONS

Formula / Algorithm

Count number of runway incursions:

a) the local date of occurrence in between 01 January and 31 December of the year in question; and

b) the circumstances of the occurrence match the definition of CICTF 'RI'; or the occurrence category has been determined to be runway incursion – vehicle, aircraft or person (RI-VAP).

KPI – GANP INDICATORS

KPI20	Number of aircraft accidents	📄 ⌄
KPI21	Number of runway incursions	📄 ⌄
KPI22	Number of runway excursions	📄 ⌄
KPI23	Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC)	📄 ⌄

KPI – GANP INDICATORS

KPI22 – NUMBER OF RUNWAY EXCURSIONS

Definition – Number of veer offs or overruns of the runway surface.

Measurement Units – Number of runway excursions / year

Operations Measured – • Only applicable during either the takeoff or landing phase. • The excursion may be intentional or unintentional. For example, the deliberate veer off to avoid a collision, brought about by a Runway Incursion. In this case, code both categories. • Use RE in all cases where the aircraft left the runway/helipad/helideck regardless of whether the excursion was the consequence of another event.

Variants – None.

Objects Characterized – The KPI is computed for individual aerodrome.

KPI – GANP INDICATORS

KPI22 – NUMBER OF RUNWAY EXCURSIONS

Utility of the KPI – This KPI gives an indication of the incorrect or unsafe usage of the runways and of the safety performance improvement on the runway.

Parameters – None.

Data Requirement – For each reported occurrence:: Date of occurrence; Airport of occurrence.

Data Feed Providers – Airports and airlines.

KPI – GANP INDICATORS

KPI22 – NUMBER OF RUNWAY EXCURSIONS

Formula / Algorithm

Count number of runway excursions:

a) the local date of occurrence in between 01 January and 31 December of the year in question;

b) the circumstances of the occurrence match the definition of CICTT 'RE'; and

c)   the Occurrence Category has been determined to be runway excursion (RE).

KPI – GANP INDICATORS

KPI20	Number of aircraft accidents	
KPI21	Number of runway incursions	
KPI22	Number of runway excursions	
KPI23	Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC)	

KPI – GANP INDICATORS

KPI23 – Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC)

Definition – Number of airproxes, TCAS alerts, loss of separation as well as near collisions or collisions between aircraft in flight.

Measurement Units – Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC)/ year.

Operations Measured – • includes all collisions between aircraft while both aircraft are airborne. • Both air traffic control and cockpit crew separation-related occurrences are included. • Genuine TCAS alerts are included here.

KPI – GANP INDICATORS

KPI23 – Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC)

Variants

Variant 1: Number of airproxes.

Variant 2: TCAS alerts.

Variant 3: loss of separation.

Variant 4: near midair collisions.

Variant 5: midair collisions (MAC).

KPI – GANP INDICATORS

KPI23 – Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC)

Objects Characterized – The KPI is computed for volumes of airspace as designated by the State.

Utility of the KPI – This KPI gives an indication of safety performance improvement in the air.

Parameters – None.

Data Requirement – For each reported occurrence: Date of occurrence; FIR of occurrence.

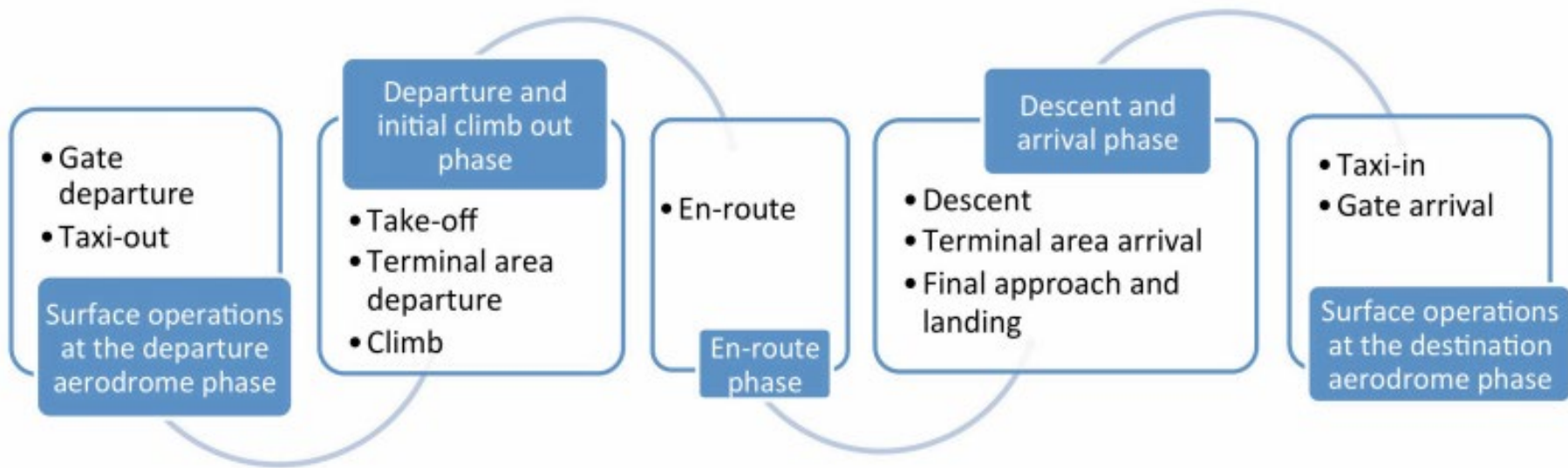Data Feed Providers – ANSPs and airlines.

KPI – GANP INDICATORS

KPI23 – Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC)

Formula / Algorithm

Count number of airproxes, TCAS alerts, loss of separation as well as near collisions or collisions between aircraft in flight:

a) the local date of occurrence in between 01 January and 31 December of the year in question;

b) the circumstances of the occurrence match the definition of CICTT 'MAC'; and

c) the Occurrence Category has been determine.

KPI – GANP INDICATORS

Source: *Relatório de Performance do SISCEAB 2023*

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