

THE CONCEPT OF REQUIRED TOTAL SYSTEM PERFORMANCE (RTSP)

RASP - Definition

Required ATM Service and Performance (RASP)

- Is the criteria expressed as performance parameters and the values of these parameters to be met by the ATM system, with a determined probability, in order to provide support to the approved service quality specified for a particular environment.

References:

WP/8 – The concept of Required Total System Performance – RTSP (Secretariat)

WP/50 – The Concept and Performance Targets for RTSP in Air Traffic Management (IATA)

Objectives of WP/8 :

It proposes the Conference to reaffirm the definition of the future global ATM system should be based on specific performance objectives to be met and monitored as well as on the related operational and technical requirements, which will aim at achieving the agreed performance.

RTSP - Definition

Required Total System Performance – RTSP:

- Is the criteria expressed as performance parameters (operational and technical) to be met by the ATM system, in order to provide the approved quality of Required ATM Service and Performance (RASP) specified for a particular environment
- Reference: ATM Global Operational Concept (WP/4 – 11° AN Conf.)

It also proposes to approve the following recommendation:

That ICAO:

1. formulate the performance objectives and targets for a future global ATM system;
2. continue the definition of related performance metrics and elementary characteristics in the context of the overall behavior of the ATM system; and
3. harmonize all related contributions within the overall performance framework.

WP/8 - Summary

- Analyses the feasibility of the concept of required total system performance – RTSP as stipulated in the work programme of the Air Traffic Management Operational Concept Panel (ATMCP)
- Defines the relation of RTSP to other components of an overall framework to address ATM performance through a layered approach, beginning with the political and socio-economic expectations and ends through the definition of related elementary system components.

❖ ATM is a complex system serving society

- All the participants have expectations as to what ATM should deliver
- The formulation of requirements is based on expectations
- At a high level, they correspond to how well the ATM system meets expectations

Summary (cont.)

- ❖ This approach is consistent with the proposed ATM operational concept (AN-Conf/11-WP/4) and is aimed at:
 - Facilitating global interoperability of the future ATM system; and
 - The harmonization of the regional planning and performance monitoring.

❖ Historically, ATM is defined in relation to:

- Safe, regular and expeditious flow of traffic.
- ❖ Today: contributes in economical activities

Therefore:

- Pressure is made as regards responsibility in:
- Services provision
- Profitability and safety analysis

- Item 3.2- was included in the agenda of the Conference in order to provide a basis for its analysis.
- This concept was initially developed by the Air Navigation Commission to broaden the understanding of the concepts of:
 - Required Navigation Performance (RNP)
 - Required Surveillance Performance (RSP)
 - Required Communications Performance (RCP)

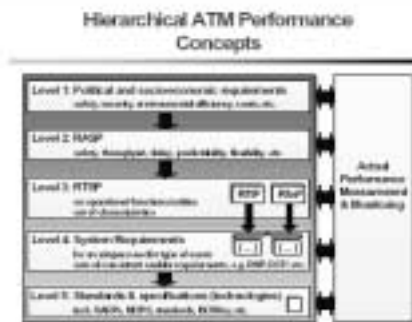


Figure 1. Notion of performance

Level 1

Political and socio-economic requirements of the ATM System:

- It would be totally safe
- Fully protected
- Possibility of optimal operations without delays or re-routing
- Economical
- Openness between adjacent regions
- It would not affect the environment

Level 4

System requirements

- ❖ Allows introduction of CNS performance concepts (such as RCP) within the framework of an architecture or appropriate hierarchy of system elements.
- It should specify other required performance measures, such as
 - Required Surveillance Performance (RSP): determines capability to monitor the traffic situation in a given environment.
 - Required Planning Performance (RPP): determines the capability of predicting the future position of aircraft

Level 2

Required ATM System Performance (RASP)

- It would be a group of specific requirements for the ATM system aimed to achieve the operational objective of the system at the highest level
- It could not FULFIL certain aspects of expectations for Level 1, since they are beyond those corresponding to the ATM
- Consequence: some elements of Level 1 will not translate directly into Level 2 international parameters (i.e.: ATM may not be responsible for all the accidents or conditions related to the environment)

Level 5

- Includes technologies and specific methods for the performance of Level 4

Level 3

Required Total System Performance (RTSP)

- Related with the performance of the services provided by the ATM concept components
- “Service”, refers to the application of an ATM basic system function (organization, management, administrative operations, conflicts management, etc.)
- It requires flexible requirements in the implementation alternatives in order to avoid proliferation of particular solutions
- RTSP related with Level 4 through indicators that permit evaluation of appropriate technical means to establish operational scenarios

Use of the RTSP for ICAO work plan activities

- ❖ The hierarchy model and global performance provides adequate structure to analyse performance.
- ❖ At the same time, it should help in:
 - The organization of the work;
 - In the provision of each of the participating bodies (States, regional entities and the Secretariat) with regard to an organized basis for the elaboration of performance requirements

Use of RTSP

ICAO should elaborate:

- Performance parameters
- Definition of parameters for each one of the objectives

- Definition of parameters for each one of the objectives set for Levels 1 and 2
- Guidance texts to establish worldwide regional and States goals.

It will also be necessary to:

- Establish a body which work programme includes ATM aspects and elaborate (and maintain) the global framework and guidance texts on RTSP

Future work:

- ❖ A performance orientation in ATM is fundamental
- These are new notions and they address complex systems.
- ❖ Necessary for the evaluation and validity of classification:
 - ❖ In much greater detail from the different layers of the model and
 - ❖ the different functions and related services

- ❖ The definition of requirements related to specific CNS/ATM aspects (Level 3 RTSP elements and below it) should be assigned to:

➤ Pertinent technical entities

❖ Which should:

➤ Work in close coordination between them and with the body in charge to elaborate the global framework and RTSP guidance texts

The future work covers all the layers:

- Understanding of future expectations proposed for Level 1;
- Establish the way in which they may be collectively satisfied;
- Preparation of the standardisation text for the next generation of technical systems of Level 5;
- Understanding of the way in which ATM system acts and generates performance; and
- Definition of the indicators and goals

❖ The Global Air Navigation Plan for CNS/ATM Systems (Doc. 9750) is the framework for:

➤ Planning of RTSP implementation activities

❖ RTSP planning and implementation falls into:

- ❖ The PIRGs, the States, under general coordination of ICAO

WP/8 proposes to the 11th Conference:

- a) re-affirm that the definition of the future global ATM system should be based on specific performance objectives to be met and monitored as well as on the related operational and technical requirements, which will aim at achieving the agreed performance; and
- b) Agree to the following recommendation:

That ICAO:

- a) formulate the performance objectives and targets for a future global ATM system;
- b) continue the definition of related performance metrics and elementary characteristics in the context of the overall behaviour of the ATM system; and
- c) harmonize all related contributions within the overall performance framework.

- Many of the elements related with efficiency and regularity may not be mathematically established, in the same manner in which those related to CNS for RTSP are elaborated (that is to say, RNP, RCP, RSP).
- ATM is not a technical standard, but rather the human application of the provision of services.
- ATM may not be adjusted to any global mathematical formula.

WP/50 – Summary

❖ Within the RTSP, IATA supports the Required ATM System Performance (RASP)

However, IATA's opinion is that:

- Not many elements can be mathematically established, many of them being related with efficiency and regularity, in the same manner in which those related to CNS are prepared for RTSP (that is to say, RNP, RCP, RSP)

- ATM is measurable and should be evaluated through observation, the establishment of milestones and the comparison with optimal practices.
- This evaluation should be achieved through a process of audits.

- Operational safety is fundamental, but efficiency and regularity are crucial in the development of a sustainable, efficient and cost/efficiency air transport system
- The efficiency of ATM services provider as regards the provision of a service including equipment and personnel, has deep repercussions in the cost of such service for airspace users.

IATA proposes the following measures to the Conference:

- a) request that ICAO include the efficiency and regularity elements presented by IATA in this paper when further developing RASP and RTSP;
- b) note that many elements relating to efficiency and regularity cannot be established mathematically in the manner that those relating to CNS are being developed for RTSP (i.e. RNP, RCP, RSP);
- c) note that when evaluating efficiency of an air traffic services (ATS) provider, the costs associated with providing the service and the resulting benefit to the airspace user must be considered;

d) note that safety is paramount but efficiency and regularity are crucial to the development of a sustainable, efficient and cost effective air transport system; and

e) note that ATM is measurable and should be evaluated through observation, benchmarking and comparison with best practices. This evaluation should be achieved through an audit process.

- **Take note that safety is of utmost importance but efficiency and regularity are crucial in the development of a sustainable and efficient cost/effective air transport system; and**

- **Take note that the ATM is measurable and should be evaluated through observation, the establishment of milestones and comparison with optimal practices. This evaluation should be achieved through a process of audits.**

THE END

THANKS