SUPPORTING EUROPEAN AVIATION

Free Route Airspace (FRA)

"Giving users the freedom to plan a route in specified airspace"

Part 3 - Lateral Efficiency: Performance Indicators and Regulations

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EUROPEAN UNION Performance Indicators (REG (EU) 2019/317)

European Performance Indicators
Environment - Content

Related to the environment and referenced to:

- Actual trajectory (**KEA**) - Key Performance Indicator.
- Last filed flight plan trajectory (**KEP**) - Performance Indicator for monitoring.
- Shortest constrained trajectory (**KES**) - Performance Indicator for monitoring.

https://eur-lex.europa.eu/eli/reg_impl/2019/317/oj

European Performance Indicators
Environment - KEA

The average horizontal *en route* flight efficiency of the actual trajectory.

- Comparison between the length of the *en route* part of the actual trajectory derived from surveillance data and the achieved distance, summed over IFR flights within or traversing the European airspace.

European Performance Indicators
Environment - KEP

The average horizontal *en route* flight efficiency of the last filed flight plan trajectory.

- The difference between the length of the *en route* part of the last filed flight plan trajectory and the corresponding portion of the great circle distance, summed over all IFR flights within or traversing the European airspace.

European Performance Indicators
Environment - KES

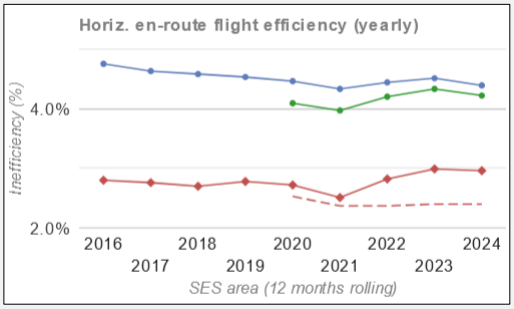
The average horizontal *en route* flight efficiency of the shortest constrained trajectory.

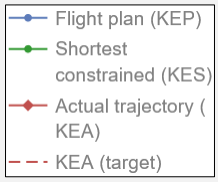
- The difference between the length of the *en route* part of the shortest constrained route available for flight planning, as calculated by the path finding algorithms and flight plan validation systems of the Network Manager, measured between the exit and entry points of two terminal control areas, and the corresponding portion of the great circle distance summed over all IFR flights within or traversing the European airspace.
- This indicator considers the airspace restrictions on days with and without military activities published in the Route Availability Document issued by the Network Manager and the actual status of conditional routes at the time of the last filed flight plan.

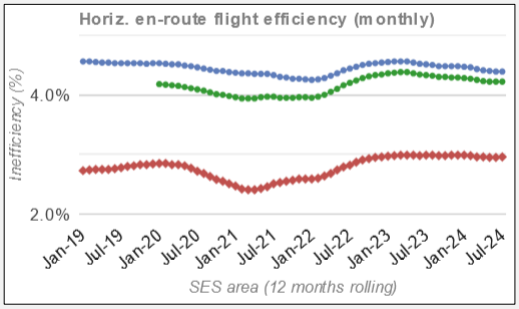
European Performance Indicators
Environment - Calculation Requirements

- '*en route* part' refers to the part outside a circle of 40 NM around the airports.
- The indicators are calculated for the whole calendar year and for each year of the reference period, as an average. When calculating this average, the ten highest daily values and the ten lowest daily values are excluded from the calculation.

European Performance Indicators
Environment - Reporting Period 3 (end 31 DEC 2024)







https://ansperformance.eu/methodology/horizontal-flight-efficiency-pi/

https://www.eurocontrol.int/prudata/dashboard/vis/2024/

EUROCONTROL Performance Indicators

European Performance Indicators
Environment - Design

Related to the environment and referenced to:

- Route network design (one Performance Indicator).
- Route network utilisation (three Performance Indicators).
- ATC intervention (one Performance Indicator).

European Performance Indicators
Environment - RTE-DES

Flight extension due to route network design (RTE-DES)

- The difference between the shortest plannable route length (from TMA exit and entry points) and the great circle distance.
- The European restrictions included in the Route Availability Document (RAD) are not taken into account and all the Conditional ATS Routes (CDRs) are considered as being open.

European Performance Indicators
Environment - RTE-RAD

Flight extension due to route network utilisation (1)

- The difference between the shortest plannable route length (from TMA exit and entry points) and the great circle distance.
- The European restrictions included in the Route Availability Document (RAD) are taken into account and all the Conditional ATS Routes (CDRs) are considered as being open.

European Performance Indicators
Environment - RTE-CDR

Flight extension due to route network utilisation (2)

- The difference between the shortest plannable route length (from TMA exit and entry points) and the great circle distance.
- The European restrictions included in the Route Availability Document (RAD) are taken into account and all the Conditional ATS Routes (CDRs) are considered as not being available.

European Performance Indicators
Environment - RTE-FPL

Flight extension due to route network utilisation (3)

- The difference between the route from the last filed flight plan for each flight (from TMA exit and entry points) and the great circle distance.

European Performance Indicators
Environment - RTE-ATC

Flight extension due to ATC intervention

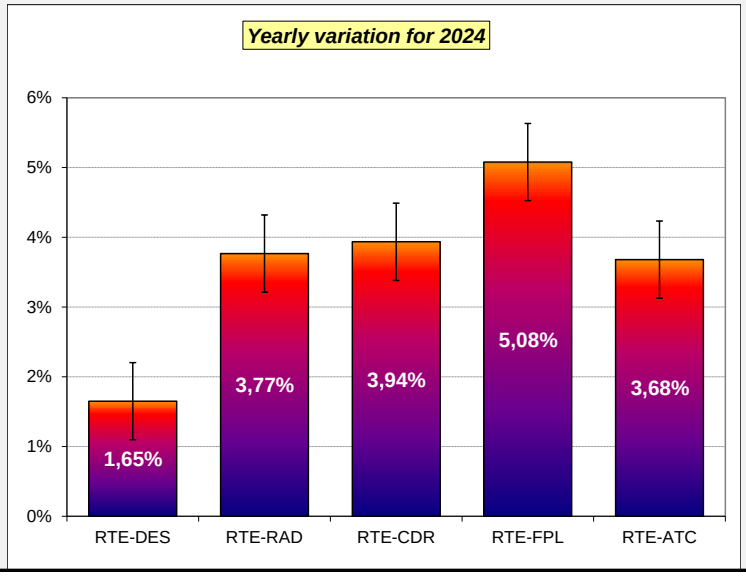
- The difference between the actual route length, based on radar data (from TMA exit and entry points) and the great circle distance.

European Performance Indicators
Environment - Measurement

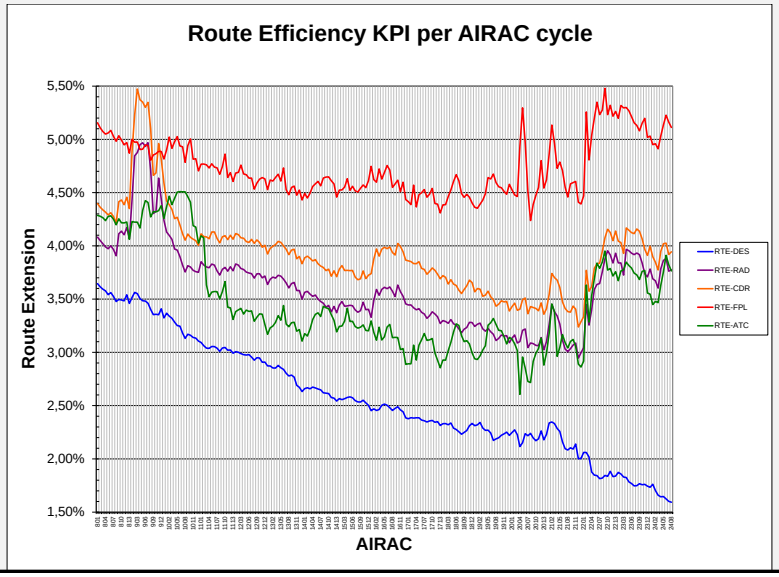
Availability of measured Performance Indicators:

- The Performance Indicators are measured over the entire year and only at European network level.
- Operational interpretation is provided for each Performance Indicator to ensure an appropriate understanding of the trade-offs required between capacity and flight efficiency with safety being the overall aim.
- Appropriate interpretation is also provided on the year-to-year evolution of these Performance Indicators.

European Performance Indicators
Environment - Results Year 2024



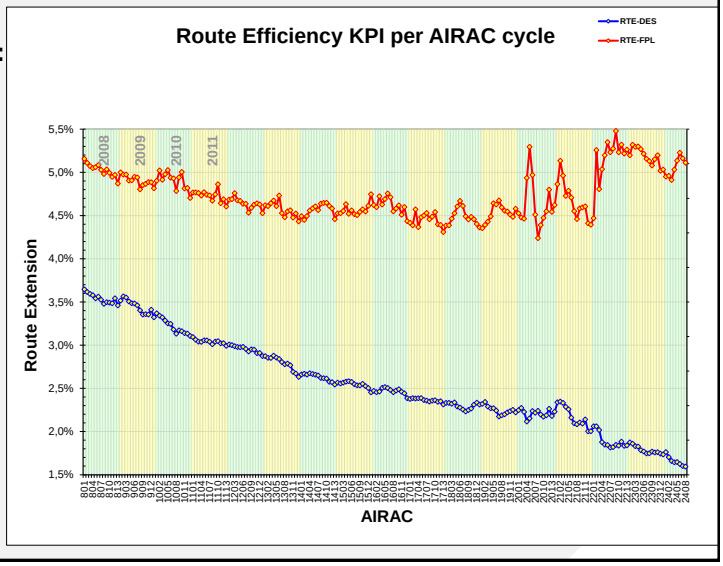
European Performance Indicators
Environment - Results by AIRAC



European Performance Indicators
Environment - Flight Planning vs Airspace Design

AIRAC 0713 - AIRAC 0905 - AIRAC 2408:

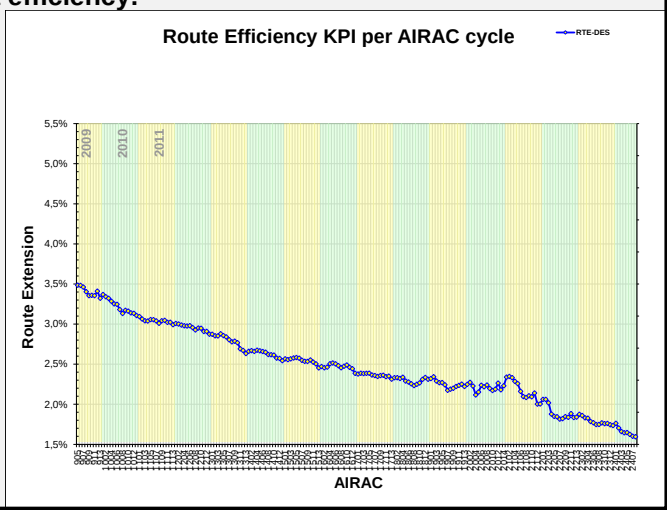
- **RTE-FPL: 4.99% - 4.91% - 5.11%**
- **RTE-DES: 3.58% - 3.48% - 1.59%**



European Performance Indicators
Environment - Flight Planning vs Airspace Design

Major FRA implementations impacting flight efficiency:

- **First FRA implementation - MAY 2009**
- **MAY 2010**
- **JUN/NOV 2011**
- **DEC 2012**
- **MAY/NOV 2013**
- **FEB/APR/NOV 2015**
- **JUN/DEC 2016**
- **MAR/MAY/OCT 2017**
- **…**
- **Latest FRA implementation - 21 MAR 2024**



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Thank you!

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