



**MINISTÈRE  
CHARGÉ  
DES TRANSPORTS**

*Liberté  
Égalité  
Fraternité*



# ILS Cat I rationalisation and MON in France

EASA Safety Week, 29/06/2022

Benoit Roturier DSNA, program director CNS by satellite

# Why ILS cat I rationalisation in France?

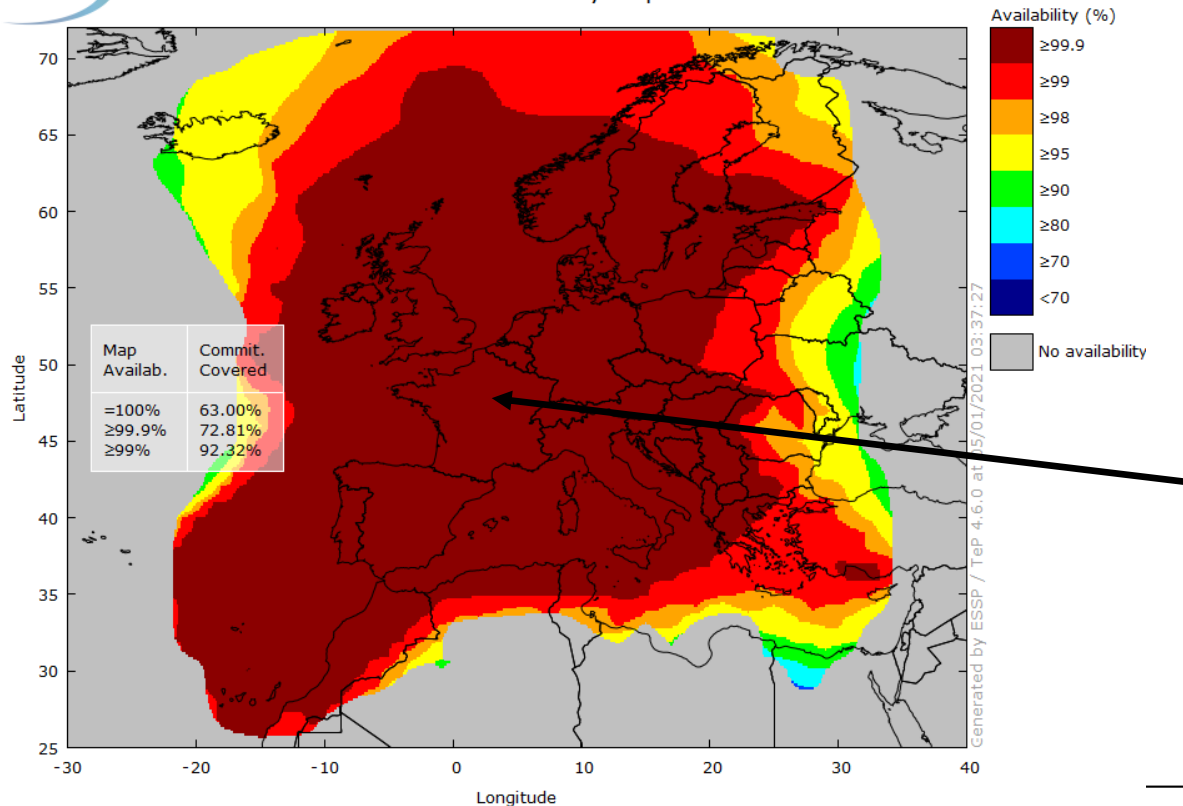
- ❑ **This strategic evolution was launched by DSNA management in the 2010s, through:**
    - ❑ Recognition that new space technology (SBAS – EGNOS) would soon bring an equivalent and free of charge level of service
      - ❑ This would be helpful to reduce DSNA infrastructure costs
    - ❑ Recognition that DSNA was the European ANSP involved in the biggest number of airfields supporting IFR (both DSNA and at the time also non DSNA (AFIS))
      - ❑ DSNA IFR airports: 69
      - ❑ AFIS IFR airports: 60
    - ❑ In particular as a State ANSP, DSNA was also supporting the costs of installing and maintaining ILS over AFIS, which was getting not fully consistent with the new regulation performance objectives of the EU
  - ❑ **In 2018, the PBN IR (2018/1048) required the implementation of MON at European level**
    - ❑ For DSNA, the ILS rationalization (50 ILS removed/transferred) work was done previously to 2018 was fully consistent with the regulation
    - ❑ A new area of work was launched to support VOR rationalization and NDB elimination, in particular definition of a CONOPS to support a total loss of GPS over France
-

# EGNOS landings service areas



PRN 123136 - 04/01/2021 00:00:00 to 04/01/2021 23:59:59

LPV200 Availability Map



**EGNOS service area:  
this is like a « giant »  
ILS signal falling from  
the sky**

**Free of charge for  
ANSPs and airspace  
users**

**Since 2015, Cat I  
certified signal**

# EGNOS Cat I landings

## SBAS landings

Support high performance/safety  
Cat I landings « everywhere »  
without airport specific  
infrastructure

### Technology

### Minima

ABAS, NDB, VOR



400 – 600 ft DH

ABAS +  
BaroVNAV



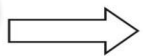
350 – 400 ft DH

SBAS APV



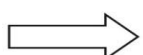
250 – 300 ft DH

SBAS Cat I



200 ft DH

GBAS Cat I/II/III

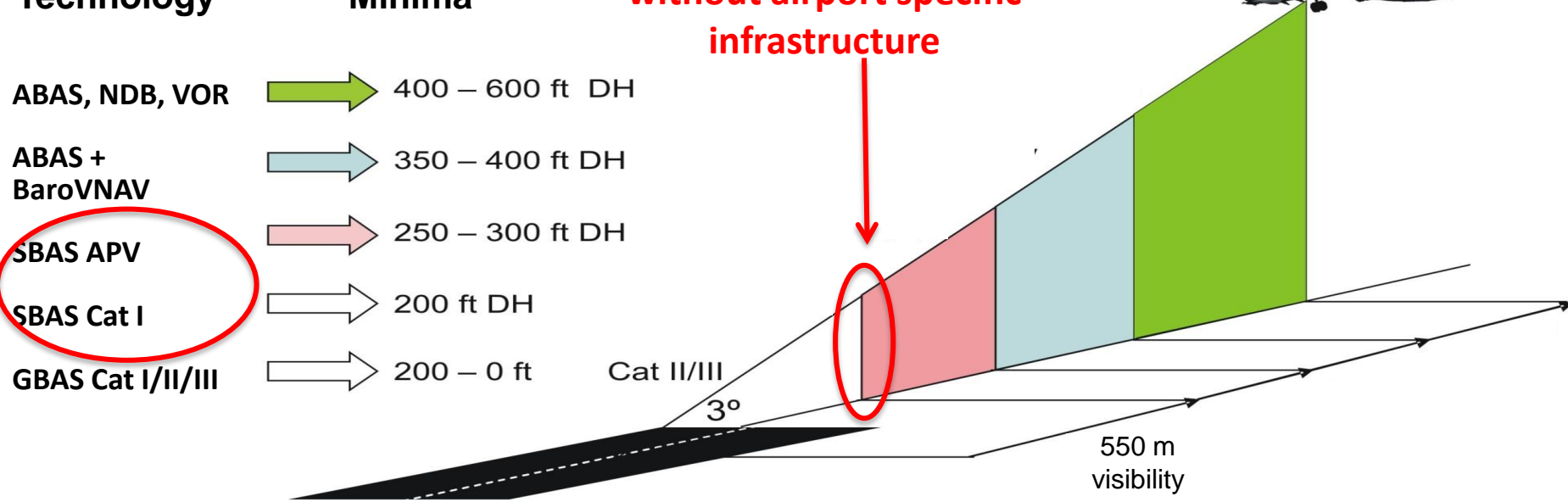


200 – 0 ft

Cat II/III

3°

550 m  
visibility

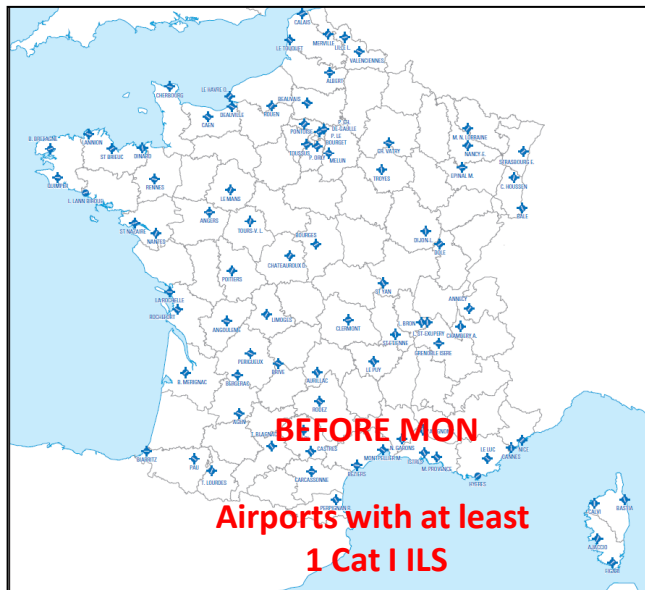


# Paris CDG first EGNOS Cat I appreciations

- **Jean- Christophe Lair, Airbus Experimental Test Pilot:** “Airbus is pleased to have demonstrated that the A350 XWB complies with the new RNAV (GNSS) approaches with satellite-based augmentation, as implemented at Paris Charles de Gaulle. **These approaches will be a valuable backup to the airport’s traditional ILS approaches** and will maximise runway availability for the A350 by maintaining CAT1 capability, down to 200ft decision height, even **when the ILS ground station is not available.**”
- **Eric Delesalle, ATR chief pilot:** “The LPV system is much more stable and **more reliable in terms of safety, but also more efficient than the ILS approach.** It really makes a difference”
- **Jean-Louis Dumas, Dassault flight test pilot:** “Lowering the LPV minima down to 200ft in Europe is a great improvement enabled by EGNOS, and is **very valuable for business aviation operations**”
- **Peter Koch, chief of the Bombardier C Series fleet at SWISS:** “The accuracy and stability of the LPV guidance is impressive, as completely independent from ground installations. Lowering the LPV minima down to 200ft in Europe is a great improvement and very valuable. **The approach procedure is straight and simple, and there is no necessary changeover regarding the FGS with respect to conventional approach aids**”



# France ILS CAT I MON



# Minimal Operating Networks toward 2030 exclusive use of PBN:

## ILS

**ILS CAT I minimum operational network (MON) of 38 aerodromes already implemented, over 69 airports.** Thanks to EGNOS PBN supporting CAT I service: **100 → 50 ILS Cat I reduction**

**ILS CAT III network maintained**, GBAS could alleviate the need for some ILS CAT III in the longer term.

**The ILS MON has already generated a 4,9 M€ annual economy** - i.e. 30% reduction of the DSNA yearly Navigation budget.

## VOR

**VOR MON is 84 → 51 VOR in 2030.**

The withdrawal by 2030 of the VOR that do not belong to the MON will take place for the most part during the period 2022-2024.

**The VOR MON will generate 2,3 M€ annual economy**

## NDB

**The plan is elimination of all NDB by 2030**


EGNOS also supporting this MON.

**The NDB elimination will generate 1,3 M€ annual economy**

## DME

**DME network maintained.** DME/DME is the main backup for PBN RNAV 5 and RNAV 1 routes in case of GNSS loss.

Additional DME may be installed on existing VOR sites or other sites to improve DME/DME coverage as needed by 2030.



**Thank you! Questions ?**