





Innovative
R&D
concepts

PildoLabs
move smart 



PinS LPV
in Europe



ConOps
& Design Criteria
SNI + RNP-AR

Challenge

In bad weather conditions **people cannot get rescued**



600
flights / year
cannot be
performed to
patients in need of
urgent care



7.350.000
of profit / year
is not perceived

Many lives cannot
receive appropriate
help when needed



Opportunity

Last generation helicopter units **are fully equipped** with flying capabilities in adverse weather conditions



SATELLITE BASED +
Navigation Services
(GPS and EGNOS)



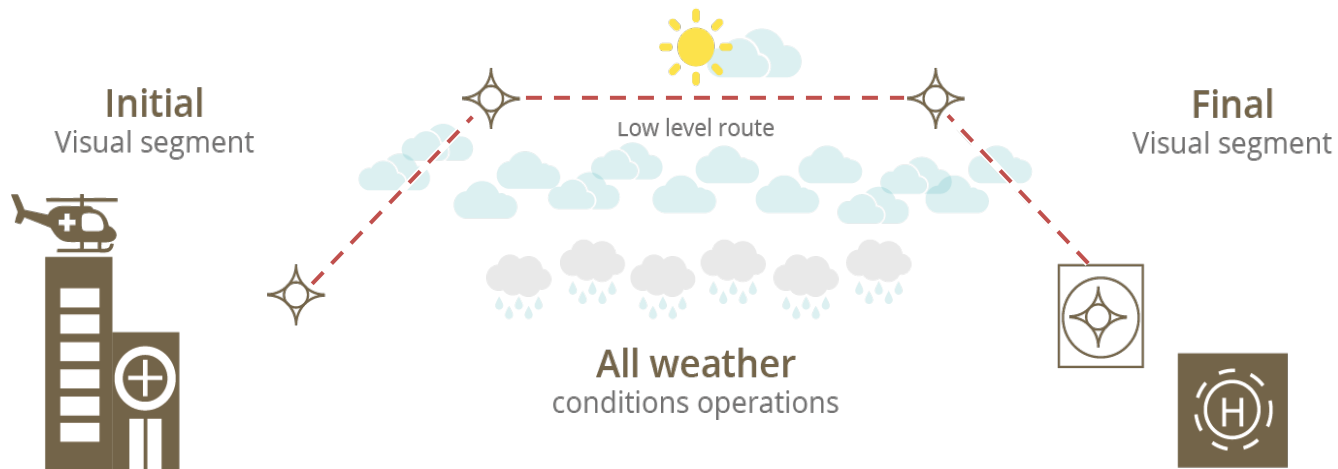
SATNAV
Equipped
& IFR certified



Point - in - Space
(PINS)
procedures

Game Changer

Design **Highways in the Sky** an helicopter can **fly** in any weather conditions





Harmonize the implementation of rotorcraft PBN operations at European level by establishing **coordination** between Aviation Stakeholders:



Helicopter Operating rules for IFR/PBN



EASA
European Aviation Safety Agency

Helicopter Operating rules for IFR/PBN

Fuel Opinion 02-2020 (adopted)
AWO Opinion 02 2021 (adopted)
HEMS Opinion to be published Q3 2022

➤ Epidemic of accidents in VFR and (unintended) IMC

- All helicopter operations
- CAT
- Non-commercial
- SPO



Safety Guidance Material



Helicopter point in space operations in controlled and uncontrolled airspace

[Download](#)

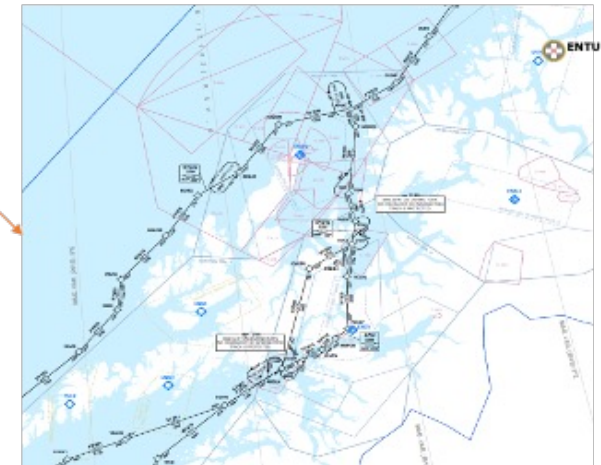
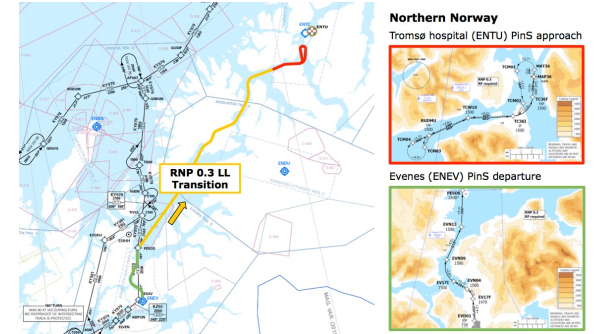


Helicopter low level route operations in controlled and uncontrolled airspace

[Download](#)



Successfull History



Longest ever transition



NORSK LUFTAMBULANSE

XZFN

XX XXX XXXX

XX-XX

TRANSITION LOBF5 1A

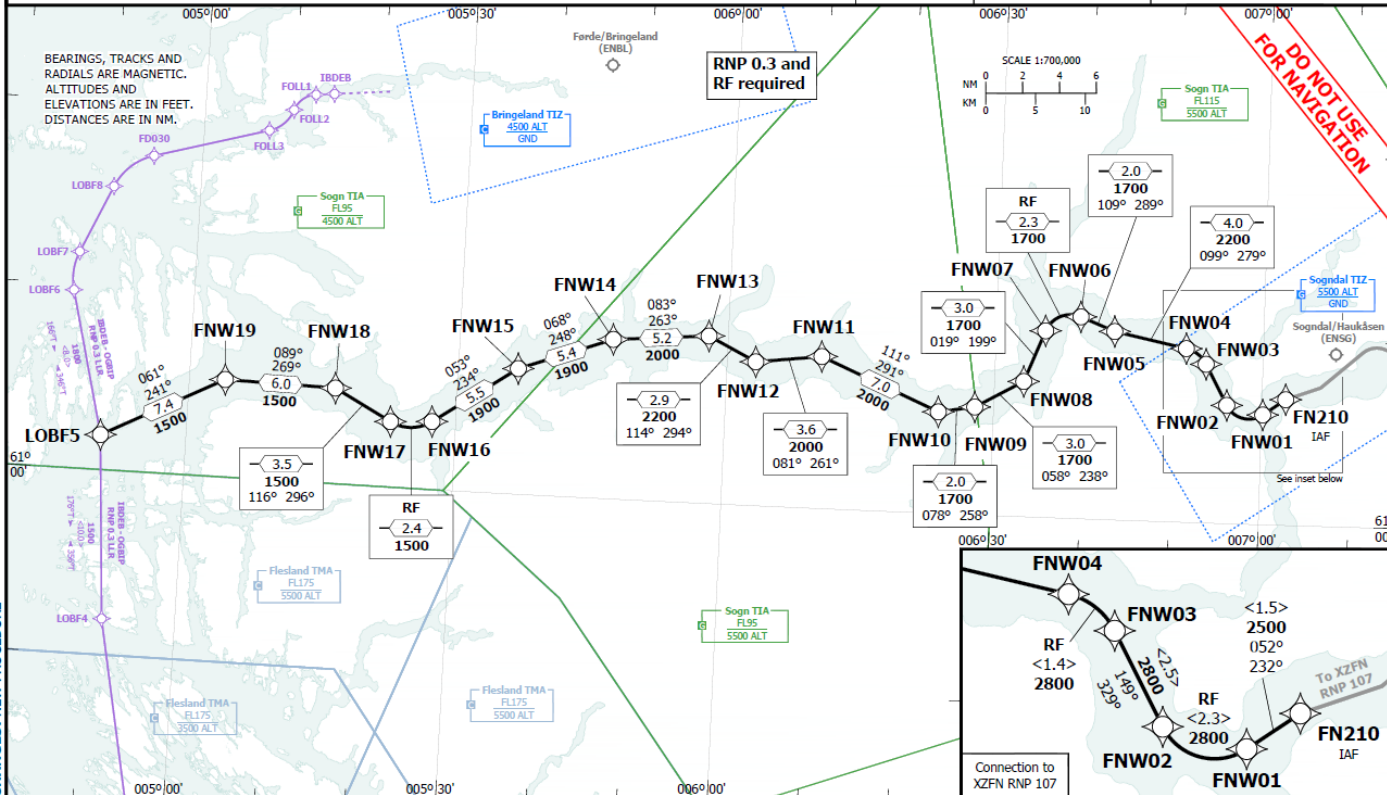
XZFN RNP 107

NOTES: RNP 0.3 and RF required. Set CDI to 0.3 NM. MAX IAS 120 KTS.
Procedure below Sogn TIA and inside Sogndal TIZ (Class G).

ENSG AFIS
119.300

QNH: HEMS WX
ENSG AFIS

LOBF5 VAR 1.6° E (2021)
FN210 VAR 2.7° E (2021)



On-the-job



Successfull History



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

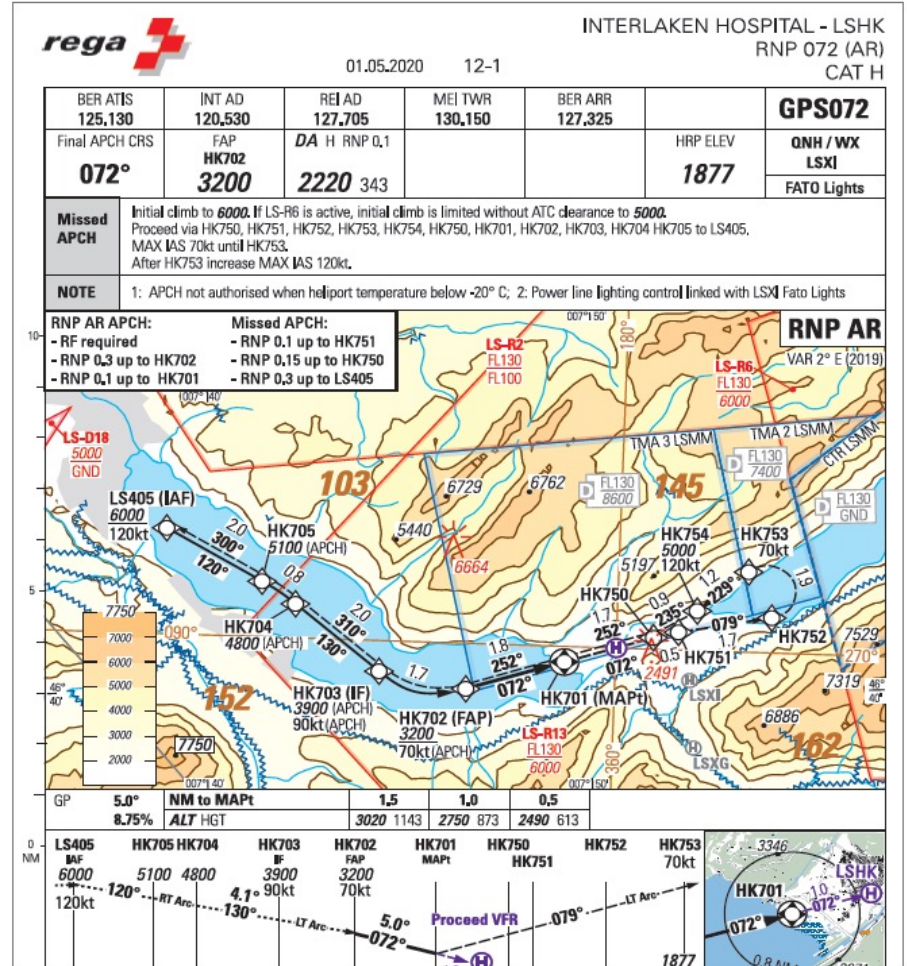
Extension du réseau national de routes aériennes utilisé par les hélicoptères



Berne, 03.08.2021 - La Confédération financera le développement du réseau suisse de routes aériennes permettant aux hélicoptères de mener des opérations de sauvetage et autres interventions même lorsque la météo est mauvaise. Ainsi en a décidé le Parlement en adoptant la motion Dittli. Par la même occasion, le Low Flight Network (LFN), actuellement géré par Skyguide et utilisé par la Garde aérienne suisse de sauvetage (Rega), se voit conférer le statut d'infrastructure aéronautique nationale critique. Le LFN sera régulièrement étendu et sera ouvert à d'autres entreprises de sauvetage aérien et aux forces de police, si tant est que leurs hélicoptères soient dûment équipés et que les équipages soient qualifiés.

Le Low Flight Network (LFN) est né d'une initiative conjointe de la Rega et des Forces aériennes. Il s'agissait de bâtir un réseau de routes aériennes aux instruments afin de permettre aux hélicoptères d'assurer des interventions importantes, telles que les opérations de sauvetage ou de ravitaillement et d'évacuation lors de catastrophes, quelles que soient les conditions météorologiques. L'Office fédéral de l'aviation civile (OFAC) et l'organe du contrôle de la circulation aérienne Skyguide ont été étroitement associés au projet dès 2015. L'OFAC a notamment coordonné le projet avec tous les acteurs impliqués et a créé le cadre général nécessaire.

Curved Approaches (RNP-AR)



«Ice Bird» New AW169 RNP-AR & de-icing



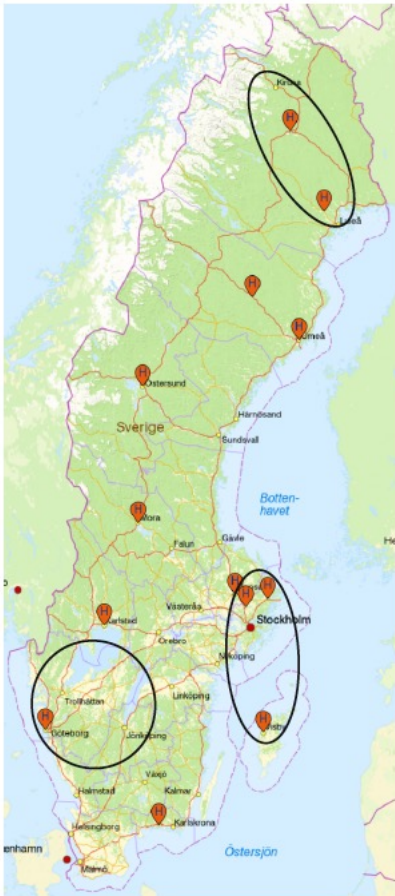
anytime - anywhere - any weather

Other implementation programmes



Scandinavian AirAmbulance

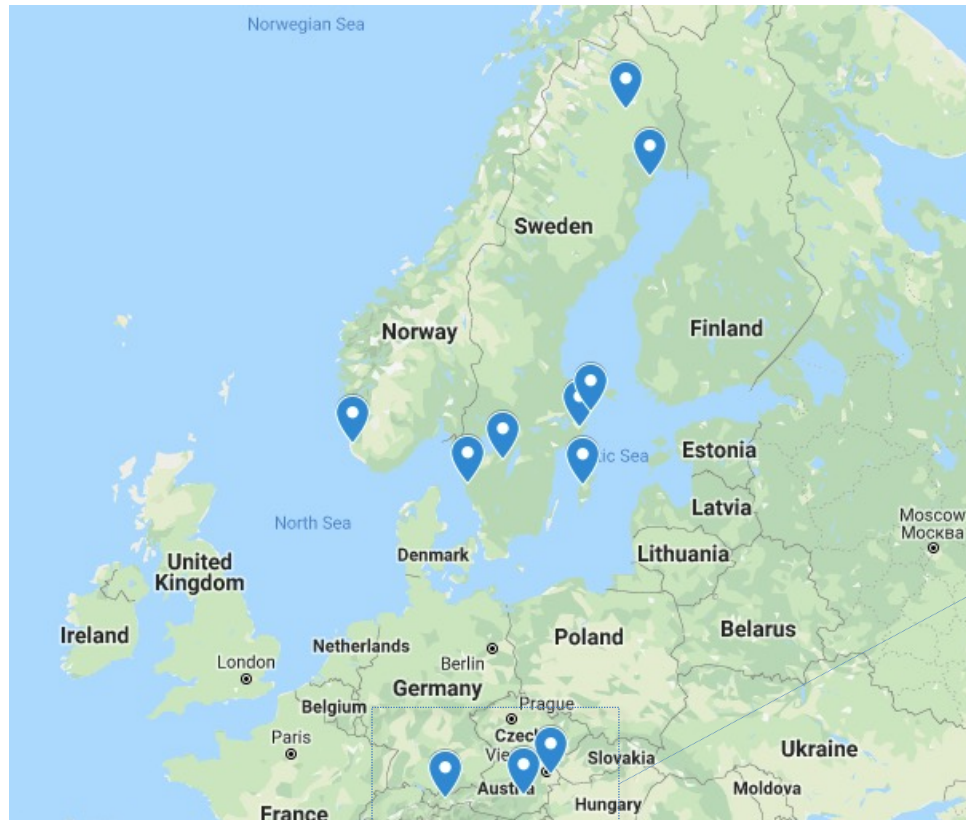
Flight Validation Unit



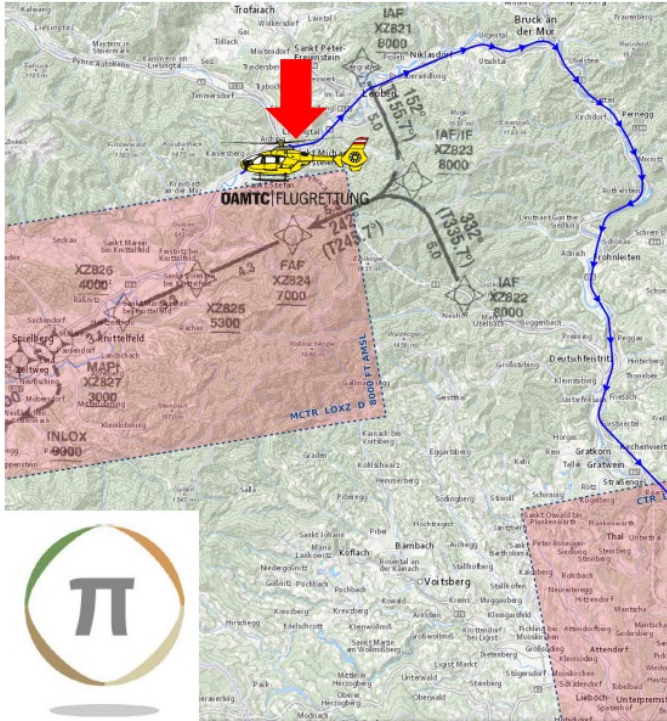
Scandinavian AirAmbulance



Other implementation programmes

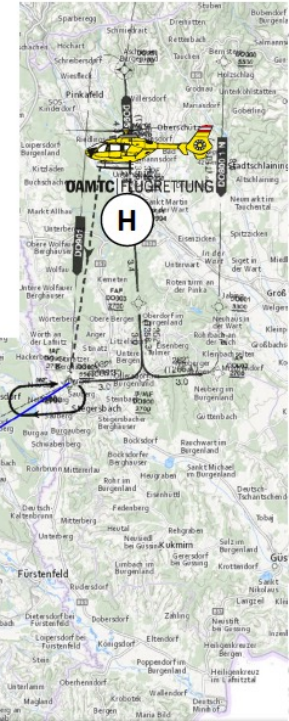


Low Level Route



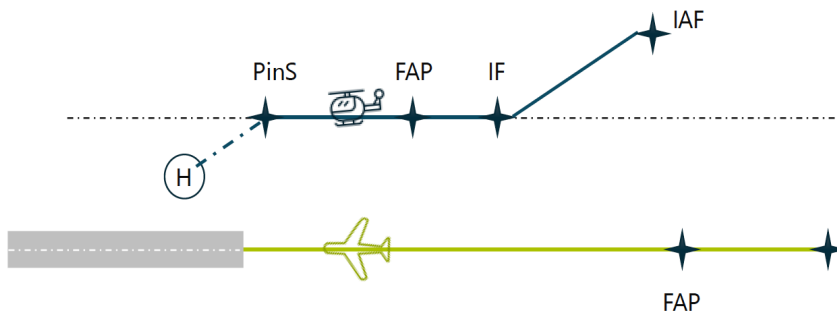
First Austrian helicopter LLR

PinS at C17 base



Simultaneous Non-Interfering

Validate the Simultaneous Non-Interfering (SNI) concept for helicopter IFR integration within the TMA of Vienna International airport



Other implementation programmes



PinS Off-shore



Provides standard LOC/GS guidance

Integrated with helicopter AFCS and Avionics (FMS)

Establishes safe Missed Approach procedure

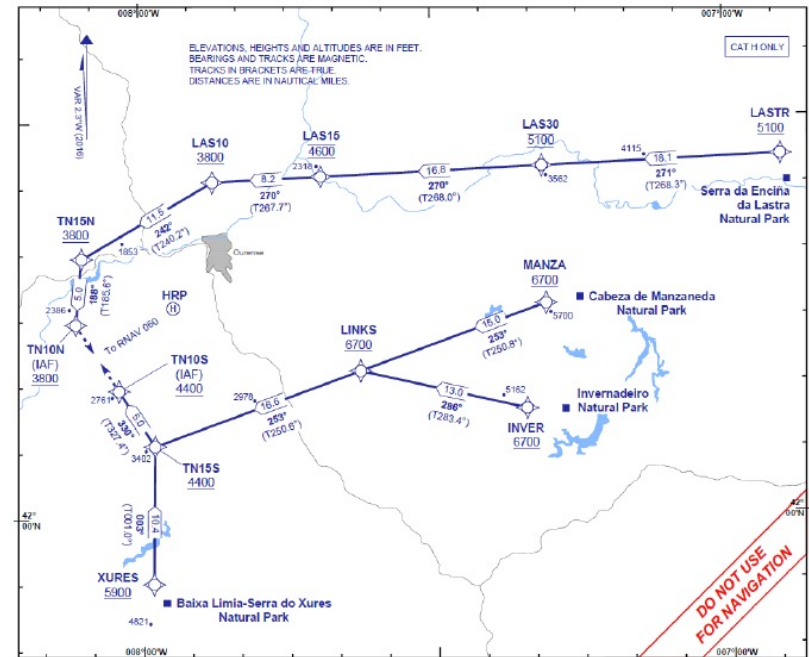
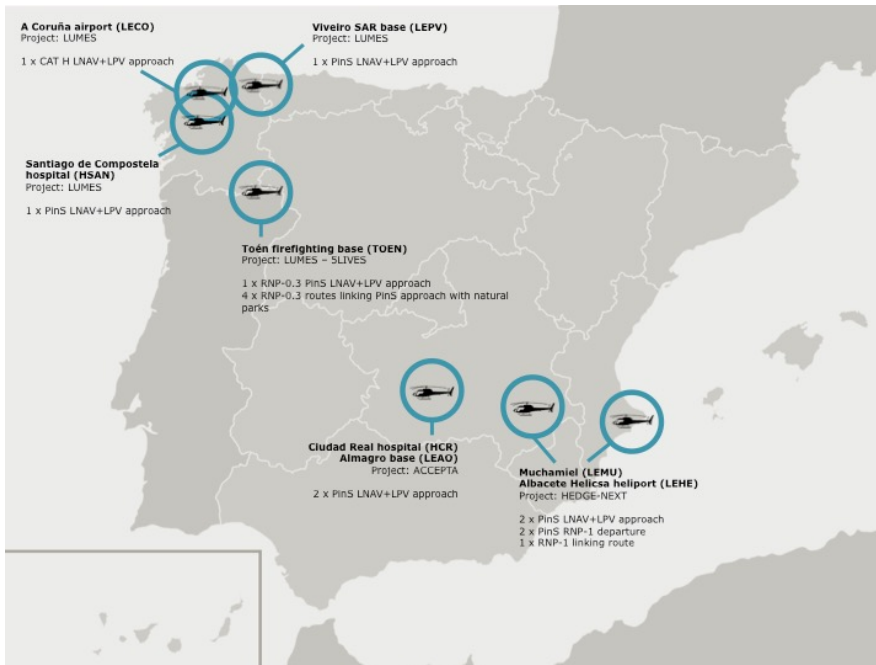
Weather radar used for verification

Better Situational Awareness (no change of controls, talkdown)

Good operational minimums

PinS « implementation » in Spain

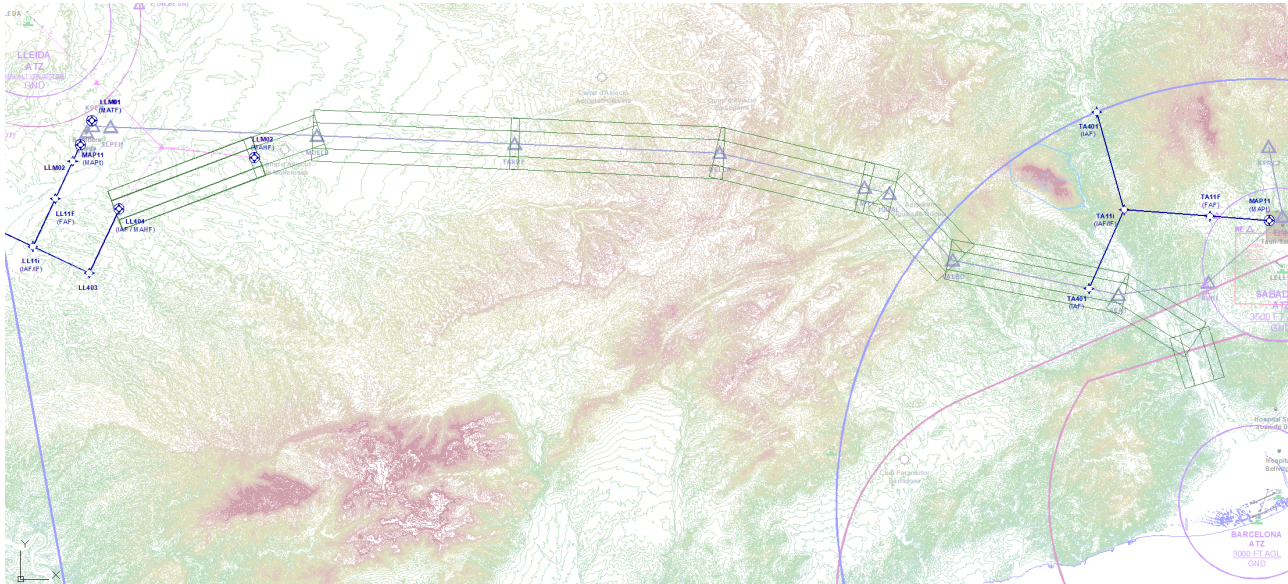
Multiple R&D activities including PinS designs, flight demonstrations & validations
Mostly HEMS but also on Fire-Fighting



Avincis[™]
AVIATION CRITICAL SERVICES

PinS « implementation » in Spain

1st PBN Helicopter Operational Implementation



Conclusions



(1) Performance Based Navigation is a **game changer** for rotorcraft operators



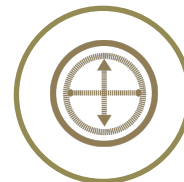
(2) **FLAG** group promotes harmonized practices at European level



(3) EU regulation evolving for special operations in **uncontrolled airspace** that will trigger others



(4) Sustainable **development** of PBN operations through ad-hoc solutions



(5) Present and future **advanced** concepts exploiting to the max helicopter capabilities



(6) PBN shall contribute to leverage VFR accidents providing **higher safety levels**



Barcelona Advanced Industry Park
C/Marie Curie 8-14, 08042 Barcelona, Spain
contact@pildo.com | +34 931828840

www.pildo.com

