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Session 3 – Part II: Navigating Emerging Environmental Topics at Airports



Noise Abatement Departure Procedures

Making the flights more noise efficient from the beginning

- Noise is a key environmental impact
- More pressure is set on airports to reduce the noise footprint
- Land-use changes and SIDs need to be adapted, horizontally, but also vertically
- Current usage of NADP is considered inadequate in certain cases, a validation of new procedures is a needed step
- Industry has new tools to improve the noise footprint where really needed
- Balance approach between noise and emissions

Presentation Overview

1

NADP

What is Noise Abatement Departure Procedure

2

IMPACT Study on NADPs

Study done at EUROCONTROL

3

Key findings

Outcomes of the study

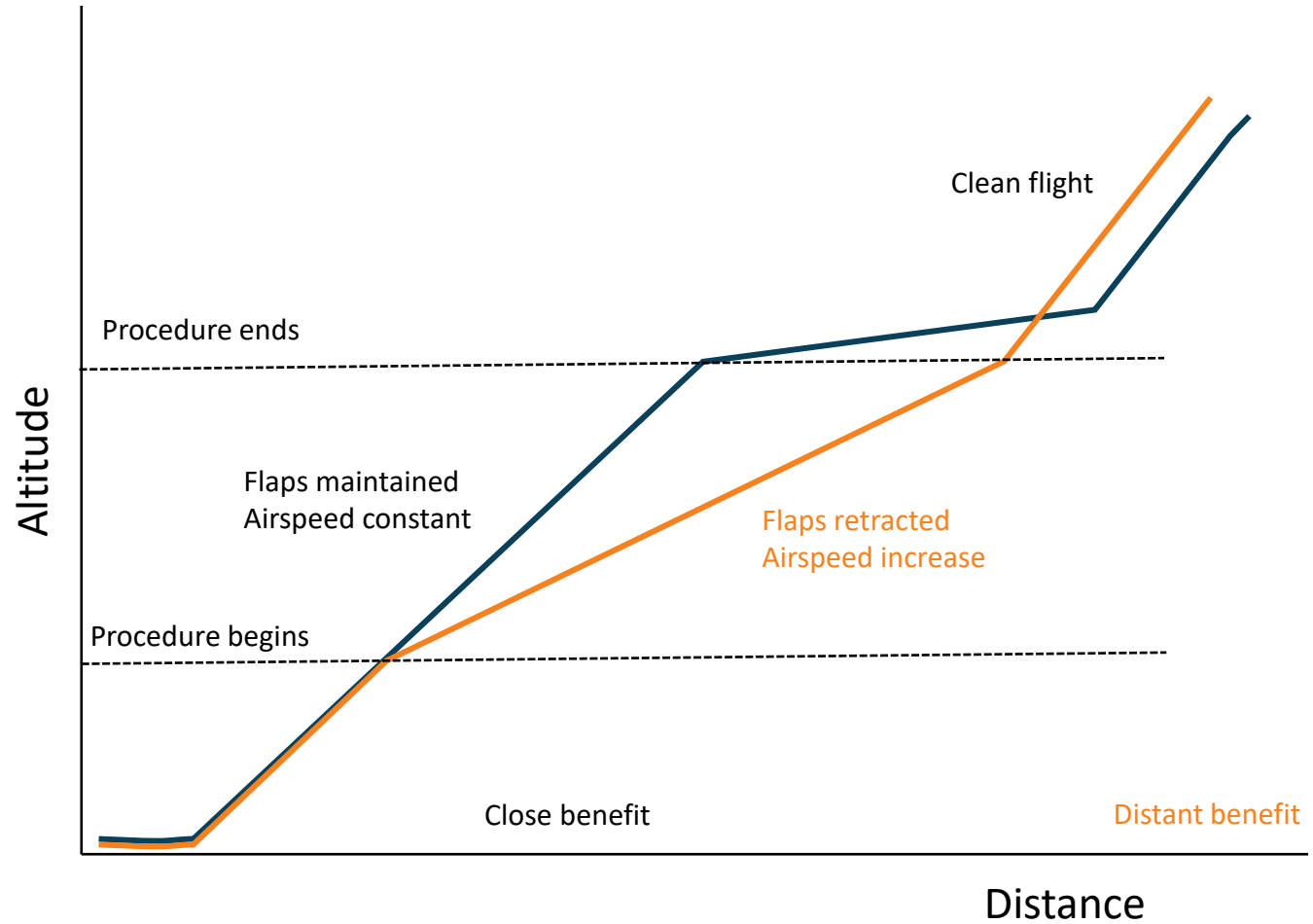
4

Process to improve NADP

How to implement the recommendations

1 NADP

What is Noise
Abatement
Departure
Procedure



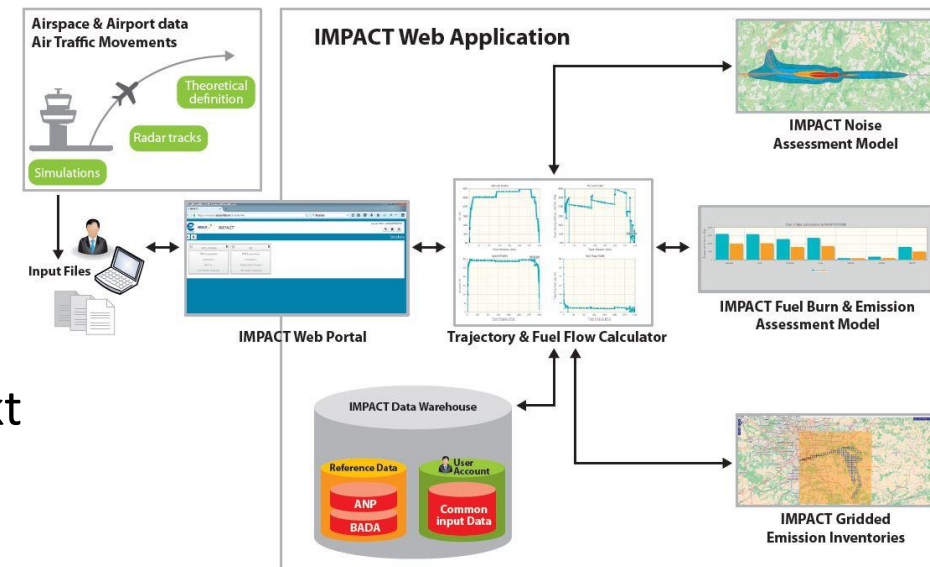
NADP schematic

2

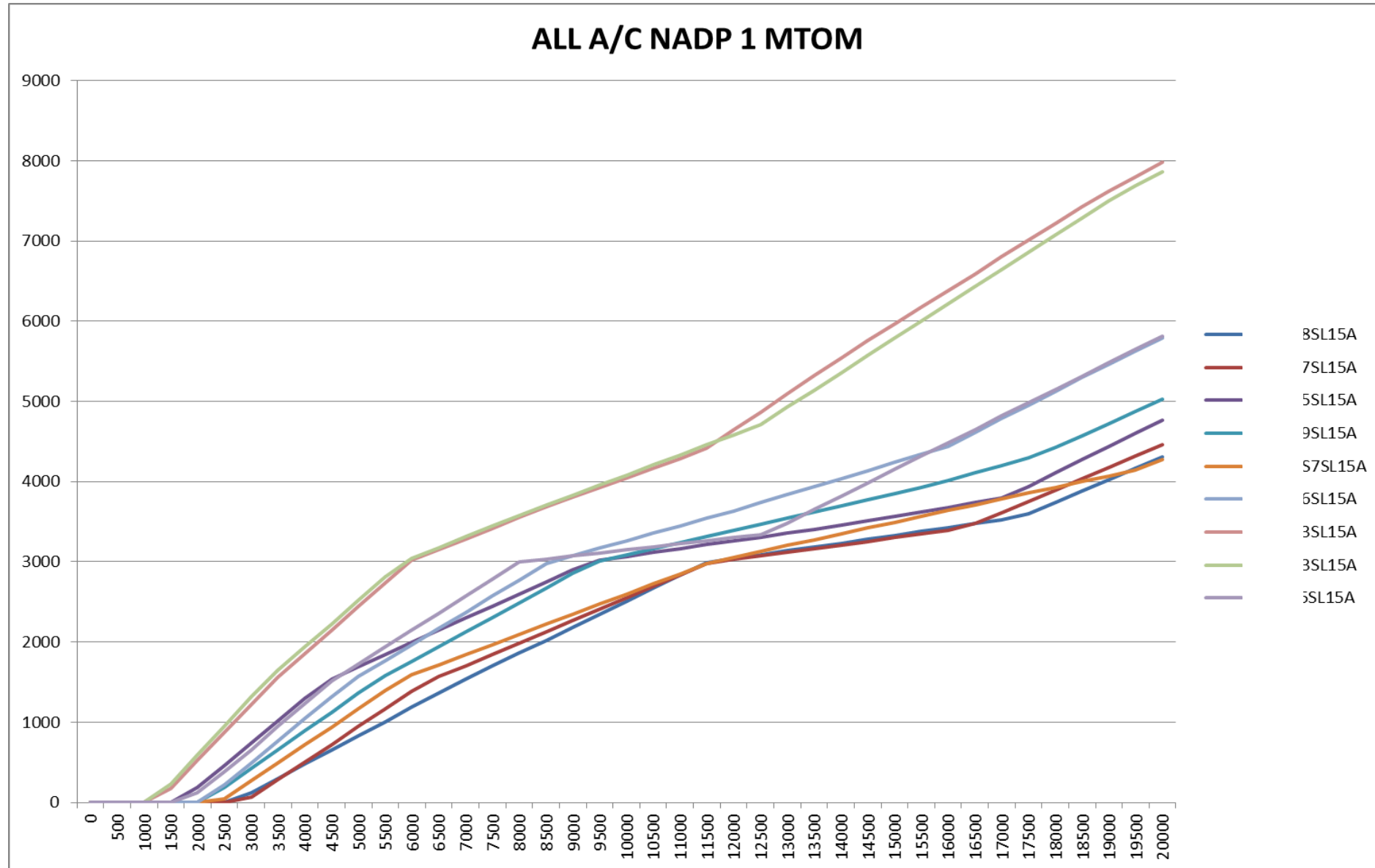
IMPACT Study on NADPs

Study done at EUROCONTROL

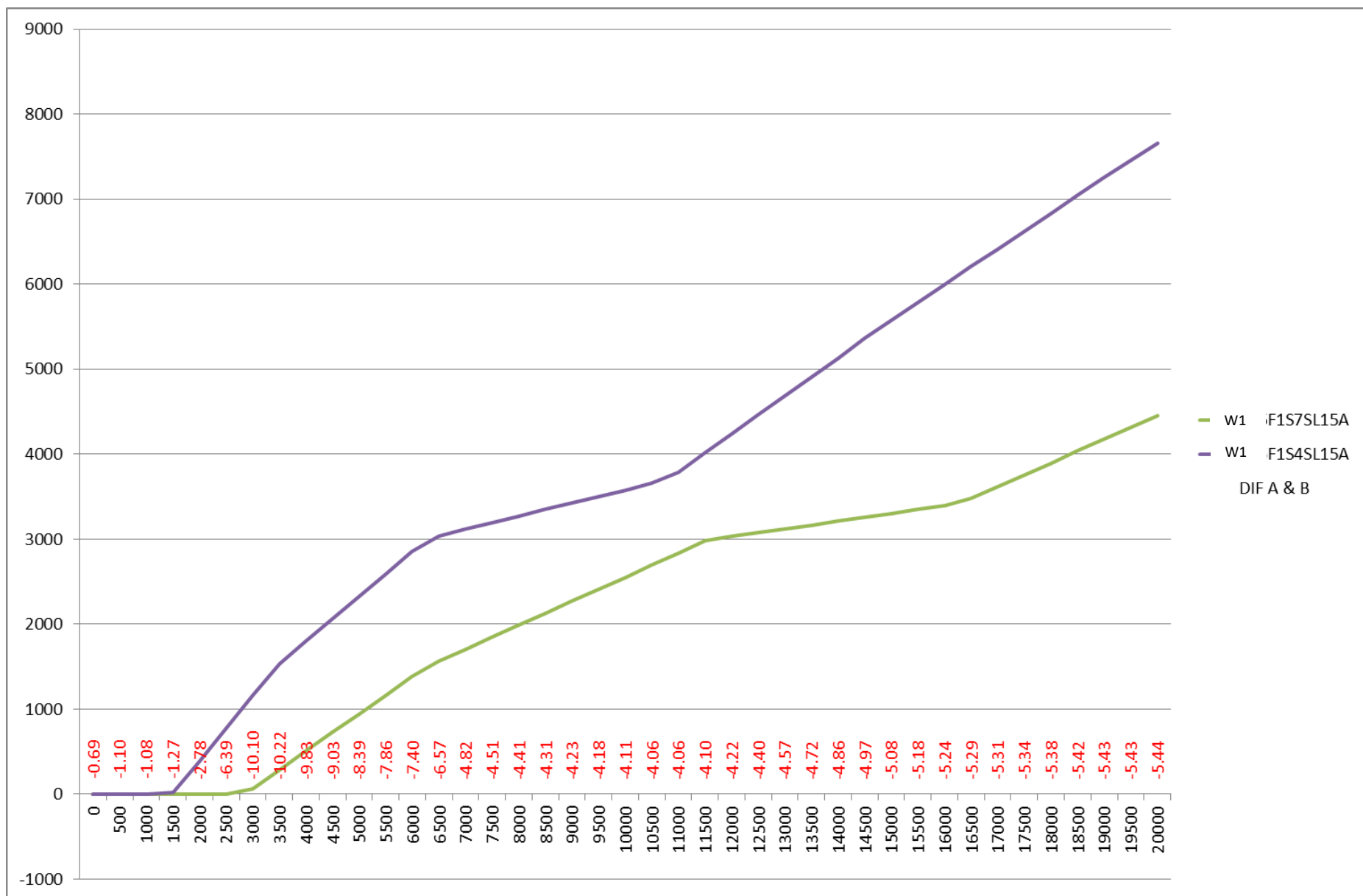
- 9 different types: 2 New Generation Wide Bodies, 2 Wide Bodies, 2 Narrow Bodies and 3 Regional Jets (MTOM and intermediate weight)
- SL and 2000 ft elevation
- Temperature: 15 °C and 50 °C
- QNH: 1013 Mb. Headwind: 8 kt
- SID: Runway track 20km



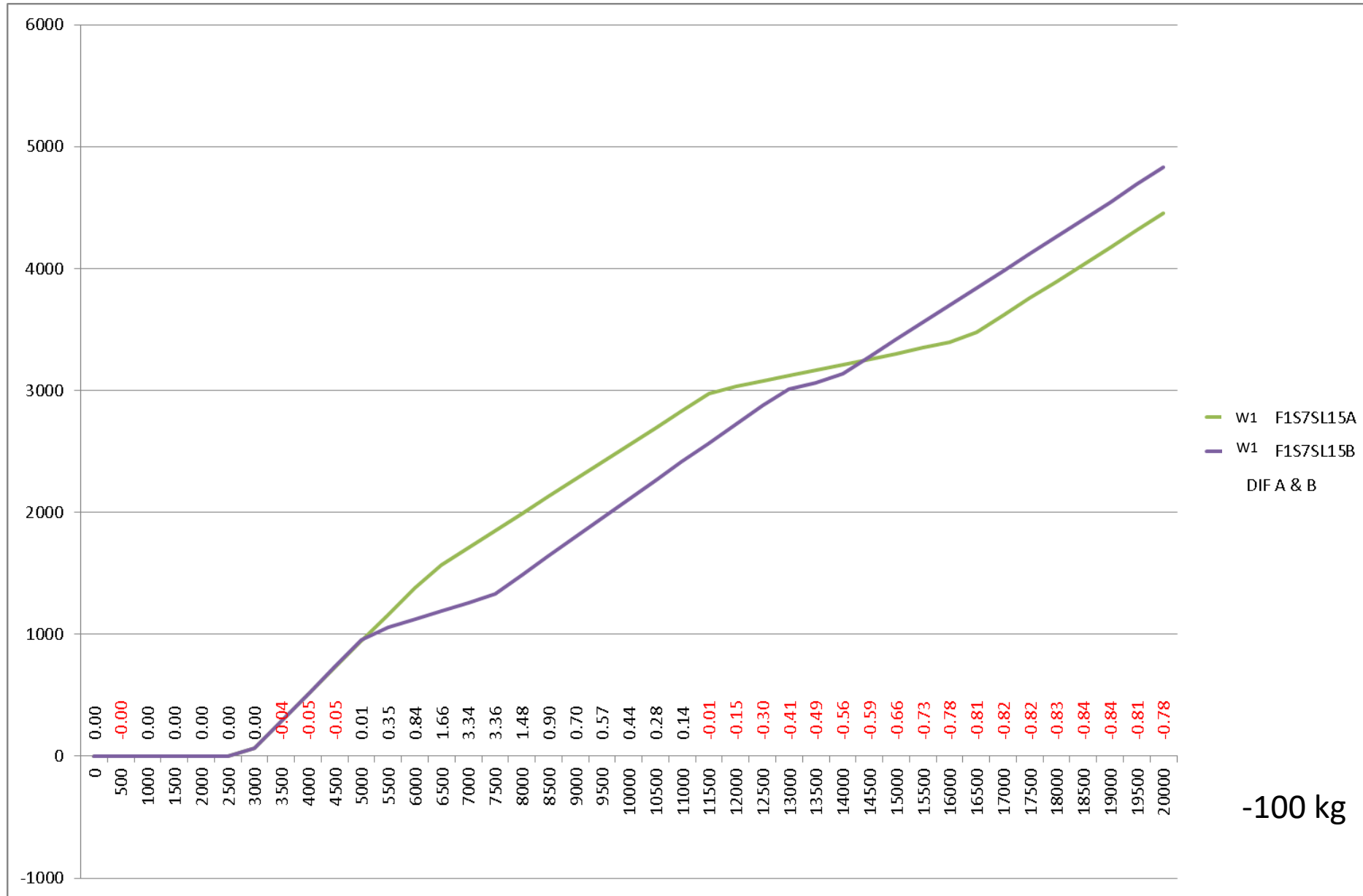
One size does not fit all



Weight matters



Balance approach between noise and emissions

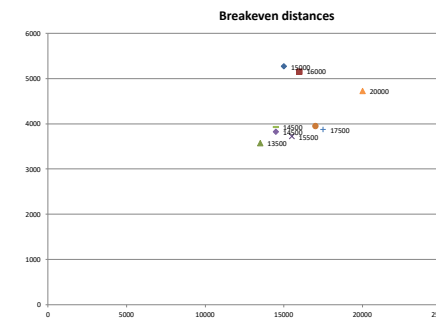


3

Key findings

Outcomes of the study

- A fix NADP for all a/c types and runways is not optimal
- NADP 2 burns less fuel than NADP 1 (balance approach)?
- Noise sensitive areas vary from airport to airport, from departure runway to runway: there is no one size fits all NADP
- Distance at which NADP 1 or 2 reduces more noise are not fixed (factors like wind, temperature, aircraft type and weight, which defines the take-off performance and the thrust used, which really affects the vertical profile of the departure
- Further studies to evaluate how different climb speeds (Opti-climb also) may affect Capacity



4

Process to improve NADP

How to implement the recommendations at **global level**

- At ICAO / State level, evaluation of the correct implementation of the changes made from Edition 4 to 5 of Doc 8168 v1, to check the correct application.
- Provision of such tools by **manufacturers** should be promoted. Alternatively, tools such as IMPACT, should be adapted to serve as an alternative to those operators or manufactures not having this capacity.
- Review current NADP procedures applied at each individual airport, i.e. at the CEM meetings, with a focus on a balance approach between noise and emissions

Aircraft Operations

4

Process to improve NADP

How to implement the recommendations at local level

- **Airport Operators:**
 - Together with **ANPS**, run simulations with expected traffic mix with the help of noise modelling tools to create PBN routes, with minimum number of noise sensitive areas
 - to **identify the key noise sensitive areas** in each SID, moving away from selecting the appropriate NADP to be used at its airport. Involve the surrounding communities
- **Aircraft Operators:** use the NADP that is the most appropriate one for current atmospheric conditions, time of day, type and weight of aircraft used, using specific **noise modelling software**



IB6454 FMS 2 IB6454

ACTIVE POSITION SEC INDEX DATA

ACTIVE/PERF

CRZ FL 360 OPT FL 365 REC MAX FL 375
EO MAX FL 209

T.O CLB. CRZ DES APPR GA

ECON 11 THR AUTO-DERATE

MODE	SPD	MACH	PRED TO
PRESEL	--- KT		
MANAGED	250 KT		--- --
ECON	305 KT	.85	

THR RED 9500 FT
ACCEL 11000 FT
CLB SPD LIM 250 KT / 18000 FT

NOISE TRANS 18000 FT SPD CSTR

POS MONITOR

MSG LIST

Thank You

