FABEC VFE Workshop

7 December 2021

Operational trials at FABEC ANSPs

Brussels / skeyes and On-line

JM Edard
FABEC OPS Expert

making the difference

Agenda

- 1. DFS Procedure phase C
- 2. DSNA / skyguide Dynamic RAD
- 3. MUAC Pre-flight check

DFS

FABEC

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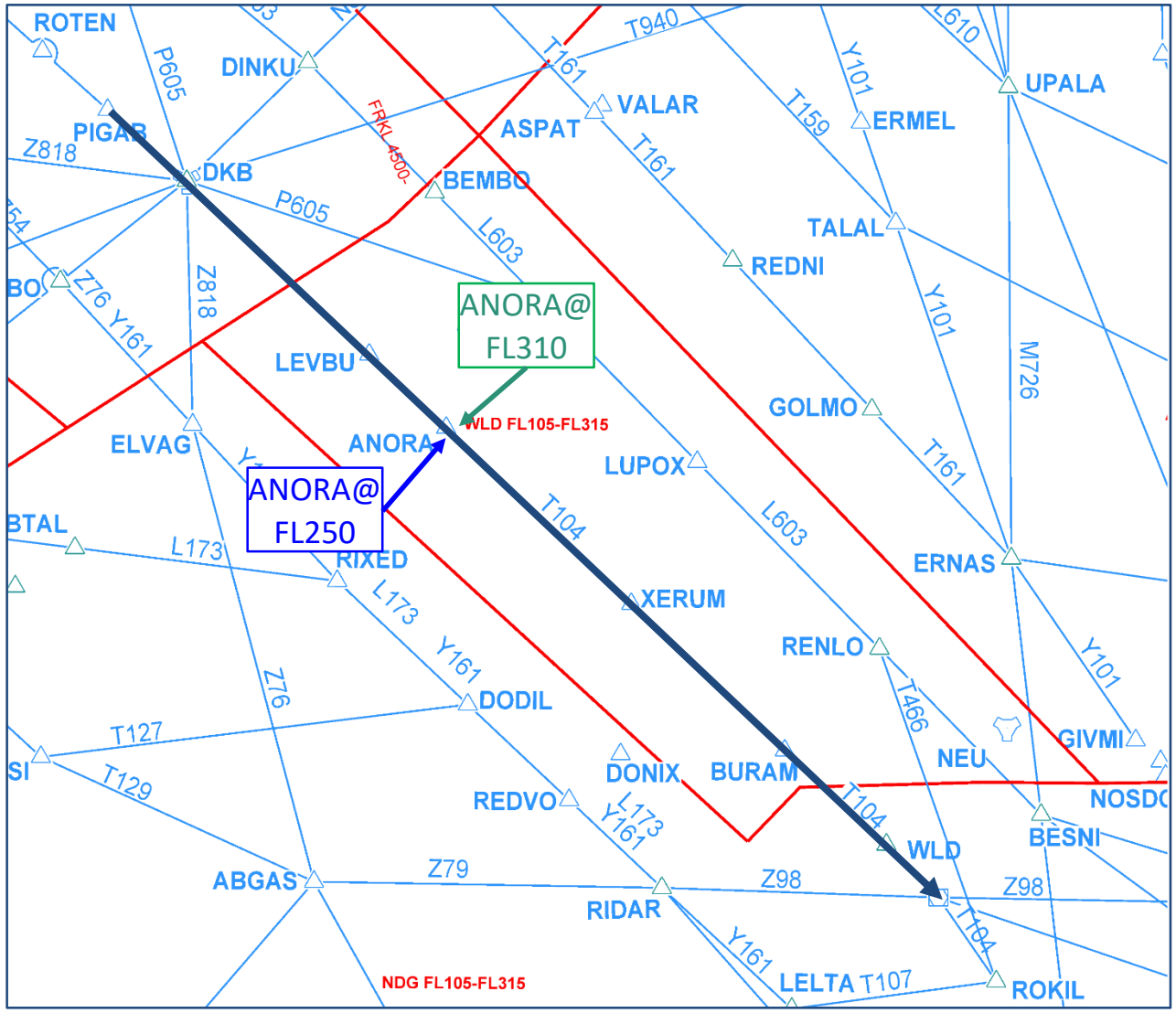
General Description of Procedure / Phase C

- Phase C is the generic term for procedures established during low traffic periods within ACC Munich, but also with external partners

- Phase C means always higher transfer conditions as defined as the standard transfer conditions for aircraft arriving to and departing from specific airports

Example 1: ARR EDDM via DKB T104



Standard Transfer:

Descending FL250 (out of FL310),
to cross ANORA at FL250

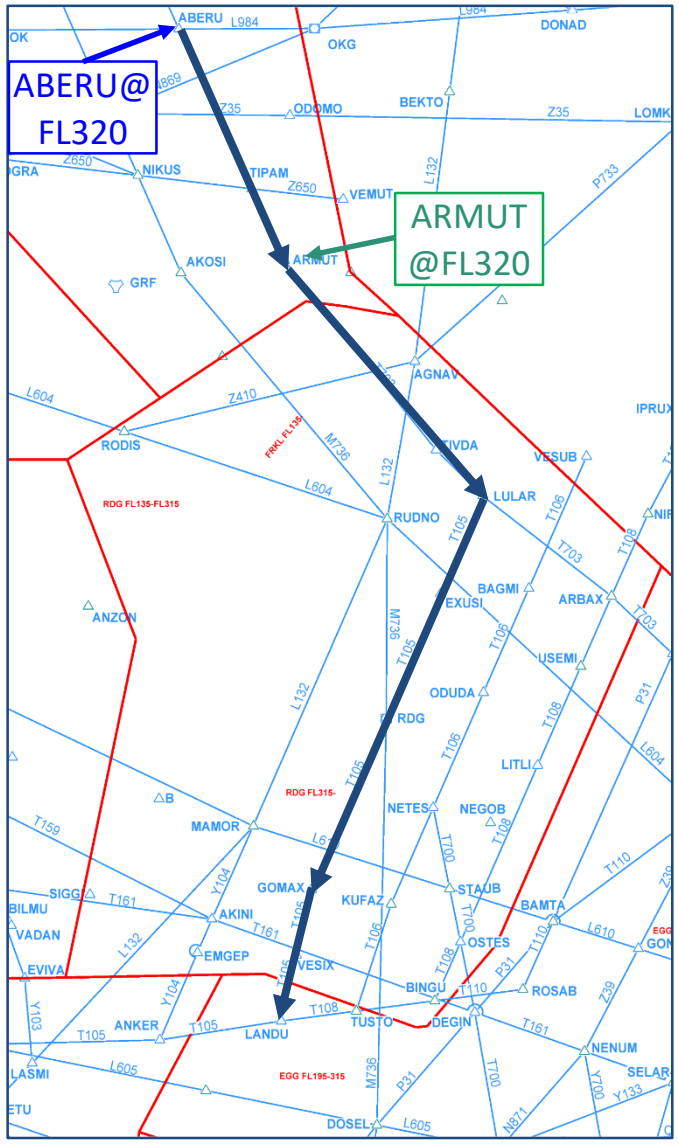
Phase C:

Descending FL310,
to cross ANORA at FL310

- 13 kg saved fuel per flight (Simulation week 1st of August to 7th of August 2021)

Scenario Economy for ... (Potential gains/losses)					
Total impacted flights	Length (NM)	Time (min)	Fuel (kg)	CO2 (kg)	NOx (kg)
311	-0,070	-45,466	-4005,442	-12659,133	-73,461

Example 2: ARR EDDM via ABERU ARMUT T107



Standard Transfer:

ABERU at FL320

Phase C:

ARMUT at FL320,

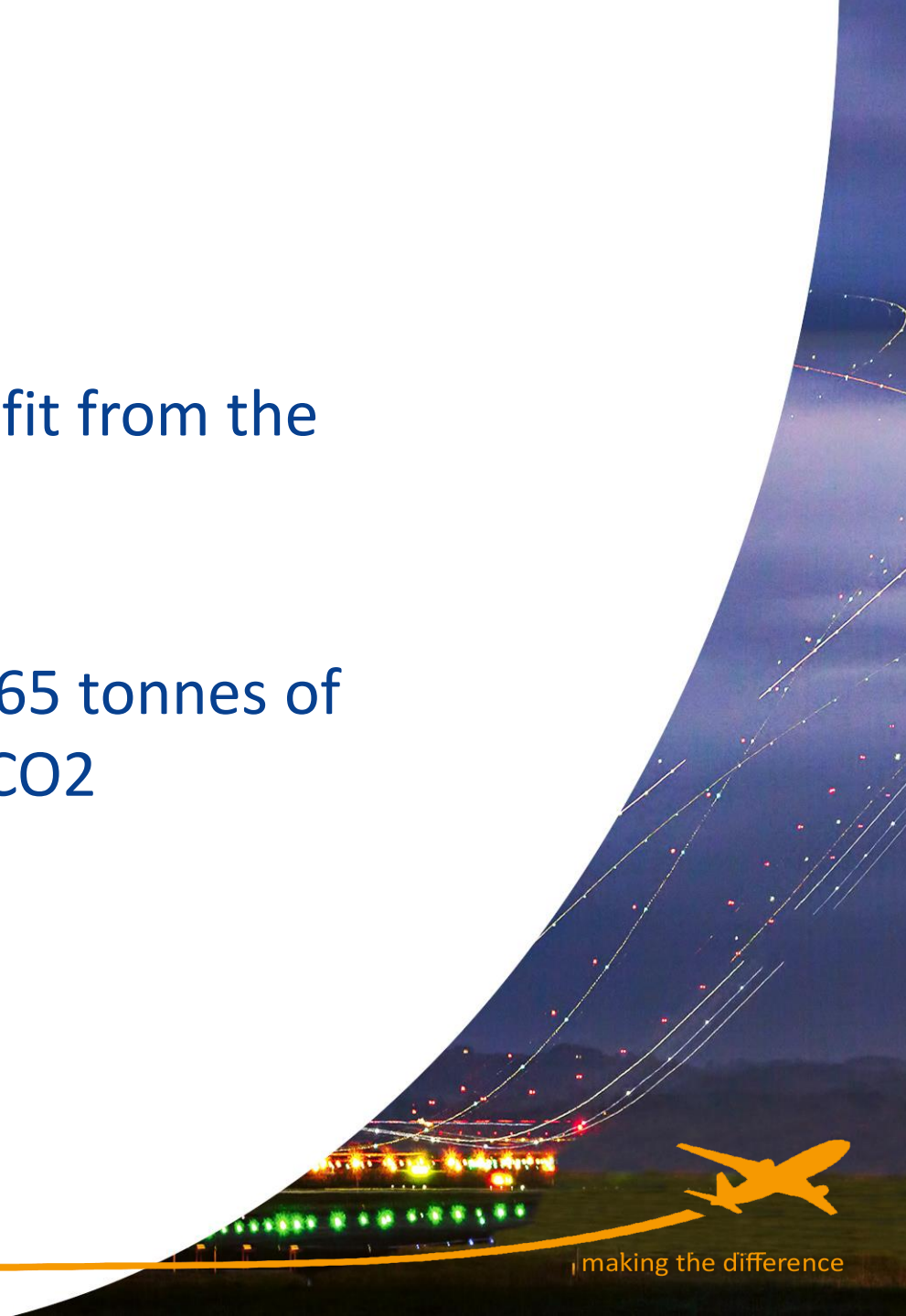
- 14 kg saved fuel per flight (Simulation week 1st of August to 7th of August 2021)

Scenario Economy for … (Potential gains/losses)					
Total impacted flights	Length (NM)	Time (min)	Fuel (kg)	CO2 (kg)	NOx (kg)
76	0,002	3,391	-1059,456	-3348,190	-21,165

Procedure phase C / Benefit assessment

- Considering that 1 flight out of 4 could benefit from the procedure phase C

- Annual benefits could be envisaged around 65 tonnes of saved fuel, corresponding to 205 tonnes of CO2



DSNA / skyguide

Dynamic RAD

skyguide

Dynamic RAD / Goal

- Introduce more flexibility in the management of RAD restrictions
- Promote flight efficiency, avoiding unnecessary traffic constrains in case of sustainable demand

Dynamic RAD / Schedule

ANSPs	AUP	UUP				START	END	Remark
		D-1		D-OPS				
		P2	P3	P2	P3			
DSNA	X					12/08/2021	03/11/2021	DSNA planned to stop in November with the current RAD restrictions and restart with new selected RAD restrictions on the 27th of January (AIRAC 2201 (487) for a time period TBD
ENAV	X					07/10/2021	01/12/2021	
SKYGUIDE	X					07/10/2021	01/12/2021	
ENAIRE	X					12/08/2021	01/12/2021	
NATS	X					TBD	TBD	NATS evaluating the possibility to launch a live trial beginning 2022
IAA	X					TBD	TBD	As above

Dynamic RAD / AUP

Dynamic RAD Trials – French Publication (Sunday)

Type EAUP
Valid WEF 22/08/2021 06:00
Valid TIL 23/08/2021 06:00
Released On 21/08/2021 14:10

ATS Route and CDR Type 1 Closure | CDR Type 2 Availability | RSA Allocations

RSA	NOTAM	REMARK	MNM FL	MAX FL	WEF	UNT	FUA/EU RS
LER71A			010	100	05:30	06:00	
LER71B			010	240	05:30	06:00	
LER71C			020	240	05:30	06:00	
LFR169			000	100	04:00	06:00	
LFR34A2			065	195	06:00	06:00	
LFTZ3503			000	005	09:00	13:00	LFTZ3503X
LFTZ4033			000	005	04:00	06:00	LFTZ4033X
LFTZ4033			000	005	06:00	20:00	LFTZ4033X
LFTZ4132U			000	005	06:00	20:00	LFTZ4132UX
LFTZ4132U			000	005	04:00	06:00	LFTZ4132UX
LFTZ4175			000	005	06:00	22:00	LFTZ4175X
LFTZ4175			000	005	04:00	06:00	LFTZ4175X
LFTZ4234			000	005	06:00	20:00	LFTZ4234X
LFTZ4234			000	005	04:00	06:00	LFTZ4234X
LFTZ4397			000	005	06:00	20:00	LFTZ4397X
LFTZ4397			000	005	04:00	06:00	LFTZ4397X
LFTZ5228			000	005	22:00	05:00	LFTZ5228X, LFTZ5228Y
LGD166			000	250	06:00	06:00	
LGD61			000	400	06:00	06:00	
LGD63			000	120	06:00	06:00	
LGD64			000	250	06:00	06:00	
LGD65			000	250	06:00	06:00	
LGD68			000	250	06:00	06:00	
LGD69			000	250	06:00	06:00	
LGD71			000	090	06:00	06:00	
LGD72A			075	999	06:00	06:00	
LGD72B			075	999	06:00	06:00	

Network Manager
Supporting European Aviation

Dynamic RAD

LF3503 – AIRAC 2108

- Total potential (if RAD is disabled H24): 515 flights
- 164 flights (32%) filed via LFRRNU

- Fuel savings potential: 43 t
- Saved fuel: 14 t

AO / City Pair via LFRRNU

CP	AHO	CFE	CLF	EXS	EZY	GKY	IXR	MAL	NJE	RYR	SVW	TOM	VVV	ZZZ	CP total
LEAL_EGGD					1					14					15
LEAL_EGHH										7					7
LEAL_EGHI	1	1													2
LEAL_EGHQ										7					7
LEAL_EGTE										2					2
LEBL_EGGD					5										5
LEBL_EGTE							1								1
LEGE_EGGD										6					6
LEGE_EGHH										14					14
LEGE_EGHI			2												2
LEIB_EGGD			1	5	1					4		2			13
LEIB_EGHI		1							1						2
LEJR_EGHI											1				1
LEMG_EGHH						1				11					12
LEMG_EGHI			1												1
LEMI_EGGD					2										2
LEMI_EGHH										6					6
LEPA_EGGD	1		2	4	1					14		6	1		29
LEPA_EGHH								1		16		3		1	21
LEPA_EGHI		1													1
LEPA_EGTE												1			1
LEVC_EGGD										3					3
LEVC_EGHI									2						2
LFBE_EGHI		1													1
LFMU_EGGD										6					6
LFTH_EGTE			1												1
LMML_EGHH										1					1
AO total	**2**	**4**	**7**	**9**	**10**	**1**	**1**	**1**	**3**	**111**	**1**	**12**	**1**	**1**	**164**

EUROCONTROL Network Manager

making the difference

Dynamic RAD

LF3503 – example LEAL to EGHQ

LFRRNU Not available for traffic
ARR (ad:EGHQ/TE/BJ/GD/FF/HI/HH)

Typical vertical profile

Vertical profile during the Dynamic RAD trial

Est. 85kg fuel saved
Boeing 738

Dynamic RAD

- Low uptake by CFSPs/AOs for various reasons
- Interim report in February
- Possible re-conduction of Dynamic RAD in summer 2022

Performance through Innovation

EUROCONTROL

MUAC

Pre Flight Check

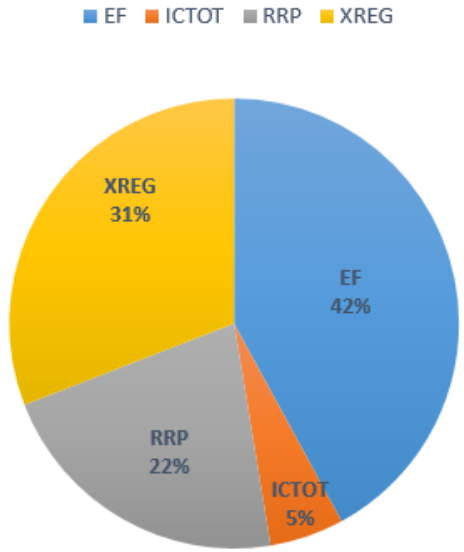
MUAC provisional results of Customer Initiative 2021

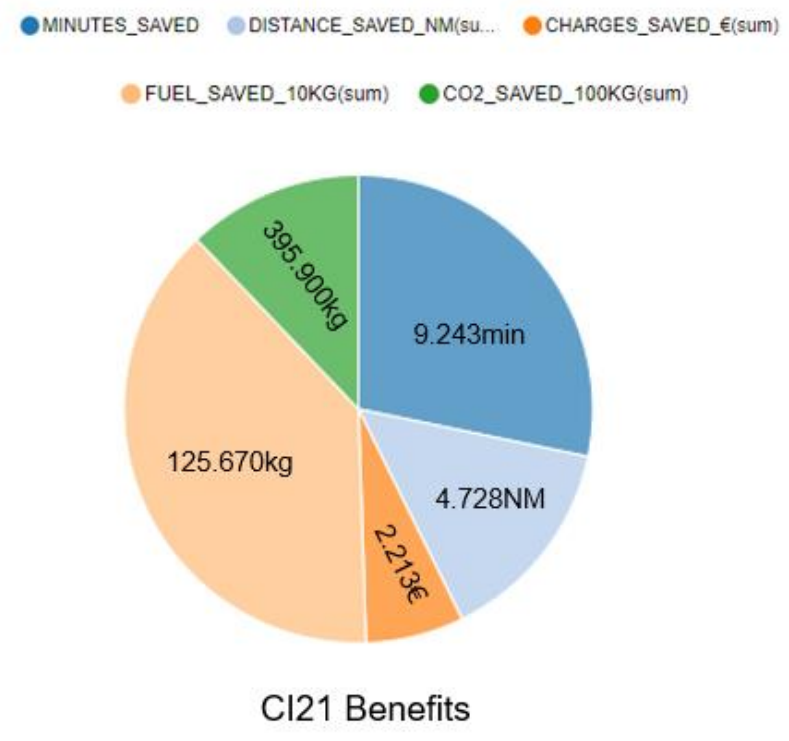
Maastricht Upper Area Control Centre

member of FABEC

Pre Flight Check / Major Results (Provisional)

- From 15-Sept until 15 Nov 2021, MUAC in partnership with ATC units in core Europe, over 80 Aircraft Operators and the network management, generated Flight Improvements for over 1700 flights using various new procedures and tools.
- Results are being compiled and analysed for a final report before end 2021





CI21 Benefits

MUAC / CI21 with Vertical Flight Efficiency

- The 2 elements in PFC / CI21 with strongest relevance to VFE are:
  - Re-filing advise allowing flights more fuel optimum cruising levels, overriding network constraints that prohibit such profiles when and where feasible and acceptable
  - Tactical acceptance of flights at higher levels, being pre-dominantly flights planned in lower airspace due to network constraints but for which room to cruise in Upper Airspace could be found.

Improved profiles:	**1298**	**Flights**
Improved levels:	**72924**	**Flight levels**
Average improvement per improved flight:	**5600**	**Feet**

Thank you for your kind attention!