



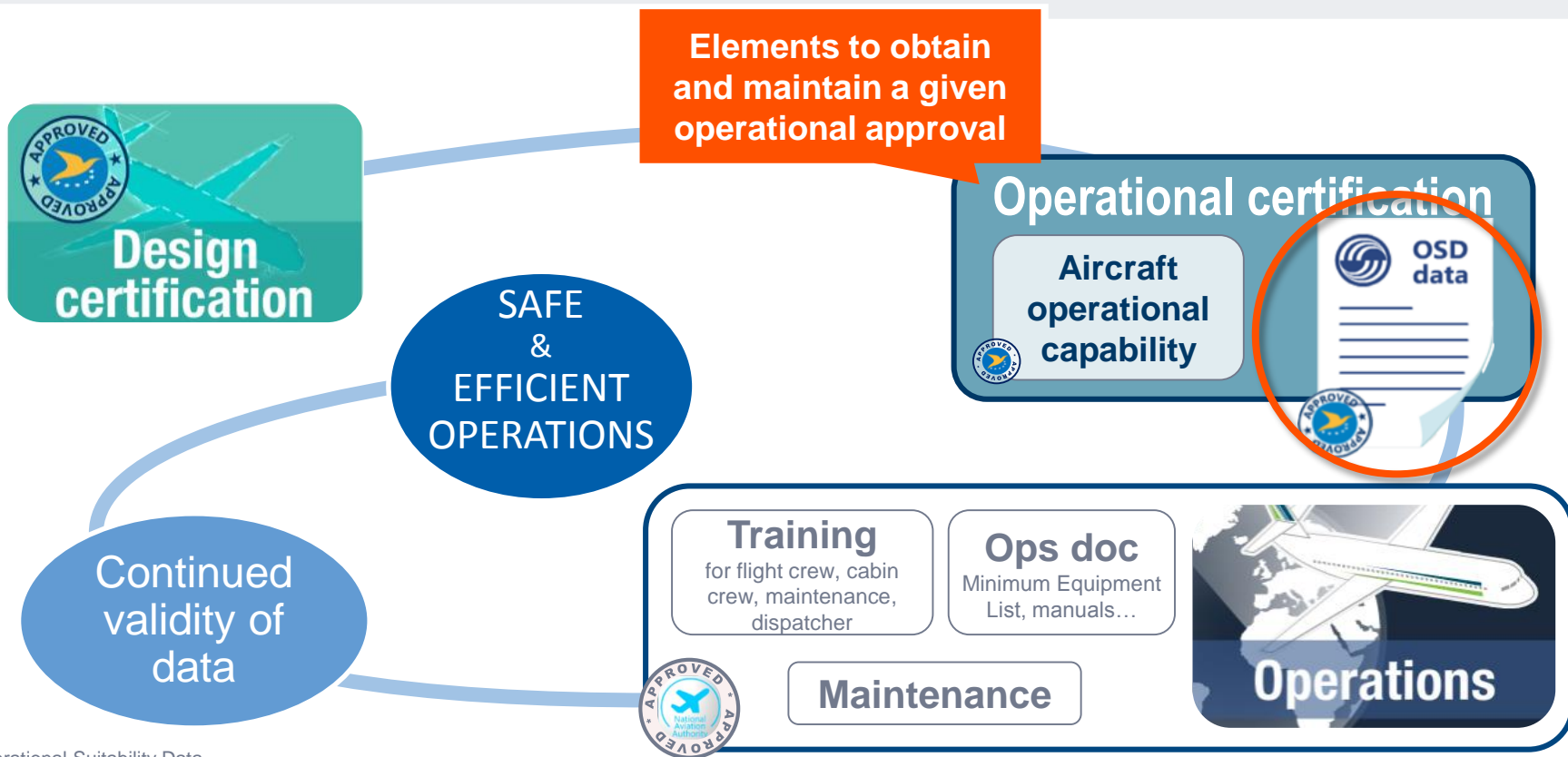
Airbus

Captain Vincent Sibelle

Use of the data: Mandatory vs Non- Mandatory Items

Aircrew Training Conference
Cologne, 6 September 2017

OSD for Airbus as Manufacturer: Objective



OSD: Operational Suitability Data

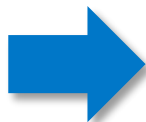
OSD for Airbus as **Manufacturer**: Flight Crew report

For Operators & Training Organization



Mandatory data (to comply with)

- Aircraft type designation
- Pilot license endorsement
- Operator Difference Requirements (ODR)
- Training Areas of Special Emphasis (TASE)
- Credits for Single & Mixed Fleet Flying (S/MFF)



Acceptable Means of Compliance (recommendations)

- Type rating course overview (footprint)
- Training requirements for specific operations

OSD for Airbus as Approved Training Organization (ATO)

Airbus as Training Organization

Inputs

- Mainly EASA Part FCL & FAA Part 142
- + Other Parts ORA – ORO – CAT – SPA
- + Safety Information Bulletin (SIB)
- + OSD TASE
- + UPRT, OPS feedback...

Course Building

- Training Concept:
 - ✓ Pedagogical Approach
 - ✓ Training Devices...
- Elementary Training Items → Based on Inputs (~ 500 items)

Outputs

- Flight Crew Training Program (FCTP) including
 - ✓ Licensing training (Type rating) → EASA Approved by French DGAC
 - ✓ Ops training → To be approved by Operator NAA
 - ✓ Compliance matrix → By reference to applicable material

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Operator Difference Requirements (ODR) table



For Airbus as Manufacturer

- + Mean to define the minimum training content & training devices



ODR Table – A330-200 Enhanced to A350-900 – Flight Crew

BASE AIRCRAFT: A330-200 Enhanced		CANDIDATE AIRCRAFT: A350-900		DIFFERENCE LEVELS			
MANEUVERS - ABNORMAL OPERATIONS	DIFFERENCES	FLT CHAR	PROG	TRNG	CHECK	CUR	
70 - POWER PLANT ENGINE FAILURE	Easier: implementation of yaw compensation law ECAM: procedure change	No	Yes	C	C		

For Airbus as Training Organization

- + Mandatory elements to be considered in course building in order to get Credits between Types

AIRBUS A350 XWB FLIGHT CREW INSTRUCTOR DATA	Difference Course from A330 to A350 SESSION 3	VFQGA/H Page 2 of 7 ISSUE - NOV 2015
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TIME	EVENTS				
INIT FL350					
01	7. ENGINE FAILURE IN CRUISE (NO DAMAGE)			AP	PD A/THR
<ul style="list-style-type: none">• ENG 1 FAIL<ul style="list-style-type: none">◦ Insert POWERPLANT – ATA 70A – ENG FAIL (NO DAMAGE) – ENG 1.<ul style="list-style-type: none">➢ Insist on the sequence of the action, crew must deal with the traffic, with the failure, and with the possible obstacle.➢ Explain the difference between EO REC MAX and EO Drift down altitude on PERF page.• Continue the procedure to a successful ENGINE RELIGHT (to train ABNORMAL NOT-SENSED proc). <p>ATC "Airline 353, descent FL150, proceed direct to OKRIX"</p>					

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Training Areas of Special Emphasis (TASE)

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- + High level training requirements (knowledge & skills) compulsory for pilot training
- + May be applicable to all Airbus types, a particular fleet or a single type or variant
- + May be supported by an AMC part of the OSD

7.4.2 TASE applicable only to the A350 and A380

A350 features that must receive special emphasis in an A350 Standard Type Rating course as well as in the A330-A350 CTR difference training and the CCQ courses to the A350 (except the A380-A350 CCQ course):

- CRM:
 - Strict respect of SOP's when using FMS and OIS to avoid both pilots head down
- FMS / MFD:
 - New interface using the KCCU
 - Knowledge and use of new specific FMS features and functions
 - Knowledge of back-up systems associated with the MFD such as software control the FCU

7.4.1 TASE applicable to all Airbus Fly-By-Wire family aircraft

All the following characteristics of the Airbus Fly-By-Wire family must be emphasized during A330 and A350 training and are common to all the Airbus Fly-By-Wire family aircraft: A320, A330, A340, A350 and A380 family.

- Fly-By-Wire : the following must be included in both initial and recurrent training:
 - Knowledge of flight characteristics and the degree of flight envelope protection provided by the various flight control laws for pitch, roll and yaw control.
 - Procedural and handling consequences following multiple failures that result in alternate or direct law, both at low and high altitude. (Refer to AMC in Appendix 3)
 - Knowledge of the use of side stick controller with a special emphasis on the relationship between the two controllers and the transfer/takeover of control.

Appendix 3. [AMC] Appendix associated to Fly by Wire TASE

Procedural and handling consequences following multiple failures that result in alternate or direct law, both at low and high altitude

1 FSTD specification

The FSTD used must be suitable for the purpose and compatible with the following control laws specifications:

1.1 Alternate law specification to be used for handling qualities exercises:

	A320	A330/340	A350	A380
Law	Alternate without reduced protections	ALT 2	Alternate	ALT 2A/2B
Pitch	Similar to Normal	Similar to Normal	Similar to Normal	Similar to Normal
Roll	Direct	Direct	Similar to Normal	Direct ¹
Yaw	Alternate	Alternate	Similar to Normal	Direct ¹
Protections				

¹ There is no low speed
² There is no high speed
³ See corresponding
⁴ Depending on the law

1.2 Direct law

In direct law:

- Pitch and roll
- Yaw is:
 - Direct
 - Alternate
 - Mechanical

2 Options available

3 Scenarios

Below are recommended scenarios for compliance with the TASE:

NOTE:

The following scenarios need to be included into initial transition, but need also to be considered for recurrent training. However for recurrent training they have to be included so that all scenarios are covered over a period not exceeding 3 years.

3.1 Aircraft configuration and environmental recommendations

The proposed exercises should be run in the following conditions:

3.1.1 Aircraft configuration

- Weight: Maximum Landing Weight (MLW)
- CG: Mid CG.

3.1.2 Weather

- VMC, or IMC, or night
- No turbulence

3.1.3 Altitude

- Low altitude definition: When performing exercises or maneuvers at low altitude, the aircraft should be flown between FL100 and FL150.



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Course overview (footprint)

For Airbus as Manufacturer

+ High level syllabus

AIRBUS

OPERATIONAL AIRCRAFT DATA - FLIGHT CREW - A330-300
Operational Suitability Data Right-Of-Report

Version 1.0
Date 10 May 2017

Appendix 12. [AMC] A330 to A350 Difference Training (with and without HUD)

Prerequisite: Qualified and current on A330

Day 1	Day 2	Day 3	Day 4	Day 5
CREW registration WELCOME Briefing (1h) ACE Presentation (1h) PERFORMANCE Course (4h) Day 1 (HUD)	ACE Day 6 or 7 (HUD)	ACE FMST (2h) Day 7 or 8 (HUD)	ACE SOPs (2h) ACE (1h) System Test (2h30) Day 8 or 9 (HUD)	FFS 1 Or FTD 1
FFS HUD (OPTION)	FFS 2 Or FTD 2	FFS 3 Or FTD 3	FFS 4 Or FTD 4	

PTT: Part Task Trainer – ACE-FMS Trainer (description in Appendix 15)
FTD Level 2: Flight Training Device qualified Level 2 as per EASA CS-FTD and Level 6 under FAA Part 60



For Airbus as Training Organization

+ Detailed Flight Crew Training Program (FCTP)

PART I - TRAINING PLAN

1. Aim of the course

Issue of Type Rating qualification on Airbus A350

Note: Type Rating A350 based on Simulator configuration standard 1.0

2. Pre-Entry Requirements

English

a. English Language Proficiency Rating of 4, 5 or 6

b. Fluency in English
(able to write, read and communicate at an adequately understandable level in English language)

Licensing

Valid ATPPL (Air Transport Pilot License) or Valid CPL & Frozen ATPPL (Air Transport Pilot License)

Qualification

a. Holds a multi-engine instrument rating valid until the skill test of the training course

b. Have a valid type rating on CS235 aircraft based on the License, or hold a certificate of satisfactory completion of multi-engine operation (MCC)

c. Hold or have held a type rating on jet aircraft,

or hold a certificate of satisfactory completion of jet familiarization course.

(1) CS235 Multi-pilot turbo-prop transport category airplane

(2) multi-pilot turbo-prop airplane with maximum take-off weight above 18 tons

Experience

Minimum of 200 hours as Pilot

3. Training Syllabus

DAY 1	DAY 2	DAY 3	DAY 4	
Crew Registration Welcome Briefing (1h) ACE Presentation (1h) Performance Course (4h)	Theoretical Knowledge (Systems) (FMST) (2h)	Theoretical Knowledge (SCPs) (2h) (Systems) (1h) (System Test) (2h30)		
DAY 5	DAY 6	DAY 7	DAY 8	DAY 9
FTD 1	FFS HUD (OPTION)	FTD 2	FTD 3	FTD 4

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PART II - FLIGHT TRAINING IN FSTD

1/ Air Exercises

Session	FTD 1
Cockpit General Presentation, Cockpit Preparation, Before Takeoff, Climb, Cruise, Approach Task, Descent, Approach In, Landing, After Landing, Parking / Securing Aircraft.	
Session	FFS HUD
Cockpit Preparation, Hold Deployment And Setup, Taxi Out, Before Takeoff, Takeoff, Climb, Cruise, Approach In, Landing, Crosswind Takeoff, Visual Approach, Crosswind Landing, Takeoff Engine Fail (damaged), Approach Rear Cross (dry), Landing One Engine Out.	
Session	FTD 2
Cockpit Preparation, Engine Start - After Start, Before Takeoff, Climb, Cruise, Landing, 1 + 2 Failure, Approach Low Only, Stall (Go-around), Approach High (dry), Landing, After Landing, Cruise - Wing Flap, Fuel Backup, Holding Pattern, Parking / Securing Aircraft.	
Session	FTD 3
Cold Weather Environment, Cockpit Preparation, Engine Start - After Start, Before Takeoff, Fuel Imbalance, Descent, Dual Hydraulic Failure, Approach No Low Only, Landing - Fuel, Emergency Evacuation, Approach Low Only, Engine Failure in Cruise, Engine Failure, Rotor, Demolition Preparation, Approach Rear Cross, Takeoff Demonstration, Go-around, Approach In, Stop Demonstration, After Landing, Parking / Securing Aircraft.	
Session	FTD 4
Cockpit Preparation, Engine Start - Before Takeoff, Unstable Air Speed Situation, Elec. Emer, Approach No Low Only, Landing - Fuel, Emergency Evacuation, Engine Failure, Descent, Avionic Smoke, Approach After Landing, Parking / Securing Aircraft.	

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Compliance Matrix

For Airbus as Training Organization

+ To be in accordance with Inputs

AIRBUS		APPENDIX 1	A350 Advanced B&C
A350 FLIGHT CREW INSTRUCTOR DATA		FCL Compliance Matrix	Issue JUL 2017

The following items are not applicable c		AIRBUS	APPENDIX 4	A350 Advanced B&C
Practical Test Standards		A350 FLIGHT CREW INSTRUCTOR DATA	Safety Information Bulletins Compliance Matrix	Issue JUN 2017
Flight Task Areas of operation				
Flight Preparation	1.1 Performance Calculation	Not Applicable		
	1.2 Airplane external visual inspection	Not Applicable		
	1.3 Cockpit inspection	Not Applicable		
	1.4 (M) Load of checklist prior to starting engine, starting procedures, radio and navigational equipment check, selection and setting navigation and communication frequency	Not Applicable		
	1.5 Training in compliance with air traffic instructions of instructor	Not Applicable		
Take-offs	1.6 (M) Before take-off checks	Not Applicable		
	2.1 Normal take-offs with different flap settings	Not Applicable		
	2.2 Instrument take-off: transition to normal instrument flight or immediate becoming airborne	Not Applicable		
	2.3 Crosswind take-off	Not Applicable		
	2.4 Take-off at maximum take-off mass	Not Applicable		

AIRBUS		APPENDIX 2	A350 Advanced B&C
A350 FLIGHT CREW INSTRUCTOR DATA		UPRT Compliance Matrix	Issue JUL 2017

Exercise		Code	Frequency	FFS 1 ADV_A	FFS 1 ADV_B	FFS 1 ADV_C	FFS 2 ADV_A	FFS 2 ADV_B	FFS 2 ADV_C	FFS 3 ADV_A	FFS 3 ADV_B	FFS 3 ADV_C	FFS 4 ADV_A	FFS 4 ADV_B	FFS 4 ADV_C	FFS 5 ADV_A	FFS 5 ADV_B	FFS 5 ADV_C
RA Recovery from developed upsets		RA1	0	3	3													
Timely and appropriate intervention		RA1	0	3	3													
Recovery from stall events in take-off configuration		RA2	2	1	1													
Recovery from stall events in clean configuration low altitude		RA2	2	1	1													

AIRBUS	APPENDIX 3	A350 Advanced B&C
A350 FLIGHT CREW INSTRUCTOR DATA	OSD Compliance Matrix	Issue JUL 2017

Not Applicable on A350

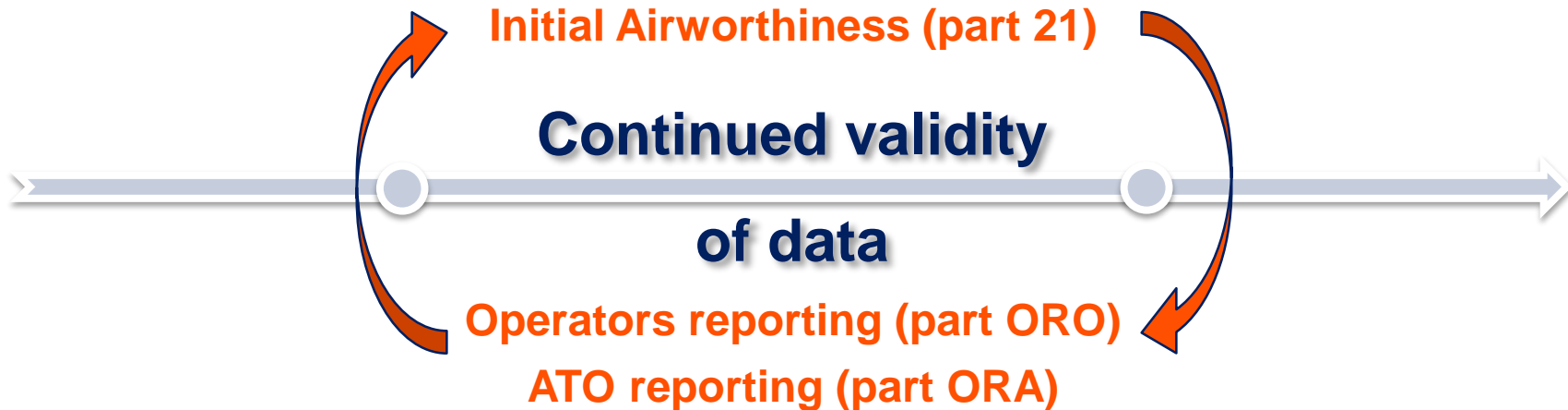
Exercise	Code	Frequency	Occurrence																	
			Total	T1	FF	ADV_A	ADV_B	APT_1- ADV_B	APT_2- ADV_B	APT_3- ADV_B	APT_4- ADV_B	FFS_HUD	FFS_2	APT_1- ADV_B	APT_2- ADV_C	FFS_3	APT_3- ADV_C	FFS_4	APT_4- ADV_C	FFS_5
OTT																				
OTT 999 0158 15 TRAINING FOR UNRELIABLE AIRSPEED AT HIGH ALTITUDE																				
Training	0T1.1	2	1	1																
Consolidation	0T1.2	2	1	1																
OTT 999 0160 15 HOW TO ACHIEVE ALTN LAW IN AN FSTD	0T2	4	2	2																
OTT 999 0161 15 HIGH ALTITUDE HANDLING normal law handling	0T3.1	2	1	1	X	X														
alternate law handling and stall	0T3.2	2	1	1																
OTT 999 0162 15 HOW TO ACHIEVE UNRELIABLE AIRSPEED IN AN FSTD	0T4	6	3	3																
OTT 999 0077 16 FSTD SCENARIOS FOR UPSET RECOVERY TRAINING	0T5	2	1	1																
OTT 999 0027 15 RECOMMENDED TRAINING FOR PILOT MONITORING ROLE	0T6																			
OTT 999 0028 15 USE OF FSTD FOR UPSET RECOVERY TRAINING	0T7	2	1	1																

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→ Design change, Follow-up of in-service event...



→ Reporting of inaccurate or incomplete information to Airbus

Airbus Training Organization

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