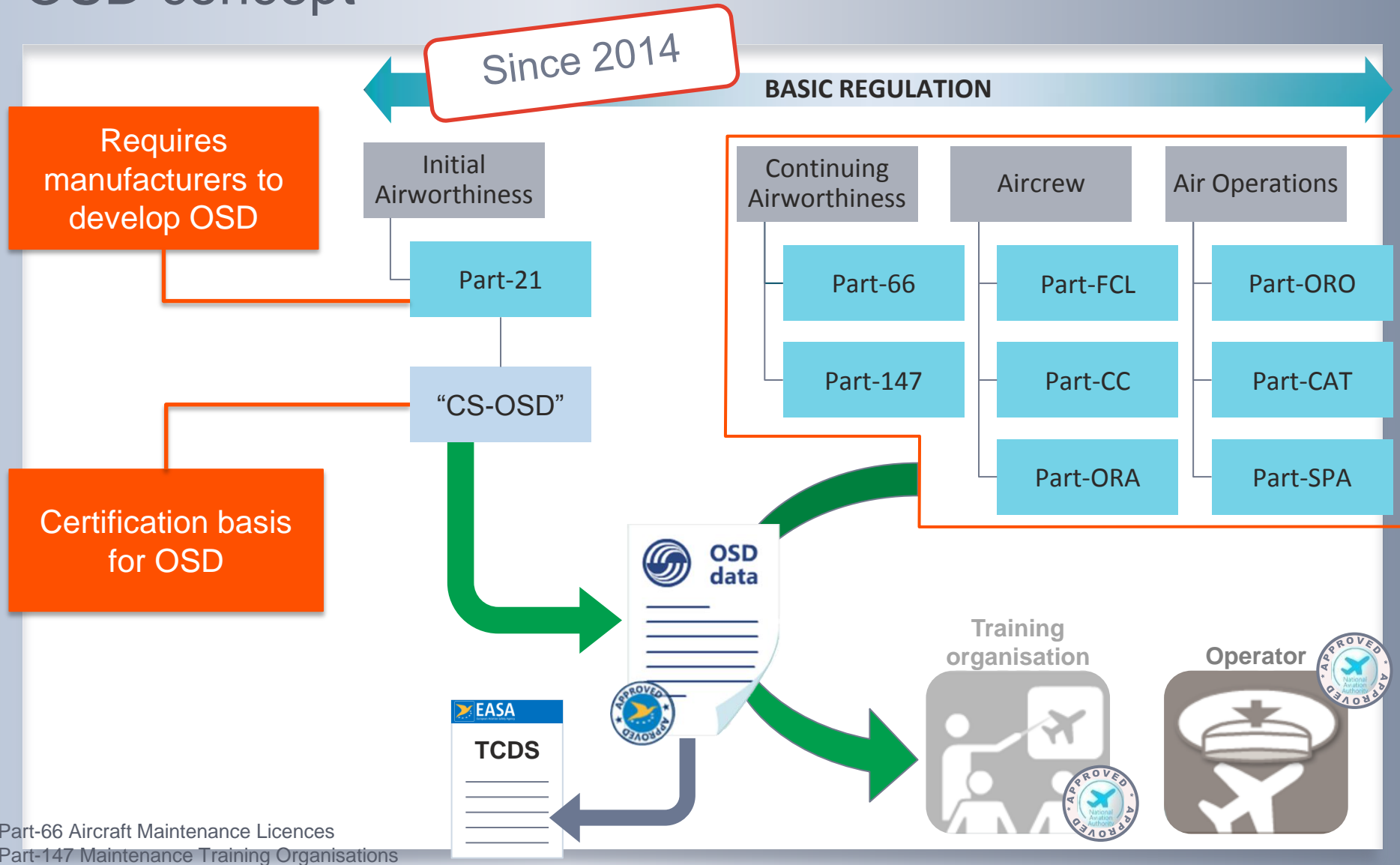


The TC holder's perspective
Cologne, 6th October 2015.

A350XWB **Operational Evaluation**

Regime VADROT
HO Training & Operational Certification

OSD concept



Part-66 Aircraft Maintenance Licences
Part-147 Maintenance Training Organisations

CAT: Commercial Air Transport ops
CC: Cabin Crew

CS: Certification Specifications

FCL: Flight Crew Licence
ORA: Organisation Requirements for Aircrew
ORO: Organisation Requirements for air operations

OSD: Operational Suitability Data
SPA: SPecific Approvals
TCDS: Type Certificate Data Sheet

What's Operational Suitability Data?

Operational Suitability Data

Mandatory

Data mandatory for the end user to comply with operational or training requirements

Non Mandatory (recommendations)

Acceptable Means of Compliance (AMC) to operational or training requirements for the end user
(one mean but not the only one)

A350 OSD pilot case

A350
In Focus



EASA – FAA joint process
Launched in 2010

Flight Crew:

- A350 Training Areas of Special Emphasis TASE
- A330 – A350 CTR
- A320, A340, A380 CCQs to A350



A350 FSTD
Validation
Source
Data

Cabin Crew:

- A350 Type Specific Data
- A330-A340 and A350 one type for Cabin Crew



Electronic
Flight Bag
Head-up-
Display



MMEL

A350XWB Status

MMEL



Master Minimum Equipment List (MMEL)

Content of Airbus MMEL

Mandatory

Approval status

Preamble

List of items
with dispatch conditions

Non mandatory

Introduction

Criteria for dispatch

Operational procedures

Maintenance procedures

Non-OSD

MMEL entries / dispatch
messages

Other additional
information

Master Minimum Equipment List (MMEL)

The screenshot displays the Master Minimum Equipment List (MMEL) software interface. The top navigation bar includes buttons for QUICK ACCESS, MANUALS, BOOKMARKS, and SEARCH. Below this, there are tabs for INFO, 1, 2, 3, and NOTE. The main content area is titled "Master Minimum Equipment List" and shows a list of documents. The left sidebar contains a tree view of the manuals, with "Master Minimum Equipment List" selected. The right-hand panel shows classification labels: "Non-OSD", "Mandatory", and "Non-mandatory". Arrows point from these labels to the corresponding documents in the list.

Path : MMEL

Master Minimum Equipment List

- [LIST OF EFFECTIVE DOCUMENTARY UNITS](#) (Non-OSD)
- [LIST OF MODIFICATIONS](#)
- [GENERAL SUMMARY OF HIGHLIGHTS](#)
- [General Information](#)
- [Dispatch Messages](#) (Mandatory)
- [MMEL Items](#)
- [MMEL Operational Procedures](#) (Non-mandatory)

General overview of A350 OEB/MMEL activity

- MMEL Conferences with the EASA & FAA
- Participation of A350 Customers



- A350 OEB/MMEL activity started in Feb-2011
 - 9 meetings held in 2011
 - 8 meetings held in 2012
 - 5 meetings held in 2013
 - 3 meetings held in 2014

General overview of OEB/MMEL activity

- 1st EASA approval received in November 2014.
- Since January 2015, periodic revision planned for updates.
- FAA MMEL approval awaited in in fall 2015.

EUROPEAN AVIATION SAFETY AGENCY

MASTER MINIMUM EQUIPMENT LIST

Revision date:
06 Nov. 2014

Revision reference: D14035887

TYPE A350

REVISION: 06 Nov. 2014

This Master Minimum Equipment List (MMEL reference: STL 35100) is approved by the European Aviation Safety Agency (EASA) at the above revision under the Type Certificate (EASA TC No. A.151) as part of the Operational Suitability Data (OSD) as per Regulation (EU) 748/2012 as amended by Regulation (EU) No. 69/2014.

Signed by



David Solar
For and on behalf of the EASA

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31700 Blagnac
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Attention: Large Transport Aeroplanes Section

Attention: Director A350 Flight Operations &
Training Support

1 September 2015



OPERATIONAL SUITABILITY DATA (OSD) APPROVAL

10053884

This Operational Suitability Data (OSD) Approval is issued by EASA, acting in accordance with Commission Regulation (EC) No. 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of the Regulation to

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FRANCE

and certifies that the Operational Suitability Data elements listed below are approved by the European Aviation Safety Agency under the EASA Type Certificate **EASA.A.151** as part of the Operational suitability Data (OSD) as per Commission Regulation (EU) 748/2012 as amended by Commission Regulation (EU) No 69/2014.

OSD element(s): Airbus A350 EASA Master Minimum Equipment List (MMEL) – September 2015 revision

OSD Certification basis:

As per CRI A-01 closed at Issue 3 dated 29 September 2014, the applicable certification basis for the establishment of Operational Suitability Data (OSD) MMEL is:

- CS-MMEL, Initial Issue, dated 31 January 2014 (Book 1 only).

Associated technical documentation:

A350 MMEL – September 2015 revision (ref. D15026836)

For the European Aviation Safety Agency,

Date of issue: 1 September 2015

Alain Leroy

Head of Large Aeroplanes Department

10028897
Operational Suitability Data Approval – 10053884/0010028897 – AIRBUS SAS

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A350XWB Status

OSD Cabin Crew



Cabin Crew Data – Results of process

Cabin Crew Data

Mandatory

Type or Variant determination

Operator Difference
Requirements (ODR) tables

Type Specific data

Cabin Areas of Special
Emphasis (CASE)

Non Mandatory

Other Cabin Crew related
elements:

e.g. Door Training devices

Cabin Crew Data – Type rating determination

Base aircraft
A330



EASA and FAA have commonly agreed,
that A330 & A350 doors present
similar characteristics and operations.



EASA



**Federal Aviation
Administration**

- Door arming/disarming
- Direction of movement of the operating handle
- Direction of door opening
- Power-assist mechanism
- Assisting evacuation means

Candidate aircraft
A350



**OSD A350 CC
§ 10**

**Doors operations in all modes have been assessed as similar.
Consequently practical door training may occur in either the A330 or the A350,
provided difference briefing is completed.**

Cabin Crew Data – ODR (ADT in EASA terms)

Operator Difference Requirements (ODR) table

Mean of compliance for the aircraft type rating determination

To be used and customized by operators when developing difference training program

Example:

BASE AIRCRAFT: A330-200/-300		CANDIDATE AIRCRAFT: A350-900		DIFFERENCE LEVELS	
SYSTEMS	DIFFERENCES	DESC	OPS	TRNG	CHECK
DOORS and EXITS Controls and indicators Door actuation controls	On the candidate aircraft, the gust lock release pushbutton is located on the hinge arm assist handle, whereas on the base aircraft it is located on top of the hinge arm	YES	NO	1	--
DOORS and EXITS Controls and indicators Door actuation indicators	On the candidate aircraft, the door locking indicators are located underneath the observation window, whereas the door locking indicators on the base aircraft are located on the top part of the door.	YES	NO	1	--

Impact assessment

Difference Training Levels
(from 1 to 3)

Systems

Description of the identified differences

Cabin Crew Data – Type specific data and CASE



Type specific data for cabin crew



OSD A350 CC
§ 6

Description of aircraft system for cabin duties. Elements currently provided in Cabin Crew Operating Manual.

Example: controls and indicator panel, Flight Attendant Panel (FAP)

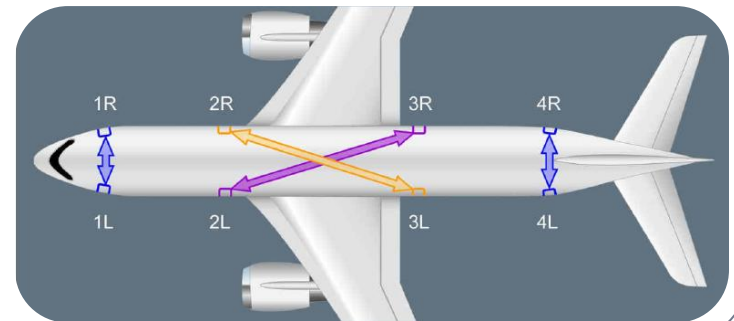
Cabin Aspects of Special Emphasis (CASE)

Elements identified during airworthiness certification and to be included in procedures by operators.

Example: specific slideraft transportation path



OSD A350 CC
§ 7



22 July 2015



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OSD element(s): Cabin Crew Data-Operational Suitability Data for A350 - Initial Approval

OSD Certification basis:

CS-CCD, Initial Issue, dated 31 January 2014

Associated technical documentation:

A350 Operational Suitability Data Cabin Crew (Ref.: Airbus V01RP1519368 Issue 1.0. dated 03 July 2015).

For the European Aviation Safety Agency,

Date of issue: 22 July 2015


for Alain Leroy
Head of Large Aeroplanes Department

10018889

Operational Suitability Data Approval – 10053878/0010028897 – AIRBUS SAS

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Example of use of OSD by end-users and benefits

OSD**Type determination for cabin crew****Optimization of cabin crew pool**

A330 / A340 / A350 Type
for cabin crew



Aircrew Part CC
CC.TRA.225

AirOps Part ORO
ORO.CC.250

A320 Type
for cabin crew



A380 Type
for cabin crew



A350XWB Status

**OSD
Flight Crew**

Flight Crew Data – Results of process

Flight Crew Data

Mandatory

Type or Variant determination

Pilot licence endorsement

Operator Difference
Requirements (ODR) tables

Training Areas of Special
Emphasis (TASE)

Non Mandatory

Type Rating course overview
(footprints)

Training requirements for
special operations (e.g. LVO)

Status at A350 Type Certification



- **Completed operational evaluation tests as per:**
 - **EASA CS-FCD and FAA AC 120-53B**
 - 😊 T-2 Test A330 → A350 (handling qualities)
 - 😊 T-3 Test A330 → A350 (differences training)
 - 😊 T-2/T-6 Test A320 → A350 (handling qualities and Common Take-off and Landing Credits – CTLC)
 - 😊 T-5 Test A350 (full initial type rating)
 - 😊 T-3 Test A320 → A350 (reduced type rating - CCQ)

18 authorities pilots

125 Landings and 35 flight hours

16 September 2014



Flight Crew Data : Type rating designation



OSD A350 FC
§ 4

4 Aircraft Type Designation and Pilot Licence Endorsement [M]

With reference to Part-FCL, FCL.010 ('type of aircraft') and GM1 FCL.700, the A350-900 aircraft has been evaluated for aircraft categorisation and licence endorsement.

The A350-900 and A330 series aircraft have been assessed as requiring maximum Level D differences training, allowing thus a single licence endorsement.

The licence endorsement is established as A330/350.

EASA Type Rating & Licence Endorsement List – Aeroplanes:

Manufacturer	Aeroplane Model / Name	Licence Endorsement	Complex Aircraft	SP / SP HPA / MP	OSD FC available
Airbus	A330 - 300 series - 200 series - 200 F	A330/350 (D)	X	MP	X
	A350 -900 series				

Flight Crew Data – TASE

Training Areas of Special Emphasis (TASE)



OSD A350 FC
§ 7.3

Training requirements for type rating and differences

Example:

- FMS / MFD
- Use of electronic checklist
- Use of OIS



Flight Crew Data – ODR

Operator Difference Requirements (ODR) table



OSD A350 FC
§ 6

Mean of compliance for the aircraft type rating determination

To be used and customized by operators and training organizations when developing differences training program

Example:

BASE AIRCRAFT: A320 (MSN 4465)		CANDIDATE AIRCRAFT: A380-800 (MSN 113)		DIFFERENCE LEVELS		
SYSTEMS	DIFFERENCES	FLT CHAR	PROC CHG	TRNG	CHECK	CUR
ATA 22 - AUTOFLIGHT Controls and indicating	- MFD: • New MFD to replace the MCDU (including ATC COM and SURV) • New KCCU to interact with the MFD and the ND (vertical display) - FCU • Modified FCU (1 FD pb only) • TRUE / MAG pb is on FCU: new • No push to level off function • New ALT pb, EXP pb is removed • No white dots - EFIS control: • New EFIS CP (AESS, TAXI, ZOOM, VV) • Baro reference pb (push for STD baro) and pre selection • Range 640 NM - New ECAM messages - New ACUTE control for engines (interface with FADEC) <i>Refer to ODR manoeuvres for system operation and HMI</i>	No	Yes	C	C	B 3 years

Impact assessment

Difference Training Levels
(from A to E)

Systems

Description of the identified differences

Footprint A330 to A350 Differences Training



Prerequisite : Qualified and current on A330




OSD A350 FC
Appendix 6

Day1	Day 2	Day 3	Day 4	Day 5
CREW registration SYSTEM KNOWLEDGE & PTT	SYSTEM KNOWLEDGE & PTT	SYSTEM KNOWLEDGE & PTT	SYSTEM KNOWLEDGE & PTT	FTD Level 2 1
Day 6	Day 7	Day 8		
FTD Level 2 2	FTD Level 2 3	FTD Level 2 4		


PTT: Part Task Trainer – ACE- FMS Trainer

FTD Flight Training Device qualified Level 2 as per EASA CS-FSTD or Level 6 under FAA Part 60

29 July 2015



OPS - FLIGHT CREW A350
Operational Suitability Data



Operational Suitability Data (OSD)
Flight Crew
A350
MAY 2015

For model(s): A350-900

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OPERATIONAL SUITABILITY DATA (OSD) APPROVAL

10053881

This Operational Suitability Data (OSD) Approval is issued by EASA, acting in accordance with Commission Regulation (EC) No. 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of the Regulation to

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and certifies that the Operational Suitability Data elements listed below are approved by the European Aviation Safety Agency under the EASA Type Certificate **EASA.A.151** as part of the Operational suitability Data (OSD) as per Commission Regulation (EU) 748/2012 as amended by Commission Regulation (EU) No 69/2014.

OSD element(s): Determination of the minimum syllabus of pilot type rating training, including determination of type rating (Flight Crew Operational Suitability Data) for A350 as part of Operational Suitability Data (OSD) - Initial Approval

OSD Certification basis:
CS-FCD, Initial Issue, dated 31 January 2014

Associated technical documentation:
A350 Operational Suitability Data (OSD) Flight Crew, (Ref.: Airbus V01RP1505446 Issue 1, dated 05 May 2015).

For the European Aviation Safety Agency,

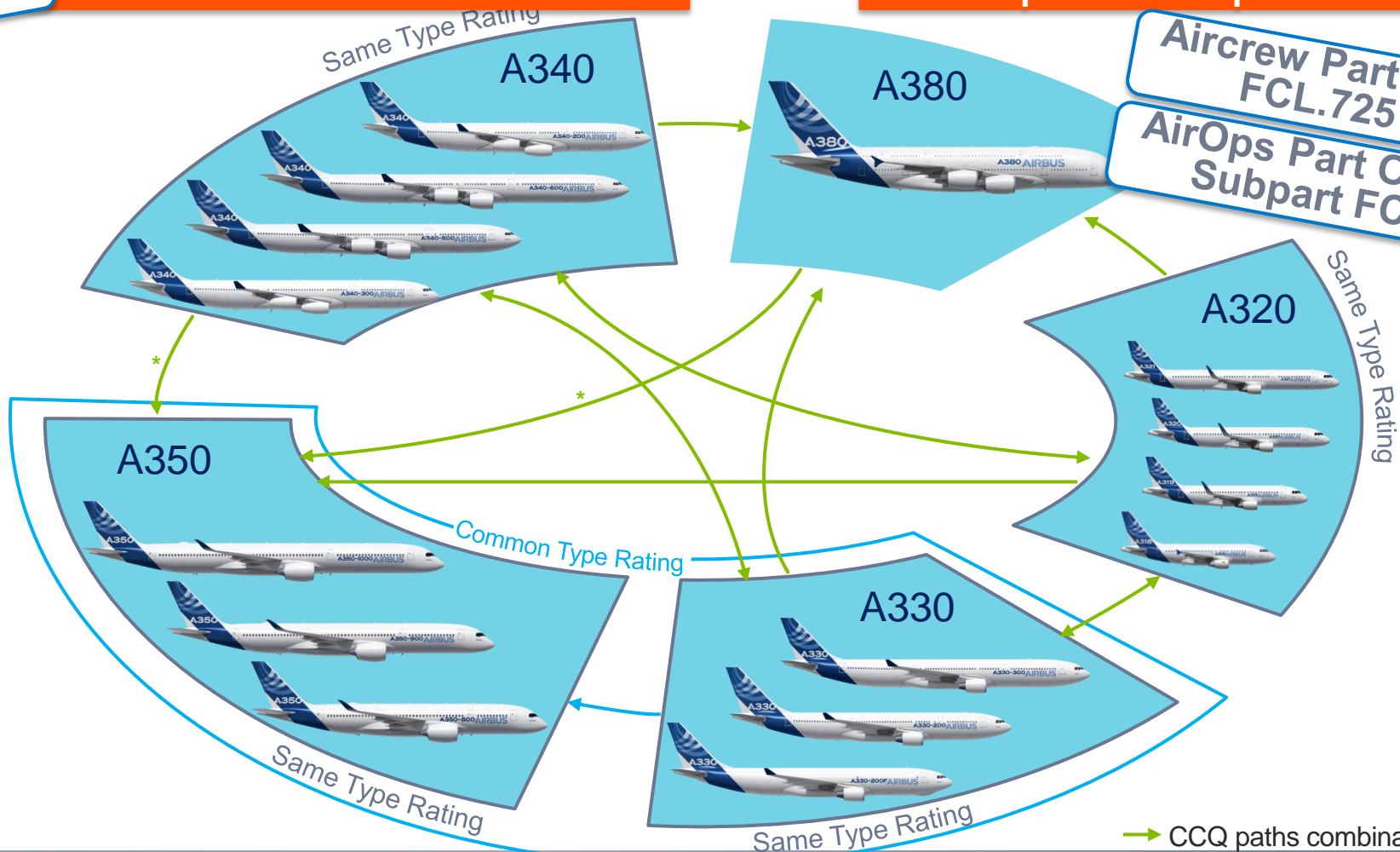
Date of issue: 29 July 2015


Trevor Woods
 Certification Director

10028897
Operational Suitability Data Approval – 10053881/0010028897 – AIRBUS SAS

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Example of use of OSD by end-users and benefits

OSD
Type determination for flight crew
**Optimization of flight crew
qualification path**
**Aircrew Part FCL
FCL.725**
**AirOps Part ORO
Subpart FC**


→ CCQ paths combinations

* subject to regulatory approval



A330 & A350 CTR Implementation & Operational aspects



*Single Fleet Flying
(SFF)*

Example of use of OSD by end-users and benefits

**EASA**

The regulatory requirements

● **RECURRENT TRAINING & CHECKING**

ORO.FC.230 (b) + AMC

- ➔ Regular review of performance and handling in normal, abnormal and emergency situations
- ➔ Proficiency check bi-annually on type

● **RECENT EXPERIENCE/RECENCY OF EXPERIENCE**

FCL.060

- ➔ Recent experience necessary for safe operation
- ➔ 3 take-offs and 3 landings in 90 days on type

● **LINE CHECK**

ORO.FC.230 (c) + AMC

- ➔ Regular review of normal line operations
- ➔ Annually on type

Flying A330 and A350 in single fleet (SFF)



The skills and experience accumulated in A330 can be carried over to the A350 XWB.

A350 is a variant of A330
Single License Endorsement

● **RECURRENT TRAINING & CHECKING**

ORO.FC.230 (b) + AMC

- Regular review of performance and handling in normal, abnormal and emergency situations
- Proficiency Check conducted on **any A330 or A350** is valid for all variants provided differences have been addressed in recurrent training



OSD A350 FC
§ 8.1

● **RECENT EXPERIENCE/RECENCY OF EXPERIENCE**

FCL.060

- Recent experience necessary for safe operation
- Take-offs and landings performed in **any A330 or A350** are valid for all variants.



OSD A350 FC
§ 9.1

● **LINE CHECK**

ORO.FC.230 (c) + AMC

- regular review of normal line operations
- Line check on **any A330 or A350** is valid for all variants.



OSD A350 FC
§ 8.2

Introducing A350XWB into an existing MFF operation



A350 into A330/A340 Mixed Fleet Flying (MFF)

Introduction of A350 into A330/A340 MFF

1. **Prerequisite: qualified and current on the A330**
2. **Difference Training (CTR) from A330 to A350 (Licensing training)**
3. **Type Rating Check:**
 - NONE required, Single License endorsement, completion of difference training to proficiency is sufficient.
4. **Operational training modules if required (HUD, EFB, LVO,...)**
5. **Initial Operating Experience (LIFUS) on the A350 : NONE**
 - However 2 sectors of familiarization flights are to be conducted with a flight crew member designated by the Operator and approved by the competent Authority.
6. **Initial line check on the A350 : NONE**
7. **Consolidation period on the A350: NONE**



OSD A350 FC
§ 12.2.1

*The skills and experience accumulated
in A330 can be carried over to the A350 XWB.*

A330/350 and A340 Mixed Fleet Flying(MFF) can start

Example of use of OSD by end-users and benefits

**EASA**

Operation on more than one type or variant

ORO.FC.240 + AMC

- **RECURRENT TRAINING & CHECKING**

AMC1 ORO.FC.240 (a)(4) (vii) (A)

- ➔ Regular review of performance and handling in normal, abnormal and emergency situations
- ➔ Proficiency check bi-annually on type

- **RECENT EXPERIENCE/RECENCY OF EXPERIENCE**

FCL.060 (b) (4)

- ➔ Recent experience necessary for safe operation
- ➔ 3 take-offs and 3 landings in 90 days on type

- **LINE CHECK**

AMC1 ORO.FC.240 (a)(4) (vii) (B)

- ➔ Regular review of normal line operations
- ➔ Annually on type

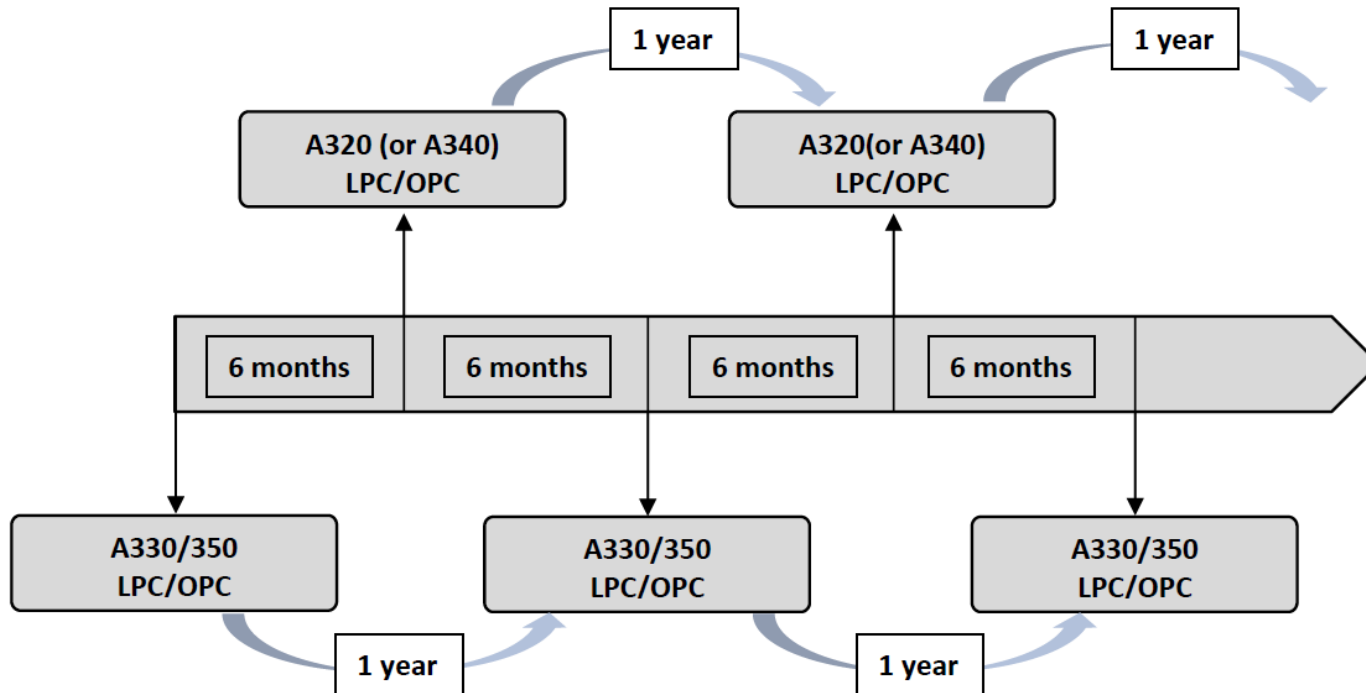
A340-A330/350 Mixed Fleet Flying (MFF)

ORO.FC.240 + AMC1 ORO.FC.240 (a)(4) (vii) (A)

12.2.3 Example of A330/350 and A320 or A340 MFF recurrent training /checking



OSD A350 FC
§ 12.2.3



Note: "A330/350" refers to a recurrent check (LPC/OPC) conducted either on the A330 or the A350 provided that the differences are addressed in the recurrent training as per ODR tables (refer to §8.1)

A340-A330/350 Mixed Fleet Flying (MFF)

FCL.060 (b) (4)

- **CURRENCY and RECENT EXPERIENCE**

➔ recent experience necessary for safe operation



OSD A350 FC
§ 12.2.4



**3 TO & 3 Landings performed in either A340 or A330/350,
At least 1 TO & 1 Landing as PF in each type every 90 days**

A340-A330/350 Mixed Fleet Flying (MFF)

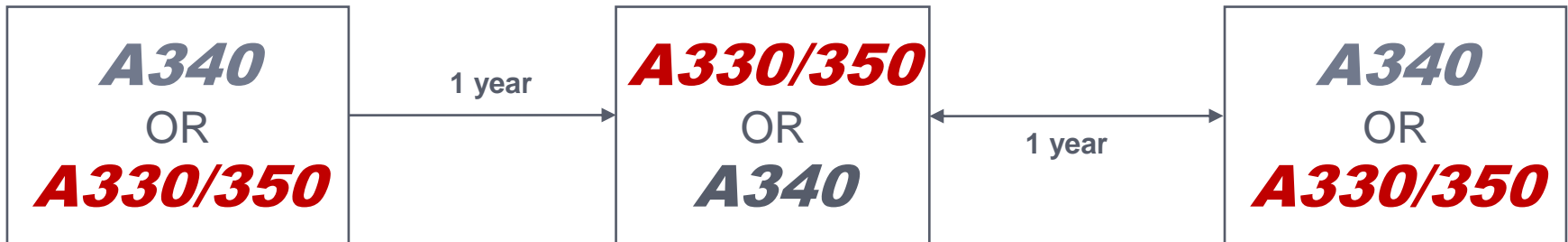
ORO.FC.240 + AMC1 ORO.FC.240 (a)(4) (vii) (B)

- **LINE CHECK**

- regular review of normal line operations
- annually per a/c type



OSD A350 FC
§ 12.2.2



Line check performed on any A340 or A330/350 satisfy the requirement for the other related aircraft

Conclusion

OSD: Bridging certification and operations.

Discussion