

OSD – Flight Crew data

EASA Part 21 Operational suitability data (OSD) Regulatory Obligations

Process Management for the EASA OSD Flight Crew operational evaluation is integrated into the TC Process Management structure

Operational Suitability Data consist of elements which must be provided by the TCH (Manufacturer) and of elements which may be provided:

- Certain data must be provided for each aircraft
- Certain data may be provided by the manufacturer examples are
 - Aircraft type designation and license endorsement
 - Initial type rating syllabus
 - Variant determination and associated differences training syllabus
 - Flight crew requirements for the operation of optional equipment (HUD, EVS, etc.)

- The performance of optional procedures (RNP AR, LVO, Steep Approaches, etc.)
- Credits for Mixed Fleet Flying; Common Take-Off and Landing Credits (CTLC)

Availability of Operational Suitability Data (21.A.62)

The holder of the type-certificate or restricted type-certificate shall make available:

- EU suitability
- (a) at least one set of complete operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the aircraft, before the operational data must be used by a training organisation or an EU operator; and

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(b) any change to the operational suitability data to all known EU operators of the aircraft; and (c) on request, the relevant data referred to in points (a) and (b) above, to:

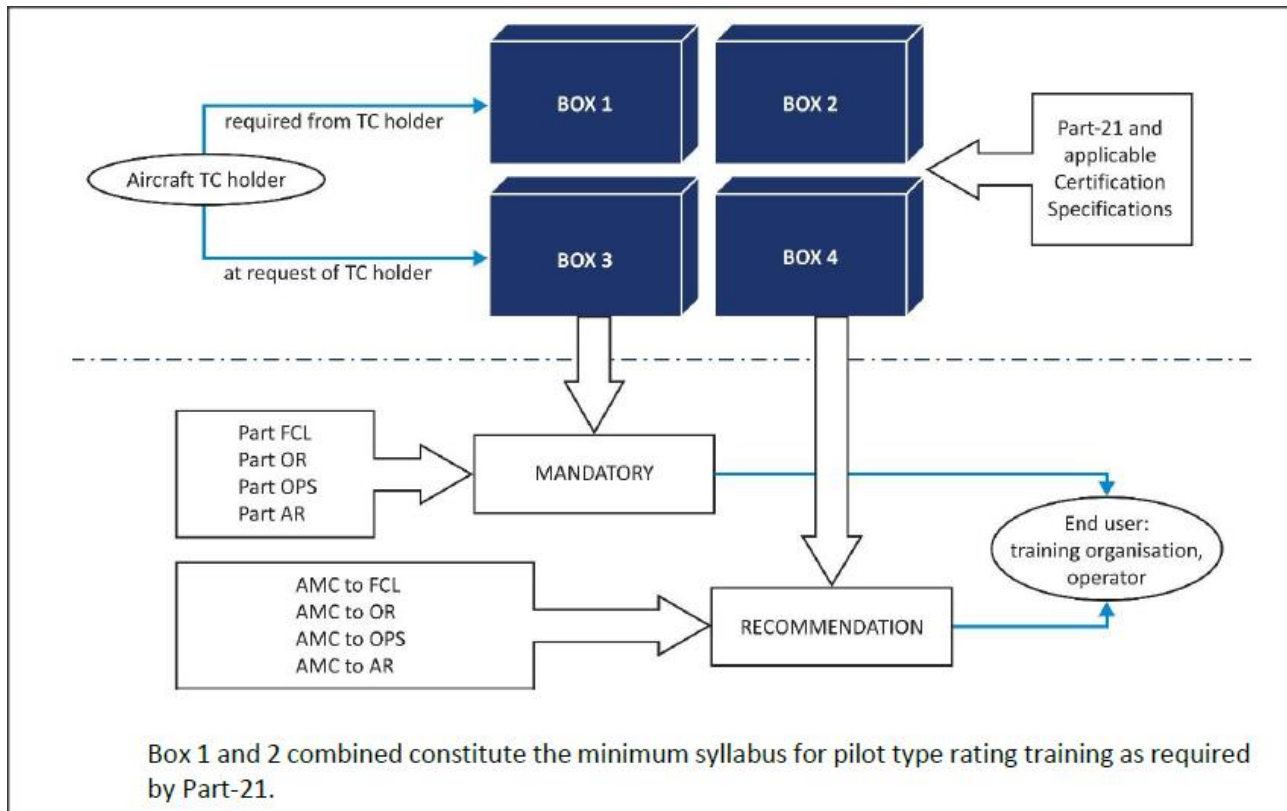
1. the competent authority responsible for verifying conformity with one or more elements of this set of operational suitability data; and
2. any person required to comply with one or more elements of this set of operational suitability data.

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Link between OSD, Air Crew (Part FCL) and Air Operations

ORO.FC.125 Differences training and familiarisation training

- (a) Flight crew members shall complete differences or familiarisation training when required by Annex I (Part-FCL) to Regulation (EU) No 1178/2011 and when changing equipment or procedures requiring additional knowledge on types or variants currently operated.
- (b) The operations manual shall specify when such differences or familiarisation training is required.



<p>Box 1</p> <p>Aircraft type designation and pilot license endorsement</p> <p>Prerequisites for initial type rating training and checking</p> <p>Training Areas of Special Emphasis (TASE) for initial type rating</p>	<p>Box 2</p> <p>Training footprint:</p> <p>(5) for initial type rating</p>
<p>Box 3</p> <p>Level of Differences Determination – ODR & MDR Tables</p> <p>TASE for:</p> <p>(6) differences training</p> <p>(7) type rating training based on credit for commonality</p> <p>(8) training for specific operations, procedures or equipment (e.g. steep approaches, RNP AR, EVS/SVS, EFB, NVIS, etc.)</p> <p>Prerequisites or recent experience requirements for operation on more than one type or variant</p>	<p>Box 4</p> <p>Training footprint for:</p> <ul style="list-style-type: none"> – differences training – type rating training based on credit for commonality – training for specific operations, procedures or equipment (e.g. steep approaches, RNP AR, EVS/SVS, EFB, NVIS, etc.) <p>CTLC</p> <p>Credits for training, checking or currency</p>

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DIFFERENCE LEVEL	TRAINING	CHECKING	CURRENCY
A	Self-Instruction	--	--
B	Aided instruction	Task or system check	Self-review
C	System devices	Partial proficiency check using qualified device	Designated system
D	Manoeuvre Training Devices or aircraft to accomplish specific manoeuvres <i>FTD Level 2 (& Level 3 for helicopter) or FFS or aircraft</i>	Partial proficiency check using qualified device	Designated manoeuvre(s)
E	Aeroplane: FFS Level C or D, or aeroplane Helicopter: FSTD'S having dual qualification (FFS Level B and FTD Level 3), or FFS Level C or D, or helicopter	Proficiency check	in accordance with regulation (Licensing / Air Ops Regulations)

Harmonized from OEB to OSD

	Evaluation Purpose	Differences Levels
T1	Establishes functional equivalence	Sets levels A/B
T2	Handling qualities comparison	Pass permits T3, and A/B/C/D Failure sets level E
T3	Evaluate differences and sets training/checking requirements	Pass sets levels A/B/C/D Failure sets level E
T4	Revises currency requirements	Sets currency requirements
T5	Sets training/checking for new or “E” ACFT	Sets level E
T6	Evaluation for CTLC	Sets recent experience requirements

Harmonized from OEB to OSD

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Example of MDR table:

Master Differences Requirements (MDR) TABLE					
Aircraft Type Rating: xxx		FROM AIRCRAFT			
TO AIRCRAFT		Aircraft 1	Aircraft 2	Aircraft 3	Aircraft 4
	Aircraft 1	---	D/D/C	D/D/C	*
	Aircraft 2	C/C/B	---	A/A/A	*
	Aircraft 3	C/C/B	A/A/A	---	*
	Aircraft 4	D/D/E	D/D/D	D/D/A	---

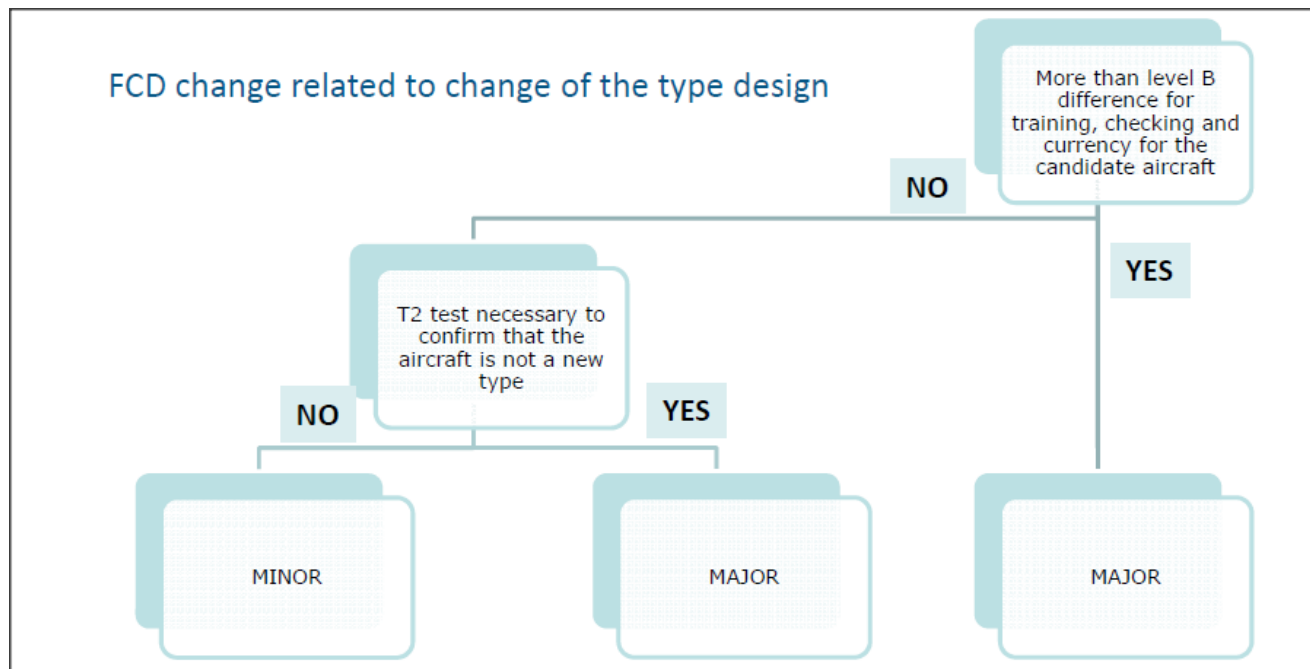
some examples from EU Licensing regulations:

<p>FCL.010 Definitions</p>	<p>"Type of aircraft" means a categorisation of aircraft <u>requiring a type rating as determined in the operational suitability data</u> established in accordance with Part-21, and which include all aircraft of the same basic design including all modifications thereto except those which result in a change in handling or flight characteristics.</p>
<p>FCL.725 Requirements for the issue of class and type ratings</p>	<p>(a) Training course. An applicant for a class or type rating shall complete a training course at an ATO. The type rating training course <u>shall include the mandatory training elements for the relevant type as defined in the operational suitability data established in accordance with Part-21.</u></p>
<p>Part-FCL Appendix 9 Training, skill test and proficiency check for MPL, ATPL, type and class ratings, and proficiency check for IRs</p>	<p>CONTENT OF THE TRAINING, SKILL TEST/PROFICIENCY CHECK</p> <p>4. <u>Unless otherwise determined in the operational suitability data established in accordance with Part-21,</u> the syllabus of flight instruction shall comply with this Appendix. The syllabus may be reduced to give credit for previous experience on similar aircraft types, <u>as determined in the operational suitability data</u> established in accordance with Part-21.</p> <p>5. Except in the case of skill tests for the issue of an ATPL, <u>when so defined in the operational suitability data established in accordance with Part-21 for the specific type, credit may be given</u> for skill test items common to other types or variants where the pilot is qualified.</p>

some examples from OPS regulations:

<p>ORO.FC.140 Operation on more than one type or variant</p>	<p>(a) Flight crew members operating more than one type or variant of aircraft shall comply with the requirements prescribed in this Subpart for each type or variant, <u>unless credits related to the training, checking, and recent experience requirements are defined in the mandatory part of the operational suitability data</u> established in accordance with Regulation (EU) No 748/2012 for the relevant types or variants.</p>
<p>AMC1 ORO.FC.240 Operation on more than one type or variant</p>	<p>(2) When a flight crew member operates more than one aeroplane type or variant within one or more licence endorsement as determined by the operational suitability data established in accordance with Commission Regulation (EU) No 748/2012, the operator should ensure that:</p> <p>...</p> <p>(ii) the flight crew member does not operate more than two aeroplane types or variants for which a separate licence endorsement is required, <u>unless credits related to the training, checking, and recent experience requirements are defined in operational suitability data</u> established in accordance with Commission Regulation (EU) No 748/2012 for the relevant types or variants; and</p>
<p>SPA.GEN.105 Application for a specific approval</p>	<p>(a) The operator applying for the initial issue of a specific approval shall provide to the competent authority the documentation required in the applicable Subpart ...</p> <p>(b) The operator shall provide the following evidence to the competent authority:</p> <p>(1) compliance with the requirements of the applicable Subpart;</p> <p>(2) that the <u>relevant elements defined in the data established in accordance with Regulation (EU) No 748/2012</u> are taken into account.</p> <p>...</p>

OSD – Flight Crew Data



OSD – Flight Crew Data

Operational Evaluations for OSD Flight Crew follow the Part-21 process for aircraft certification

The certification basis for Operational Suitability Data Flight Crew consists of the CS-FCD, unless the Agency accepts other means; and of any special conditions as described in Part-21

Certification Review Items (CRI) are raised to address specific items, if required former (J)OEB Operational Review Items (ORI) / Issue Papers (IP)

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OSD FCD evaluations are performed by a dedicated certification panel (Panel 2), managed by the Product Certification Manager (PCM)

Step 1: Identify the deliverables

- Minimum syllabus of pilot type rating training
- Determination of type rating

Step 2: identify required procedures

- The specific training requirements are identified or confirmed through the evaluation process and evaluation descriptions as described in CS FCD.425.

Notes

Notes

OSD – CS CCD Cabin Crew Data

EASA Part 21 Operational suitability data (OSD) Regulatory Obligations

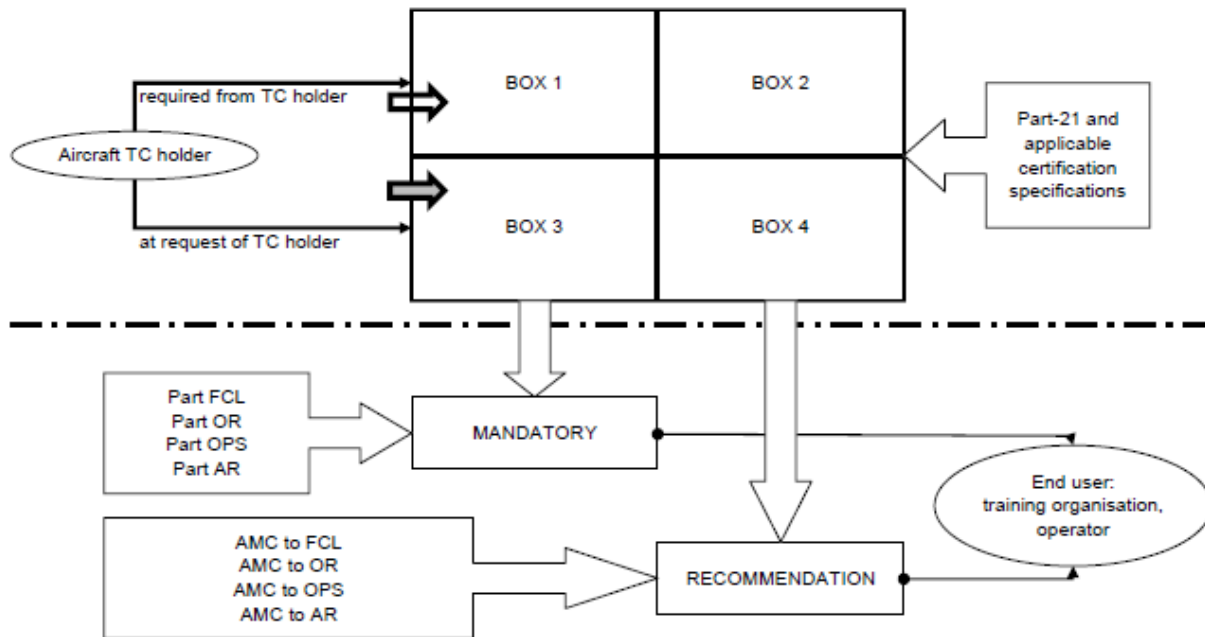
OSD - CS CCD Cabin Crew Data

Introduction – Part 21 Subpart B Type-Certificates and Restricted Type-Certificates- 21A.15 (d)

The application for a type-certificate or restricted type-certificate for an aircraft shall include, or be supplemented after the initial application to include operational suitability data, consisting of, as applicable:

4. determination of type or variant for cabin crew and type specific data for cabin crew;

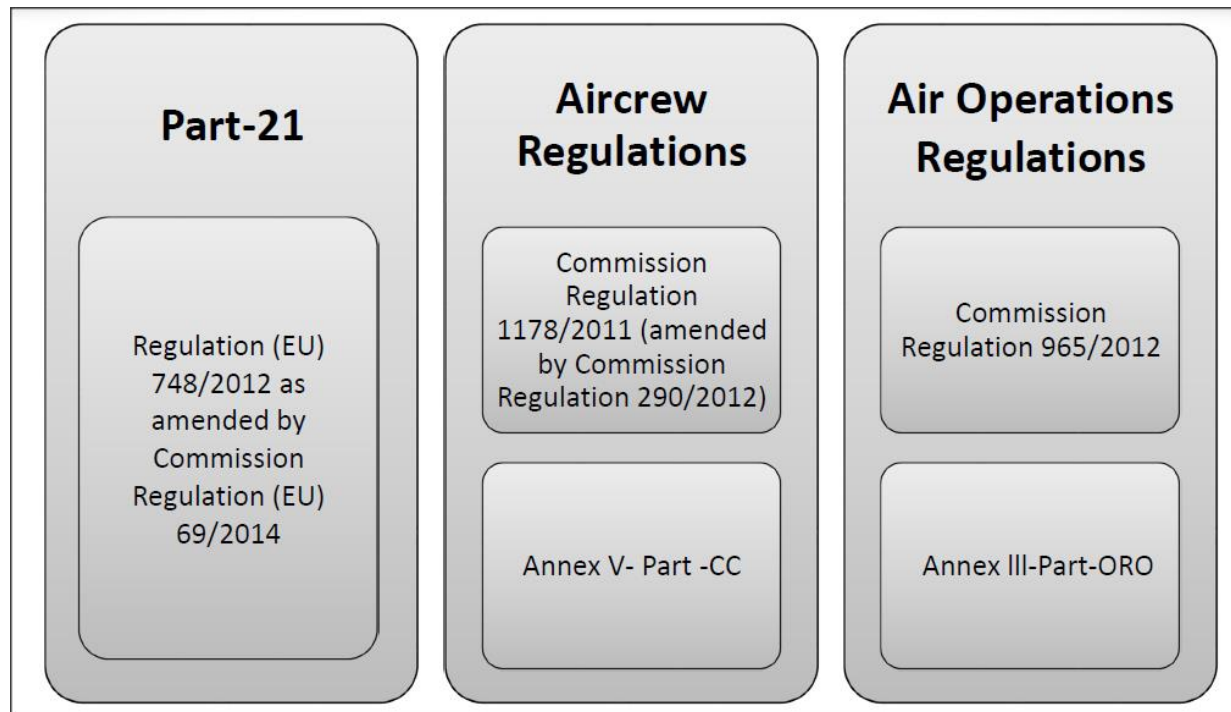
Note: 21A.15(d)(4) compliance is detailed by the EASA Certification Specifications - Cabin Crew Data (CS-CCD)



Process-wise novelties generated by Part 21 governing the CC Operational Evaluations of A/C

Inclusion of the CCD evaluation as part of the Certification Plan Establish the Certification Basis for the CCD evaluation: CS-CCD, Initial Issue, 31 January 2014 - for CUP + ongoing evaluations;

- CRI -"Elect to Comply" to CS-CCD - for Grandfathering (GF), or
- CRI -"Special Conditions"- for GF-ing.
- Support TCH compliance for special instructions to operators, as per Part 21.A.16B

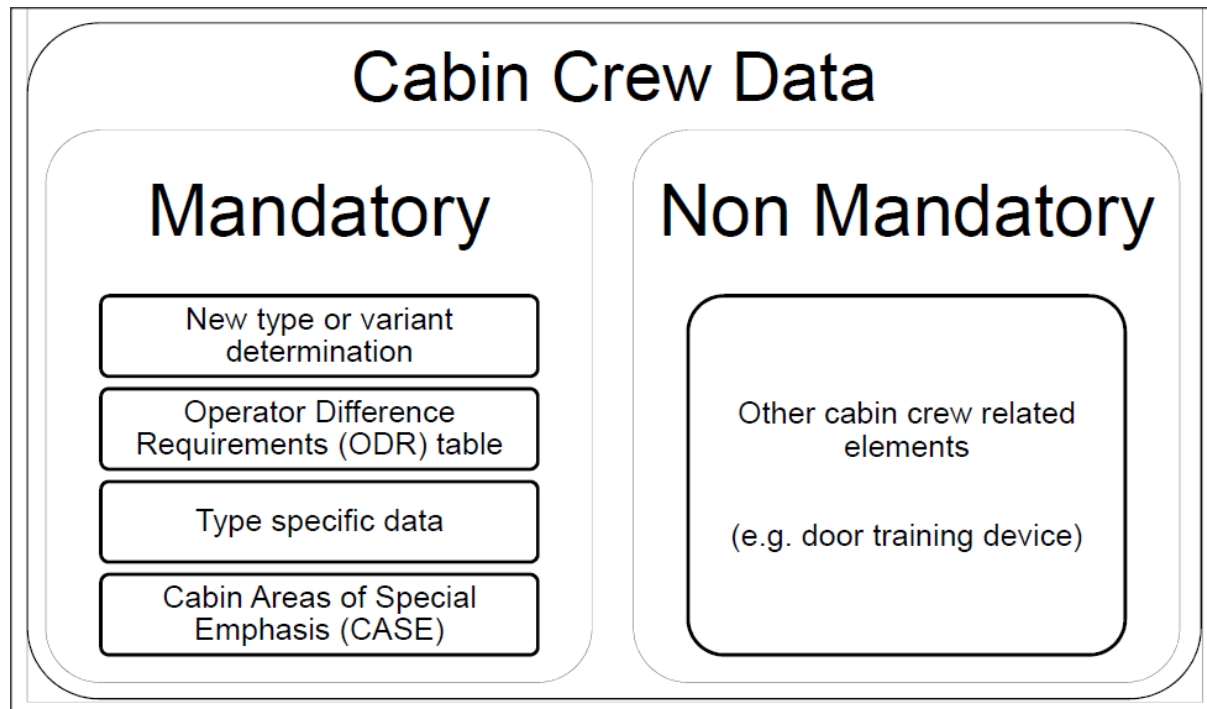


- "Special Conditions"(...for novel and unusual design features)-e.g. CASE
- Issue OSD-CCD Approval

CS CCD.050 Scope

These Certification Specifications for Cabin Crew Data (CS-CCD) establish the specifications for the applicant for a type certificate, change approval or supplemental type certificate to develop and provide:

Data for the determination process of a new type or variant for cabin crew; and
Type specific data for cabin crew.



OSD - CS CCD Cabin Crew Data

CS CCD.100 Applicability

These Certification Specifications are applicable to:

- Aircraft with a maximum passenger seating configuration capacity of more than 19 seats; and
- Aircraft with a passenger seating capacity of 19 seats or less required to carry cabin crew; and
- Any other aircraft with a maximum passenger seating configuration capacity of 19 seats or less if voluntarily elected by the applicant to facilitate operations with cabin crew.

OSD - CS CCD Cabin Crew Data

21A.15(d) 4 Compliance is detailed by the CS-CCD

**Cabin Crew Operational Suitability Data- Deliverables
deriving from the Scope**

CS CCD. 400 – Cabin Aspects of Special Emphasis (CASE) -
as a stand-alone document if necessary at the time of the
Initial TC, or, included in the Type Specific Data of the
respective new type or variant;

CS CCD. 310 – Type Specific Data for the new type or
variant;

CS CCD. 215 – Aircraft Difference Table for variant.

OSD - CS CCD Cabin Crew Data

- **Example Areas that can be impacted during the review;**
 - Aircraft Configuration
 - Doors and Exits
 - Means assisting evacuation
 - Aircraft systems
(Emergency lighting, Evacuation Alarms, smoke detection, fire extinguishers, oxygen, comms, PA, Panels, Water)
 - Normal and Emergency procedures

OSD - CS CCD Cabin Crew Data

Data Required

- All necessary data to support development of a training programme;
 - Level 1: Self Instruction
 - Level 2: Aided Instruction
 - Level 3: Training devices (evacuation rigs)
 - Level 4: Type related training (on aircraft or simulators)

OSD - CS CCD Cabin Crew Data

Appendix 1 describes OSD data pack content

- No definition on data pack format
 - Documents
 - Video
 - Training
- Resource – a/c data/manuals
- If possible use the OEM CS-CCD Data and Training Material

OSD - CS CCD Cabin Crew Data

Example - A350-900 Aircraft Differences Table (ADT), as per CS CCD.215 Determination of variant

Determination of “variant” status (where applicable), is required for the TCH demonstration of compliance with Part 21.A.15(d)(4);

CS CCD.215(b) - “ Existing differences (between the base and the candidate aircraft) and their assessed impact are compiled in the aircraft difference table in accordance with CS CCD.200(b)(1), or using the applicant’s standard form in accordance with CS CCD200(b)(2), to support the development of the differences training by the end user(s)”;

Cabin Crew Data – ODR (ADT in EASA terms)

Operator Difference Requirements (ODR) table



OSD A350 CC
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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	–

Systems

Description of the identified differences

Impact assessment

Difference Training Levels
(from 1 to 3)

Notes

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CS SIMD Simulator Source Data

EASA Part 21 Operational suitability data (OSD) Regulatory Obligations

CS SIMD Simulators Source Data

Introduction

EASA published a new certification standard called Certification Specification Simulator Data CS- SIMD providing regulatory guidance for the evaluation of data used for simulator certification.

CS-SIMD ensures the provision of data which is used to validate by objective comparison simulators used for type rating represent the type of aircraft.

Most of the elements of CS SIMD were already part of CS FSTD to be applied for the evaluation of Flight Simulation Training Devices (FSTD).

CS SIMD Simulators Source Data

CS SIMD has been developed to provide for a clear focus on responsibility for the OEM's (The voluntary OEB process, becomes a mandatory OSD process)

Ensures the provision of all necessary source data required for validation (sim vs. a/c) before EIS of the aircraft

With CS SIMD the provision of source data will be done in conformity with an authority approved 'definition of scope of validation source data

CS SIMD Simulators Source Data

Subpart A — General - CS SIMD.100 Scope (ED Decision 2014/033/R)

These Certification Specifications contain the specifications for the definition of scope of:

Validation source data to support the objective qualification of aeroplane full flight simulators associated to the pilot type rating training, or provisional validation source data to support their interim qualification, including additional features as requested by the applicant;

CS SIMD Simulators Source Data

Validation source data to support the objective qualification of helicopter full flight simulators and flight training devices associated to the pilot type rating training, or provisional validation source data to support their interim qualification, including additional features as requested by the applicant.

CS SIMD Simulators Source Data

Subpart B — Determination of Scope of Validation Source Data (ED Decision 2014/033/R)

The determination of the scope of the validation source data is based on:

Certification specifications extracted from CS-FSTD(A)&(H) as applicable;

Any additional specification resulting from the additional features selected by the applicant.

The scope comprises the list of validation source data used as validation data in the qualification test guide, its related source and relevant justifications or rationales

Flight Test Program

The flight test program is typically defined by the simulator certification standard.

The EASA standards are CSFSTD(A) [2] for aircraft and CS-FSTD(H) [1] for helicopter.

Derived from both the FAA & ICAO standard (The tests are similar to performance and handling quality tests, as they are done during aircraft certification flight testing.)

Conclusions to the flight tests needed are drawn from the list of simulator test cases.

The flight model development requires a wide range of different test point throughout the flight envelope.

Some test cases for complex and non-linear aircraft behaviour are conducted in much more variations than those given by the standard.

One example is the hover test case. The Helicopter EASA standard asks for a minimum of four different hover heights, however typically a minimum of ten are needed as input for the model development.

CS SIMD Simulators Source Data

Independent evaluation of flight test campaign

The suitability of the flight test data for simulator qualification is evaluated by an independent organisation.

Validation of flight test plan and compliance to the certification standard.

Assessment, Validation and Conformity of Processes, Tools & Hardware