



**NOTICE OF PROPOSED AMENDMENT (NPA) 2012-05**

**DRAFT DECISION OF THE EXECUTIVE DIRECTOR OF THE EUROPEAN AVIATION SAFETY AGENCY**

**on Certification Specifications and Guidance Material  
related to Operational Suitability Data (OSD)**

**'Certification Specifications for Flight Crew Data (CS FCD)'**

**EXECUTIVE SUMMARY**

The NPA 2012-05 contains the draft Decision on Certification Specifications for Flight Crew Data (CS FCD) and comprises information related to the type specific elements for flight crew data, as required by the Operational Suitability Data (OSD) concept.

The Certification Specifications include the proposal of the following:

- (a) a uniform process and criteria for the determination of a pilot type rating to establish if a candidate aircraft is recognized as a new type or as a variant to an existing aircraft or group of aircraft and to assign the pilot licence endorsement designation for a candidate aircraft;
- (b) requirements for pilot type rating training for a specific aircraft;
- (c) operational evaluations for the proposed operations.

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## A. EXPLANATORY NOTE

### I. General

1. The purpose of this Notice of Proposed Amendment (NPA) is to develop a Decision on Certification Specifications (CSs) and Guidance Material (GM) related to Operational Suitability Data (OSD) — Flight Crew Data (FCD). The scope of this rulemaking activity is outlined in the Terms of Reference (ToR) 21.039.
2. The European Aviation Safety Agency (hereafter referred to as the 'Agency') is directly involved in the rule-shaping process. It assists the Commission in its executive tasks by preparing draft regulations, and amendments thereof, for the implementation of the Basic Regulation<sup>1</sup> which are adopted as 'Opinions' [Article 19(1)]. It also adopts Certification Specifications, including Airworthiness Codes and Acceptable Means of Compliance and Guidance Material to be used in the certification process [Article 19(2)].
3. When developing rules, the Agency is bound to follow a structured process as required by Article 52(1) of the Basic Regulation. Such a process has been adopted by the Agency's Management Board and is referred to as the 'Rulemaking Procedure'<sup>2</sup>.
4. This rulemaking activity is included in the Agency's Rulemaking Programme. It implements the rulemaking task RMT.0105 [21.039(d)].
5. The text of this NPA has been developed by the Agency, based on the input from the 21.039(f) subgroup, deriving from the 21.039 Rulemaking Group. It is submitted for consultation of all interested parties in accordance with Article 52 of the Basic Regulation and Articles 5(3) and 6 of the Rulemaking Procedure.
6. With regard to the Regulatory Impact Assessment (RIA) for this NPA, please note that this NPA has been developed on the basis of the RIA which has been conducted for the Operational Suitability Data (OSD) task.

### II. Consultation

7. To achieve optimal consultation, the Agency is publishing the draft Decision of the Executive Director on its website. Comments should be provided within 3 months in accordance with Article 6(5) of the Rulemaking Procedure.
8. Please submit your comments using the **automated Comment-Response Tool (CRT)** available at <http://hub.easa.europa.eu/crt/>.<sup>3</sup>
9. The deadline for the submission of comments is the **8th October 2012**.

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<sup>1</sup> Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC (OJ L 79, 19.3.2008, p. 1), as last amended by Commission Regulation (EC) No 1108/2009 of the European Parliament and of the Council of 21 October 2009 (OJ L 309, 24.11.2009, p. 51).

<sup>2</sup> Management Board Decision concerning the procedure to be applied by the Agency for the issuing of opinions, certification specifications and guidance material ('Rulemaking Procedure'), EASA MB 08-2007, 13.6.2007. Decision as last amended and replaced by EASA MB Decision 01-2012, 13.3.2012.

<sup>3</sup> In case the use of the Comment-Response Tool is prevented by technical problems please report them to the CRT webmaster ([crt@easa.europa.eu](mailto:crt@easa.europa.eu)).

### **III. Comment-Response Document (CRD)**

10. All comments received in time will be responded to and incorporated in a Comment-Response Document (CRD). The CRD will be available on the Agency's website and in the CRT.

### **IV. Content of the draft Decision**

#### ***Scope***

11. This NPA includes a proposal for Certification Specifications for a uniform process and criteria for the determination of a pilot type rating, requirements for pilot type rating training for a specific aircraft and operational evaluations for the proposed operations.
12. The approvals of specifications for the operation of a given type of aircraft were in the past the responsibility of the National Aviation Authorities (NAAs). To promote a uniform approach for such approvals, the Joint Aviation Authorities' (JAAs) members decided to follow a single voluntary approval process called Joint Operational Evaluation Board (JOEB). Each JOEB was established on a case-by-case basis and composed of relevant stakeholders, including non-JAA authorities as appropriate, to examine the operational conditions for the use of an aircraft type and to make the appropriate recommendations.
13. To provide for uniformity, which was one of the main objectives for establishing the system of the Agency, the Agency recommended in its Opinion No 03/2004<sup>4</sup> that the additional airworthiness specifications for the operational suitability of a given type of aircraft should be mandatory for all aircraft registered in European Union Member States. Taking into account that the Agency cannot set generally binding standards, such a decision could only be adopted by the Agency if the additional specifications were directly linked to the product. To reach this objective, the Basic Regulation was amended to establish that the additional specifications for the operation of a given aircraft type shall be determined as part of the certification of the product.
14. The JAA ended its activity in 2009. Taking into account the amended Basic Regulation, the Agency established a process called Operational Evaluation Board (OEB) to replace the JOEB. This process will be maintained by the Agency until the applicable Implementing Rules enter into force.
15. The Basic Regulation establishes the Agency's responsibility to approve relevant information necessary for the safe operation of a specific aircraft type. This information relates to type specific elements for pilots, cabin crew, maintenance certifying staff and includes the Master Minimum Equipment List (MMEL) and Flight Simulation Training Devices (FSTD). The information is to be concluded and approved under OSD that will complement the Type Certificate (TC). The applicant for an aircraft type certificate will obtain approval of operational suitability data before the aircraft can be operated by an EU operator. Once issued, the approved elements in the OSD will be used by the operators of the particular aircraft type or training organisations to develop the appropriate training programmes or MEL.

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<sup>4</sup> Opinion No 3/2004 of the European Aviation Safety Agency for amending Regulation (EC) No 1592/2002 of the European Parliament and of the Council on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, to extend its scope to the regulation of pilot licensing, air operations and third country aircraft ([http://easa.europa.eu/agency-measures/docs/opinions/2004/03/easa\\_opinion\\_03\\_2004\\_en.pdf](http://easa.europa.eu/agency-measures/docs/opinions/2004/03/easa_opinion_03_2004_en.pdf)).

16. With the publication of Opinion No 07/2011 on 13 December 2011 the Agency finalised the rulemaking task 21.039(a) that aimed at introducing the OSD concept in the Implementing Rules. The Opinion proposes amendments to Regulation (EC) No 1702/2003 to include OSD in the type certification process. The Opinion is currently in the process of adoption by the European Commission.
17. The focus of this NPA is on the Certification Specifications for Flight Crew Data (CS FCD) which contain the information related to the type specific elements for flight crew data, as required by the OSD concept.
18. The working method selected by the Agency, following the advice of its consultative bodies [for example the Advisory Group of National Authorities (AGNA) and the Safety Standards Consultative Committee (SSCC)], was the use of a Rulemaking Group and the creation of further subgroups for the development of the individual CSs.
19. The 21.039 Rulemaking Group comprised experts from the aircraft manufacturers industry, trade associations, experts from air operators, pilots, maintenance engineers, cabin crew associations, national authorities and the Agency. Third country authorities [Federal Aviation Administration (FAA) and Transport Canada (TCCA)] were also invited to participate as observers, as the result of this task could affect not only third-country industry but also third country aviation authorities. The work carried out by the Rulemaking Group (main group) was to identify possible options to implement and to transfer the JOEB process into a European regulatory framework.
20. The composition of the subgroup for the development of the CS FCD was based on nominations of members of the main group. The composition of the subgroup comprised experts from the aircraft manufacturers industry, airline representatives, trade associations, European NAAs and foreign aviation authorities.
21. The CS FCD subgroup started its activities in January 2011 and the proposals included in this NPA were discussed and reviewed during several meetings and by written procedure until June 2011.

### ***Summary of the structure***

22. This CS FCD is structured into four subparts: 'Subpart A — General'; 'Subpart B — Determination of a pilot type rating'; 'Subpart C — Pilot type rating training requirements'; and 'Subpart D — Operational evaluation'.
23. 'Subpart A — General' describes the scope and applicability of the CS FCD and contains specifications to be fulfilled by the applicant when applying for OSD approval. The Certification Specifications are applicable to aircraft for which a pilot type rating is determined, except for paragraph CS FCD.200(a) which is applicable to all aircraft. The CS are also applicable to changes to the elements referenced in the scope. The applicability of the different paragraphs of the CS FCD are structured according to the OSD box concept (Appendix 3):

Box 1: mandatory provision from the Type Certificate (TC) applicant and mandatory for the end users;

Box 2: mandatory provision from the TC applicant and non-mandatory (recommendations) for the end users;

Box 3: at the request of TC applicant and mandatory for the end users;

Box 4: at the request of TC applicant and non-mandatory for the end users.

24. Subpart A also includes definitions of guiding terminology within the CS FCD: base aircraft, candidate aircraft, Common Take-off and Landing Credit (CTLC), difference level, flight characteristics, handling characteristics, Line Flying Under Supervision (LIFUS), Minimum syllabus, Operator Differences Requirements, Master Differences Requirements, currency, recent experience, pilot type rating, training footprint, and variant.
25. 'Subpart B — Determination of a pilot type rating' specifies the process and criteria for determining whether a certain type of aircraft is subject to a pilot type rating. This determination is made during the operational evaluation of the aircraft.
26. Pilot type ratings are always defined for complex motor-powered aeroplanes, helicopters (except helicopters certified in accordance with CS VLR), airships and powered-lift. In the case of non-complex aeroplanes, certain criteria are considered when deciding whether they should be subject to a pilot type rating.
27. 'Subpart C — Pilot type rating training requirements' establishes requirements to build the necessary theoretical and practical skills to fly a specific aircraft. The development of the specific training requirements is based on the assumption that the pilot undergoing training has met the described prerequisites for the training to be evaluated. The specific training requirements result from the evaluation process and evaluation descriptions.
28. The specific training requirements will depend on the aircraft type and contain training areas of special emphasis related to the particular aircraft type, including identification of all type specific knowledge and skills. The requirements also contain the prerequisite for the minimum entry-level requirement to be fulfilled by the pilot and the training footprint.
29. 'Subpart D — Operational evaluation' establishes specifications for the operational evaluation of the aircraft performed by a team of pilots and operations specialists drawn from the Agency. The size of the team depends on the magnitude of the evaluation requested by the applicant.
30. In CS FCD.405 there are the specifications to obtain credit operation on more than one type or variant. At the request of the applicant the Agency may evaluate commonalities between a candidate aircraft and other aircraft types used in operation on more than one type or variant. The applicant provides ODR tables or other appropriate documentation for comparison of the relevant aircraft characteristics. The Agency analyses the commonalities which may include an aircraft evaluation process (T evaluations).
31. The following paragraphs contain specifications concerning ODR tables (CS FCD.410) and MDR tables (CS FCD.415). ODR tables are required for any evaluation between a base and a candidate aircraft and identify the difference in general characteristics, systems and manoeuvres. MDR tables are developed on the basis of ODR tables for any evaluation between base and candidate aircraft. MDRs are those requirements that pertain to differences between aircraft.
32. CS FCD.420 and CS FCD.425 contain the specifications for the difference levels concerning training, checking and currency. Difference levels are used to identify the extent of difference between a base and a candidate aircraft with reference to the elements described in the ODR tables. These levels are proportionate to differences between a base and a candidate aircraft. A range of five difference levels in order of increasing requirements, identified as A through E, are each specified for training, checking, and currency.

33. CS FCD.430 and CS FCD.435 contain the specifications concerning the six standard evaluations used to set MDRs, acceptable training programs, other provisions, and to define type rating requirements. One or more of these six evaluations are applied depending on the objectives of the applicant, on the difference level sought, and on the successful outcome of any previous evaluations conducted in identifying MDRs.
34. Appendix 1 shows a flowchart of the OSD content with the 4-box concept.
35. Appendix 2 gives guidelines for the compilation of ODR tables. The applicant conducts a detailed evaluation of the differences and similarities of the aircraft concerned and compiles this into ODR tables.
36. Appendix 3 shows a flowchart of the evaluation process.



**B. DRAFT RULES**

**I. DRAFT DECISION ON CERTIFICATION SPECIFICATIONS AND  
GUIDANCE MATERIAL FOR OPERATIONAL SUITABILITY DATA  
(FLIGHT CREW DATA) – CS FCD BOOK 1**

**EASA**

**Certification Specifications**

**for**

**Operational Suitability Data (OSD)**

**Flight Crew Data**

**CS FCD**

**Book 1**

**SUBPART A****GENERAL****CS FCD.050 Scope**

These Certification Specifications for Flight Crew Data (CS FCD) address:

- (a) the determination of a pilot type rating:
  - (1) to establish if a candidate aircraft is recognized as a new type or as a variant to an existing aircraft or group of aircraft;
  - (2) to assign the pilot licence endorsement designation for a candidate aircraft.
- (b) pilot type rating training requirements for a specific aircraft, taking into consideration:
  - (1) the specific characteristics of the candidate aircraft;
  - (2) any proposal by the manufacturer of the candidate aircraft;
  - (3) the requirements of Part-FCL;
  - (4) the pilot entry prerequisites;
  - (5) the commonality between the candidate aircraft and the base aircraft in accordance with the Operator Differences Requirements (ODR) tables, where applicable.
- (c) the operational evaluations for the proposed operations, taking into consideration Part-21 and air operation Implementing Rules.

**CS FCD.100 Applicability**

- (a) CS FCD.200(a) is applicable to all aircraft. All other paragraphs are applicable to aircraft for which a pilot type rating is determined.
- (b) These Certification Specifications are also applicable to changes to the elements referenced in CS FCD.050.
- (c) CS FCD specifies data provision which is required from the Type Certificate (TC) applicant and data provided at request of the TC applicant. Data provided by the TC applicant is presented as mandatory or non-mandatory (recommendations) for the end user. The box concept according to Appendix 1 is applicable to the paragraphs as follows:
  - (1) Box 1 [Data required from the TC applicant and mandatory for the end users]:
    - (i) CS FCD.200;
    - (ii) CS FCD.300(a);(b);(c);(d);(e)(1) and (2);
    - (iii) CS FCD.400(a);
    - (iv) CS FCD.420;
    - (v) CS FCD.425;
    - (vi) CS FCD.430;

- (vii) CS FCD.435.
- (2) Box 2 (Data required from the TC applicant and non-mandatory for the end users):
  - (i) CS FCD.300(a);(b);(c);(d);(e)(3) and (f);
  - (ii) CS FCD.400(a);
  - (iii) CS FCD.430;
  - (iv) CS FCD.435.
- (3) Box 3 (Data at the request of the TC applicant and mandatory for the end users):
  - (i) CS FCD.300(a);(b);(c);(d);(e)(1) and (2);
  - (ii) CS FCD.400(a) and (b);
  - (iii) CS FCD.405(a) and (b);
  - (iv) CS FCD.410;
  - (v) CS FCD.415;
  - (vi) CS FCD.420;
  - (vii) CS FCD.425;
  - (viii) CS FCD.430;
  - (ix) CS FCD.435.
- (4) Box 4 (Data at the request of the TC applicant and non-mandatory for the end users):
  - (i) CS FCD.300(a);(b);(c);(d);(e)(3) and (f);
  - (ii) CS FCD.400(a);(b) and (c);
  - (iii) CS FCD.405(a) and (c);
  - (iv) CS FCD.430;
  - (v) CS FCD.435.
- (5) Box 1 and 2 combined constitute the minimum syllabus for pilot type rating training as required by Part-21.

### **CS FCD.105 Definitions**

Within the scope of these Certification Specifications, the following definitions apply:

**Base aircraft** means an aircraft or group of aircraft used as a reference to compare differences with another aircraft.

**Candidate aircraft** means an aircraft or group of aircraft subject to evaluation process.

**Common Take-off and Landing Credit (CTLIC)** means a programme or process that allows credit for recent experience between aircraft that can be demonstrated to have the same handling and flying characteristics during take-off and initial climb, approach and landing, including the establishment of final landing configuration.

**Currency** means the experience necessary for the safe operation of aircraft, equipment and systems.

**Difference level** means a formally designated level of difference between a base and a candidate aircraft for the evaluation of pilot training, checking, or currency.

**Flight characteristics** means handling characteristics or performance characteristics perceivable by a pilot. Flight characteristics relate to the natural aerodynamic response of an aircraft, particularly as affected by changes in configuration or flight path parameters.

**Handling characteristics** means the manner in which the aircraft responds with respect to rate and magnitude of pilot initiated control inputs to the primary flight control surfaces.

**Line Flying Under Supervision (LIFUS)** means the part of the operator's conversion course in accordance with the air operation Implementing Rules.

**Master Differences Requirements (MDR)** means those requirements that pertain to differences between aircraft. MDRs are specified in terms of the minimum difference levels.

**Minimum syllabus** means the training elements provided by the applicant and approved by the Agency for a specific aircraft type.

**Operator Differences Requirement (ODR)** means a description of differences regarding the level of training, checking, or currency between a base and a candidate aircraft and their impact on flight characteristics and change of procedures.

**Pilot type rating endorsement** means the designation of an aircraft type endorsed on a pilot licence.

**Recent experience** means the recent experience described in Part-FCL.060.

**Training footprint** means a summary description of a training programme, usually in short tabular form, showing training subjects, modules, procedures, manoeuvres or other programme elements which are planned for completion during each day or phase of training.

**Variant** means an aircraft or a group of aircraft within the same pilot type rating that has differences to the base aircraft requiring difference training or familiarisation training.

**SUBPART B****DETERMINATION OF A PILOT TYPE RATING****CS FCD.200 Determination of a pilot type rating**

- (a) The determination of whether a certain type of aircraft is subject to a pilot type rating is as follows:
  - (1) The following aircraft are subject to a pilot type rating:
    - (i) complex motor-powered aircraft;
    - (ii) helicopters except helicopters certified in accordance with CS-VLR;
    - (iii) airships;
  - (2) The following aircraft are not subject to a pilot type rating:
    - (i) sailplanes;
    - (ii) powered sailplanes;
    - (iii) balloons;
    - (iv) ELA 1 and ELA 2 aeroplanes.
  - (3) An aircraft not listed in subparagraphs (1) or (2) will be subject to a pilot type rating if its handling characteristics, performance or level of flight deck technology require type rating training in order to fly this aircraft safely.
- (b) The determination of whether a certain aircraft is a variant may be made at the request of the applicant in accordance with Subpart D.
- (c) The type rating and/or variant determination is recorded in the type certificate data sheet.
- (d) Changes to a type certificate are assessed for their impact on the type rating or variant determination.

**SUBPART C****PILOT TYPE RATING TRAINING REQUIREMENTS****CS FCD.300 Pilot type rating training requirements for a specific aircraft**

- (a) The specific training requirements to build the necessary theoretical and practical skills to fly a specific aircraft are defined.
- (b) For the development of the specific training requirements the provisions in Part-FCL are considered.
- (c) The development of the specific training requirements is based on the assumption that the pilot undergoing training has met the prerequisites described for the training to be evaluated.
- (d) The specific training requirements result from the evaluation process and evaluation descriptions as described in CS FCD.435.
- (e) The specific training requirements depend on the aircraft type and contain:
  - (1) training areas of special emphasis related to the particular aircraft type, including identification of all type specific knowledge and skills;
  - (2) the prerequisite for the minimum entry-level requirement to be fulfilled by the pilot;
  - (3) the training footprint.
- (f) The training footprint indicates which training methods and device(s) are assumed to be used, based on CS FCD.425.

**SUBPART D****OPERATIONAL EVALUATION****CS FCD.400 Operational evaluation process**

- (a) The operational evaluation of a candidate aircraft for its normal operational use and the use of standard equipment is part of the aircraft evaluation process.
- (b) At the request of the applicant the Agency may evaluate the use of optional equipment or special operations, as well as compliance with operational provisions, such as the air operation Implementing Rules.
- (c) Requirements for LIFUS are specified by air operation Implementing Rules; however, credit for LIFUS between base aircraft and candidate aircraft may be permitted as a result of the evaluation process, and specified in the OSD.

**CS FCD.405 Credit for operation on more than one type or variant**

- (a) Based on commonalities between a candidate aircraft and other aircraft types the applicant may propose:
  - (1) credit for the operation on more than one type or variant;
  - (2) credit for training, checking and currency for operation on more than one type or variant;
  - (3) CTLC.
- (b) For substantiation of the credits proposed under (a), the applicant provides ODR tables or other appropriate documentation for comparison of the relevant aircraft characteristics.

**CS FCD.410 Operator Difference Requirement (ODR) tables**

- (a) ODR tables are required for any evaluation of differences and similarities between a base and a candidate aircraft for type rating assessment and for the content of the type rating training syllabus.
- (b) ODR tables identify the differences between base and candidate aircraft in terms of general characteristics, systems and manoeuvres, and propose appropriate difference levels.
- (c) ODR tables can be expanded to address multiple aircraft comparisons.
- (d) Specifications for setting up the ODR tables are to be found in Appendix 2.

**CS FCD.415 Master Difference Requirement (MDR) tables**

MDR tables are developed on the basis of ODR tables for any evaluation between base and candidate aircraft. MDRs are those requirements that pertain to differences between aircraft. MDRs are specified in terms of the minimum difference levels.

**CS FCD.420 Difference levels – General**

- (a) Difference levels are used to identify the extent of difference between a base and a candidate aircraft with reference to the elements described in the ODR tables. These levels are proportionate to the differences between a base and a candidate aircraft. A range of five difference levels in order of increasing requirements, identified as A through E, are each specified for training, checking, and currency.
- (b) Difference levels apply when a difference with the potential to affect flight safety exists between a base and a candidate aircraft. Differences may also affect the knowledge, skills, or abilities required from a pilot. If no differences exist, or if differences exist but do not affect flight safety, or if differences exist but do not affect knowledge, skills, or abilities, then difference levels are neither assigned nor applicable to pilot qualification. When difference levels apply, each level is based on a scale of differences related to design features, systems, or manoeuvres. In assessing the effects of differences, both flight characteristics and procedures are considered since flight characteristics address handling qualities and performance, while procedures include normal, non-normal and emergency items.
- (c) Levels for training, checking, and currency are assigned independently, but are linked depending on the differences between a base and candidate aircraft. Training at level E identifies that the candidate aircraft is a different type to the base aircraft.

**CS FCD.425 Difference levels – Training, checking and currency**

- (a) Difference levels are summarized in the table below regarding training, checking, and currency

<b>DIFFERENCE LEVEL</b>	<b>TRAINING</b>	<b>CHECKING</b>	<b>CURRENCY</b>
A	<ul style="list-style-type: none"> <li>Self-instruction</li> </ul>	Not applicable	Not applicable
B	<ul style="list-style-type: none"> <li>Aided instruction</li> </ul>	Task or system check	Self-review
C	<ul style="list-style-type: none"> <li>System devices</li> </ul>	Partial proficiency check using qualified device	Designated system
D	<ul style="list-style-type: none"> <li>Manoeuvre Flight Simulation Training Devices (FSTDs), Full Flight Simulator (FFS) or aircraft to accomplish specific manoeuvres</li> </ul>	Partial proficiency check using qualified device	Designated manoeuvre(s)
E	<ul style="list-style-type: none"> <li>Level C or D simulator, or</li> <li>Aircraft</li> </ul>	Proficiency check using level C or D simulator, or aircraft	As per regulation (level C or D simulator, or aircraft)



(b) Difference level — Training

The training differences levels specified represent the minimum requirements. Devices associated with a higher difference level may be used to satisfy a training differences requirement.

(1) Level A training

Level A differences training is applicable to aircraft with differences that can adequately be addressed through self-instruction. Level A training represents a knowledge requirement such that once appropriate information is provided understanding and compliance can be assumed to be demonstrated.

(2) Level B training

Level B differences training is applicable to aircraft with system or procedure differences that can adequately be addressed through aided instruction.

At level B aided instruction is appropriate to ensure pilot understanding, emphasise issues, provide a standardised method of presentation of material, or to aid retention of material following training.

Training needs not covered by level A training may require level B training, or higher, depending on the outcome of the evaluations described in the aircraft evaluation process (CS FCD.435).

(3) Level C training

Level C differences training can only be accomplished through the use of devices capable of systems training.

Level C differences training is applicable to variants having 'part task' differences that affect skills or abilities as well as knowledge. Training objectives focus on mastering individual systems, procedures, or tasks, as opposed to performing highly integrated flight operations and manoeuvres in 'real time'. Level C may also require self-instruction or aided instruction of a pilot, but cannot be adequately addressed by a knowledge requirement alone. Training devices are required to supplement instruction to ensure attainment or retention of pilot skills and abilities to accomplish the more complex tasks, usually related to operation of particular aircraft systems.

The minimum acceptable training media for level C is interactive computer-based training, cockpit systems simulators, cockpit procedure trainers, part task trainers [such as Inertial Navigation System (INS), Flight Management System (FMS), or Traffic Collision Avoidance System (TCAS) trainers], or similar devices.

(4) Level D training

Level D differences training can only be accomplished with devices capable of performing flight manoeuvres and addressing full task differences affecting knowledge, skills, or abilities.

Devices capable of flight manoeuvres address full task performance in a dynamic 'real time' environment and enable integration of knowledge, skills and abilities in a simulated flight environment, involving combinations of operationally oriented tasks and realistic task loading for each relevant phase of flight. At level D, knowledge and skills to complete necessary normal, non-normal and emergency procedures are fully addressed for each variant.

Level D differences training requires mastery of interrelated skills that cannot be adequately addressed by separate acquisition of a series of knowledge areas or skills that are interrelated. The differences are not so significant; however, a full type rating training course is required. If demonstration of interrelationships between the systems was important, the use of a series of separate devices for systems training would not suffice. Training for level D differences requires a training device that has accurate, high fidelity integration of systems and controls and realistic instrument indications. Level D training may also require manoeuvre visual cues, motion cues, dynamics, control loading or specific environmental conditions. Weather phenomena such as low visibility operations or wind shear may or may not be incorporated. Where simplified or generic characteristics of an aircraft type are used in devices to satisfy level D difference training, significant negative training cannot occur as a result of the simplification.

Devices satisfying level D differences training range from those where relevant elements of aircraft flight manoeuvring, performance, and handling qualities are incorporated. When appropriately justified, such devices may be of a simplified or generic design such as fixed base visual or non-visual training devices up to level C or D simulators or aircraft at the upper end.

Devices acceptable for level D differences training are FSTDs which are appropriate for the training of manoeuvres. When an FFS or an aircraft is used, it is limited for the conduct of specific manoeuvres or handling differences, or for specific devices when the T2 evaluation is otherwise successfully completed, as described in the aircraft evaluation process (CS FCD.435).

(5) Level E training

Level E differences training is applicable to candidate aircraft having such a significant 'full task' differences that a full type rating training course or a type rating training course with credit for previous experience on similar aircraft types is required to meet the training objectives.

The training requires a 'high fidelity' environment to attain or maintain knowledge, skills, or abilities that can only be satisfied by the use of an FFS certified to level C or higher, or the aircraft itself. Level E training, if done in an aircraft, should be modified for safety reasons where manoeuvres can result in a high degree of risk.

When level E differences training is assigned, suitable credit or constraints may be applied for knowledge, skills or abilities related to other pertinent aircraft types and specifies the relevant subjects, procedures or manoeuvres.

(c) Difference level — Checking

Differences checking addresses any pertinent pilot testing or checking. Initial and recurrent checking levels are the same unless otherwise specified.

It may be possible to satisfactorily accomplish recurrent checking objectives in devices not meeting initial checking requirements. In such instances the applicant may propose the use of certain devices not meeting the initial check requirements for revalidation checks.

(1) Level A checking

Level A differences checking indicates that no check related to differences is required at the time of differences training. However, a pilot is responsible for knowledge of each variant flown.

(2) Level B checking

Level B differences checking indicates that a 'task' or 'systems' check is required following initial and recurring training.

(3) Level C checking

Level C differences checking requires a partial check using a suitable qualified device. A partial check is conducted relative to particular manoeuvres or systems.

(4) Level D checking

Level D differences checking indicates that a partial proficiency check is required following both initial and recurrent training. In conducting the partial proficiency check, manoeuvres common to each variant may be credited and need not be repeated. The partial proficiency check covers the specified particular manoeuvres, systems, or devices. Level D checking is performed using scenarios representing a 'real time' flight environment and uses qualified devices permitted for level D training or higher.

(5) Level E checking

Level E differences checking requires that a full proficiency check be conducted in a level C or D FFS, or in an aircraft, following both initial and recurrent training. Alternating checks are possible between the relevant aircraft, if appropriate, and credit may be defined for procedures or manoeuvres based on commonality.

Assignment of level E checking requirements alone, or in conjunction with level E currency, does not necessarily result in assignment of a separate type rating.

(d) Difference level — Currency

Differences currency addresses any currency and re-currency levels. Initial and recurrent currency levels are the same unless otherwise specified.

(1) Level A currency

Level A currency is common to each aircraft and does not require separate tracking. Maintenance of currency in any aircraft suffices for any other variant within the same type rating.

(2) Level B currency

Level B currency is 'knowledge-related' currency, typically achieved through self-review by individual pilots.

(3) Level C currency

(i) Level C currency is applicable to one or more designated systems or procedures, and relates to both skill and knowledge requirements. When level C currency applies, any pertinent lower level currency is also to be addressed.

(ii) Re-establishing level C currency

When currency is lost, it may be re-established by completing required items using a device equal to or higher than that specified for level C training and checking.

(4) Level D currency

(i) Level D currency is related to designated manoeuvres and addresses knowledge and skills required for performing aircraft control tasks in real time with integrated use of associated systems and procedures. Level D currency may also address certain differences in flight characteristics including performance of any required manoeuvres and related normal, non-normal and emergency procedures. When level D is necessary, lower level currency is also addressed.

(ii) Re-establishing level D currency

When currency is lost, currency may be re-established by completing pertinent manoeuvres using a device equal to or higher than that specified for level D differences training and checking.

(5) Level E currency

(i) Level E currency requires that recent experience requirements of Part-FCL and operational requirements be complied with in each aircraft separately. Level E currency may also specify other system, procedure, or manoeuvre currency item(s) necessary for safe operations, and requires procedures or manoeuvres to be accomplished in a level C or D simulator. Provisions are applied in a way which addresses the required system or manoeuvre experience.

When level E is assigned between aircraft of common characteristics, credit may be permitted. Assignment of level E currency requirements does not automatically lead to a determination on same or separate type rating. Level E currency

is tracked by a means that is acceptable to the competent authority.

When CTLC is permitted, any credit or constraints applicable to using level C or D simulators are also to be determined.

(ii) Re-establishing level E currency

When currency is lost, currency may be re-established by completing pertinent manoeuvres using a device specified for level E differences training and checking.

(e) Competency regarding non-normal and emergency procedures — Currency

Competency for non-normal and emergency manoeuvres or procedures is generally addressed by checking requirements. Particular non-normal and emergency manoeuvres or procedures may not be considered mandatory for checking or training. In this situation it may be necessary to periodically practice or demonstrate those manoeuvres or procedures specifying currency requirements for those manoeuvres or procedures.

(1) Level C currency

- (i) Level C currency is applicable to one or more designated systems or procedures, and relates to both skill and knowledge requirements. When level C currency applies, any pertinent lower level currency is also addressed.

(ii) Re-establishing level C currency

When currency is lost, it may be re-established by completing the required items using a device equal to or higher than that specified for level C training and checking.

(2) Level D currency

- (i) Level D currency is related to designated manoeuvres and addresses knowledge and skills required for performing aircraft control tasks in real time with integrated use of associated systems and procedures. Level D currency may also address certain differences in flight characteristics including performance of any required manoeuvres and related normal, non-normal and emergency procedures. When level D is necessary, lower level currency is also addressed.

(ii) Re-establishing level D currency

When currency is lost, it may be re-established by completing pertinent manoeuvres using a device equal to or higher than that specified for level D differences training and checking.

(3) Level E currency

- (i) Level E currency requires that recent experience requirements of Part-FCL and operational requirements be complied with in each aircraft separately. Level E currency may also specify other system, procedure, or manoeuvre currency item(s) necessary for safe operations, and requires procedures or manoeuvres to be accomplished in a level C or D simulator. Provisions are applied

in a way which addresses the required system or manoeuvre experience.

When level E is assigned between aircraft of common characteristics, credit may be permitted. Assignment of level E currency requirements does not automatically lead to a determination on same or separate type rating.

When CTLC is permitted, any credit or constraints applicable to using level C or D simulators are to be determined.

(ii) Re-establishing level E currency

When currency is lost, it may be re-established by completing pertinent manoeuvres using a device specified for level E differences training and checking.

### **CS FCD.430 Evaluation process overview**

- (a) Six standard evaluations (T1, T2, T3, T4, T5 and T6) are defined under CS FCD.435. They are used to set MDRs, acceptable training programmes, other provisions, and to define type rating requirements as shown in Appendix 3. One or more of these six evaluations are applied depending on the objectives of the applicant, on the difference level sought, and on the successful outcome of any previous evaluations used in identifying MDRs.
- (b) The following evaluations are used:
  - (1) The T1, T2 and T3 evaluations are used when an applicant presents an aircraft seeking pilot training, checking, or currency credit, based on similarities with an existing aircraft, in order to determine its level of difference with the base aircraft of comparison. The results of these evaluations determine whether the aircraft is a new type or a variant. The level of differences determines the minimum required training, checking and currency standards as applicable to the candidate aircraft.
  - (2) The T4 evaluation is used to establish relief from established currency requirements based on system, procedural and manoeuvring differences between aircraft.
  - (3) The T5 evaluation is used when an applicant presents a candidate aircraft as a new aircraft type with no anticipated application for pilot type rating credit for similarities with aircraft previously type certified. The results of a T5 evaluation determine a separate pilot type rating and the minimum required training, checking, and currency standards as applicable to that type of aircraft.
  - (4) The T6 evaluation is used to evaluate CTLC between different types of aircraft.
- (c) The flow chart for the evaluation process is to be found in Appendix 3.

### **CS FCD.435 Evaluation process and evaluation descriptions**

Definition of the evaluation process and evaluation descriptions:

- (a) Difference level evaluations

Five standard evaluations are used to evaluate a candidate aircraft with regard to pilot type rating, minimum syllabus, operational evaluations, and credit for Military Free Fall (MFF) operations. One additional evaluation, the T6 evaluation, can be used to establish CTLC between related aircraft when not previously demonstrated in a T2 evaluation.

One or more of these six evaluations are applied depending on the objectives of the applicant, difference level sought, and the successful outcome of any previous evaluations used in identifying MDRs.

(b) Steps in the evaluation process

When evaluation is accomplished, T1 and T2 evaluation compare the candidate aircraft with the base aircraft. The applicant submits ODR and MDR tables that address the differences between the base and candidate aircraft and vice versa.

If a manufacturer wished to obtain evaluation of an additional training course for a direction that was not initially evaluated, a T3 evaluation in the direction that was not previously evaluated is to be performed.

(c) Prior to evaluation:

- (1) representative training programmes, difference programmes and necessary supporting information are developed as needed;
- (2) proposed MDRs and example ODRs are identified;
- (3) the applicant proposes which evaluations and criteria apply. Evaluations may be combined;
- (4) the applicant proposes which aircraft, variants, simulation devices, or analysis is needed to support the evaluation;
- (5) the applicant proposes test procedures, schedules and specific interpretation of possible results.

(d) Evaluation purpose and application

Evaluation purpose and application are summarized in the table below:

	<b>EVALUATION PURPOSE</b>	<b>APPLICATION</b>
T1	Establishes functional equivalence	Sets levels A/B
T2	Handling qualities comparison	Pass permits T3, and A/B/C/D; failure sets level E and requires T5
T3	Evaluates differences and sets training or checking requirements	Pass sets levels A/B/C/D; failure sets level E and requires T5
T4	Revises currency requirements	
T5	Sets training or checking for new or 'E' aircraft	Sets level E
T6	Evaluation for CTLC	Sets recent experience requirements

Detailed description of the purpose, process and application of each of the six difference level evaluations is as follows:

(e) Evaluation 1 (T1): functional equivalence

Evaluation purpose: to determine whether A or B training level is appropriate.

Evaluation process: administer appropriate portions of a proficiency check as agreed by the Agency based on a proposal by the manufacturer. This evaluation may be accomplished in a training device or simulator or aircraft as appropriate. Only those portions of the proficiency check which are affected by the differences from the base aircraft need to be evaluated. For minor level A or B differences this evaluation may be conducted through analysis.

- (1) Successful evaluation validates that base and candidate aircraft are sufficiently alike to assign level A or B differences.
- (2) Failure of evaluation generally requires completion of T2 and T3 evaluation. Normally, re-evaluation is not appropriate; however, at the request of the applicant re-evaluation may be accepted by the Agency.

(f) Evaluation 2 (T2): handling qualities comparison

Evaluation purpose: to evaluate handling qualities using specific flight manoeuvres to determine whether level A, B, C or D training is appropriate. At the discretion of the Agency the T2 evaluation may be completed through analysis without requiring an aircraft flight.

Evaluation process: compare the handling qualities during a set of agreed manoeuvres. This evaluation is conducted in the base and candidate aircraft, unless safety considerations dictate use of an approved simulator. Manoeuvres are performed with the aid of a safety pilot who may only aid in areas not related to the evaluation. Normal crew call-outs and coordination are permitted; however, the safety pilot may not assist in any other manner unless directly related to a safety of flight issue, for example no 'coaching' or instructing is permitted.

Successful evaluation: validates that base and candidate aircraft are sufficiently alike in handling characteristics to permit assignment of level A, B, C or D training. A successful evaluation permits a subsequent evaluation (T3) to assess systems differences, training or checking to be conducted.

When T2 is otherwise successfully completed, FFS or aircraft training may be proposed within level D training for the conduct of specific manoeuvres.

Failure of evaluation: failure of the T2 evaluation indicates that major differences exist in handling characteristics during critical phases of flight (such as take-off or landing) or that numerous less critical but still significant handling qualities differences exist between the base and candidate aircraft. T2 evaluation failure requires the assignment of level E training. Also with level E training a separate type rating is normally assigned to the candidate aircraft being evaluated. Normally T2 re-evaluation is not appropriate; however, re-evaluation may be proposed.

(g) Evaluation 3 (T3): systems differences and validation of proposed differences training and checking

Evaluation purpose: to evaluate the proposed differences training and checking programmes and training devices at level B, C or D.



Evaluation subjects: pilots designated by the Agency, trained and experienced in the base aircraft and having been given the proposed differences training programme for the candidate aircraft.

Evaluation process: if level B training is appropriate, T3 may be completed by analysis. If level C or D training is appropriate, administer appropriate portions of a proficiency check in a level C or D simulator as established by the Agency based on a proposal by the manufacturer. Following completion of the flight test (proficiency check), a simulated Line Oriented Flying (LOF) check may be administered by the Agency. This LOF check is normally administered in a simulator but may be accomplished in a test aircraft as appropriate.

Successful evaluation: permits assignment of level B, C or D training and validates the proposed differences training or checking programmes.

Failure of evaluation: indicates that either the proposed training is inadequate and is in need of revision to qualify for a re-evaluation opportunity or T3 failure may require the assignment of level E training. With level E training a separate type rating is normally assigned to the candidate aircraft. Re-evaluation may be proposed.

(h) Evaluation 4 (T4): currency validation

Evaluation purpose: used to evaluate relief from established currency requirements. This currency evaluation addresses system procedural and manoeuvring differences between aircraft and not the recent experience requirements for take-off, approach and landing as mentioned in FCL.060(b) of Part-FCL.

Evaluation subjects: as established by the Agency based on a proposal by the manufacturer.

Evaluation process: as established by the Agency based on a proposal by the manufacturer, but normally involves a process for validating a specific currency proposal made by the manufacturer or alternative evaluation methods such as direct observation of proficiency checks or LOF simulator sessions.

Successful evaluation: validates that the proposed currency provision(s) is (are) accepted as a means of compliance with the applicable requirements and provides an equivalent level of safety. T4 may be completed as part of an initial certification or evaluation process or as a follow-up of evaluation.

Failure of evaluation: indicates that the proposed currency requirements do not provide an equivalent level of safety and may lead to re-evaluation as determined by the Agency based on a proposal by the manufacturer, if appropriate.

(i) Evaluation 5 (T5): initial or transition training programme validation

Evaluation purpose: used to validate training course(s) at level E (new type rating). In accordance with the pilot prerequisites for the subject training course, training course(s) to be evaluated is(are) either a full type rating course(s) or reduced type rating course(s) with credit for previous experience on similar aircraft types.

Evaluation subjects: as established by the Agency based on a proposal by the manufacturer.

Evaluation process: as established by the Agency based on a proposal by the manufacturer, but normally involves evaluation subjects receiving the proposed training and the Agency observing or administering the checking

upon completion of the training. A T2 and T3 evaluation may be performed if credit for commonality is requested. This evaluation may be structured to evaluate specific commonality objectives as established by the Agency based on a proposal by the manufacturer.

Successful evaluation: validates that the proposed training satisfies the appropriate requirements.

Failure of evaluation: indicates that the proposed training programme requires modification to satisfy the appropriate requirements. A re-evaluation as established by the Agency based on a proposal by the manufacturer would normally be required.

T5 evaluation may credit applicable evaluation done during T2 and T3 evaluations in the event of T2 or T3 evaluation failures.

(j) Evaluation 6 (T6): CTLC

Evaluation purpose: to establish credit between the base and candidate aircraft towards the recent experience requirements for take-off and landing.

Evaluation subjects: pilots designated by the Agency, not trained and experienced in the candidate aircraft.

Evaluation process: evaluation subjects are first provided with refresher training in the base aircraft to establish a baseline of proficiency. This training may be accomplished in an approved level C or D full flight simulator. The subject is then evaluated in the candidate aircraft, without any training in it, accomplishing a minimum of three take-offs and landings without use of the autopilot. It may not be practical to conduct some evaluations in an aircraft. A simulator may be used to conduct these evaluations. Evaluation subjects should be evaluated on the ability to fly the aircraft manually through take-off, initial climb, approach and landing (including the establishment of final landing configuration).

Successful evaluation: validates that the proposed training satisfies the appropriate requirements and an equivalent level of safety can be maintained when full or partial credit for take-offs and landings is given between the base and candidate aircraft.

Failure of evaluation: indicates that an equivalent level of safety cannot be maintained when either full or partial credit for take-offs and landings is given between the base and candidate aircraft.

(k) Disposition of evaluation results

Evaluation results should be summarized and the outcome documented in the OSD.

Prior to the issuance of the OSD, a statement declaring the results of the type rating determination may be issued.

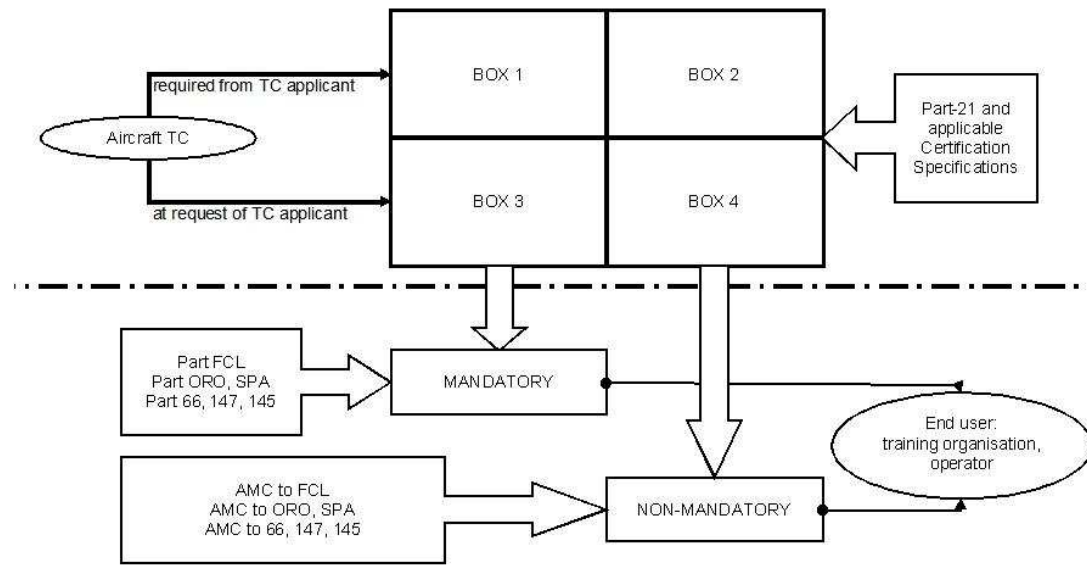
## Appendix 1 to CS FCD.100 OSD content

Box 1: Data required from the TC applicant; mandatory for the end users.

Box 2: Data required from the TC applicant; non-mandatory (recommendations) for the end users.

Box 3: Data at the request of the TC applicant; mandatory for the end users.

Box 4: Data at the request of the TC applicant; non-mandatory (recommendations) for the end users.



**Appendix 2 to CS FCD.410 Compilation of ODR tables**

This appendix specifies the compilation of ODR tables. The applicant conducts a detailed evaluation of the differences and similarities of the aircraft concerned and compiles this into the ODR tables.

(a) ODR 1: General

The general characteristics of the candidate aircraft are compared with the base aircraft with regard to:

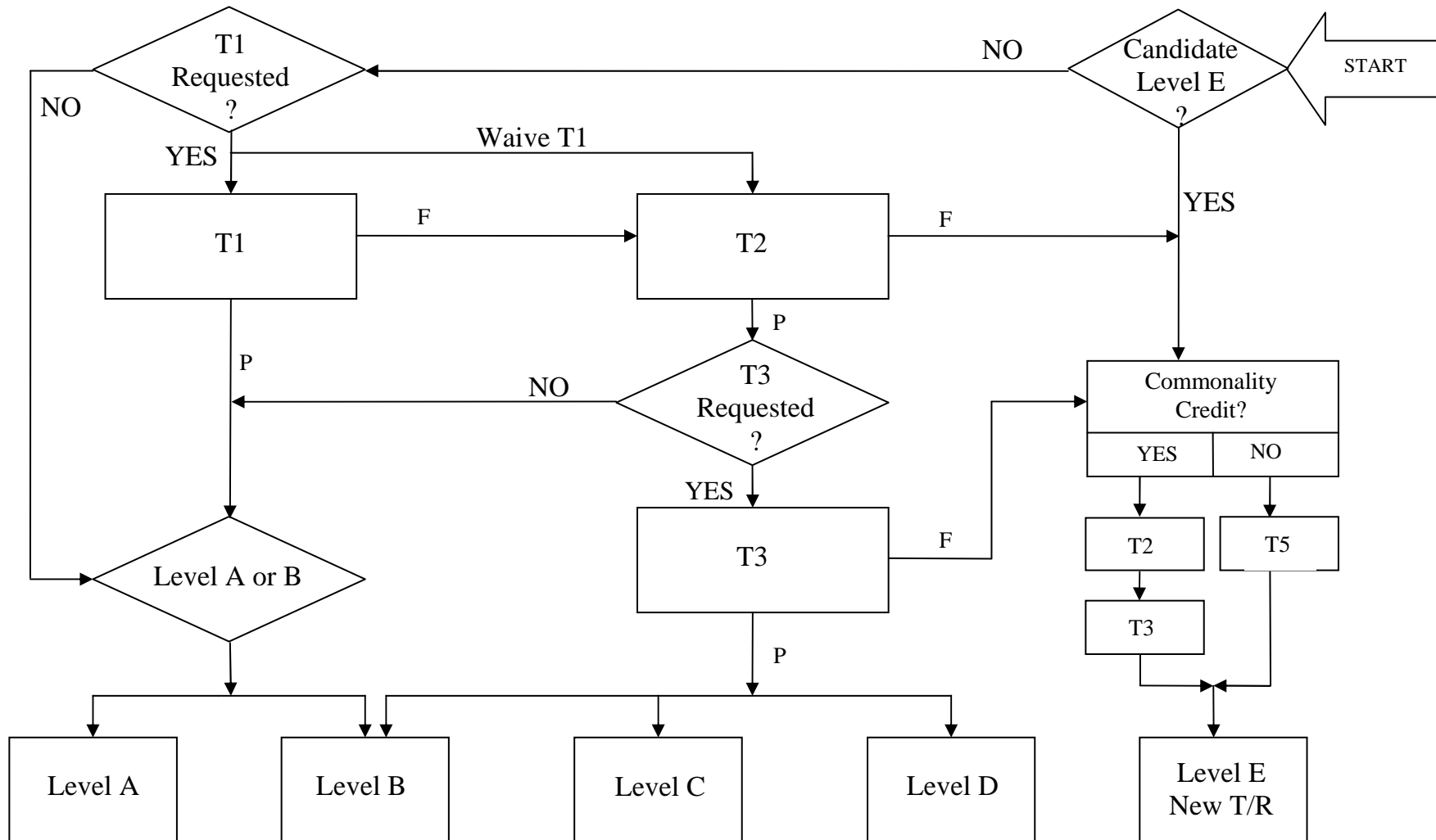
- (1) general dimensions and aircraft design (number and type of rotors, wing span or category);
- (2) flight deck general design;
- (3) cabin layout;
- (4) engines (number, type and position);
- (5) limitations (flight envelope).

(b) ODR 2: Systems

Consideration is given to differences in design between the candidate aircraft and the base aircraft. For this comparison the Air Transport Association (ATA) 100 index is used. This index establishes a system and subsystem classification and then an analysis performed for each index item with respect to the main architectural, functional and operations elements, including controls and indications on the systems control panel.

(c) ODR 3: Manoeuvres

- (1) Operational differences encompass normal, abnormal and emergency situations and include any change in aircraft handling and flight management. It is necessary to establish a list of operational items for consideration on which an analysis of differences can be made.
- (2) Operational differences encompass normal, abnormal and emergency situations and include any change in aircraft handling and flight management. It is necessary to establish a list of operational items for consideration on which an analysis of differences can be made. The operational analysis should take the following into account:
  - (i) flight deck dimensions (size, cut-off angle and pilot eye height);
  - (ii) differences in controls (design, shape, location and function);
  - (iii) additional or altered function (flight controls) in normal or abnormal conditions;
  - (iv) procedures;
  - (v) handling qualities (including inertia) in normal and in abnormal configurations;
  - (vi) performance in manoeuvres;
  - (vii) aircraft status following failure.

**Appendix 3 to CS FCD.430 Evaluation process**

**II. DRAFT DECISION ON CERTIFICATION SPECIFICATIONS FOR  
OPERATIONAL SUITABILITY DATA (OSD) FLIGHT CREW DATA — CS  
FCD BOOK 2**

**EASA**

**Certification Specifications**

**for**

**Operational Suitability Data (OSD)**

**Flight Crew Data**

**CS FCD**

**Book 2**

**GM1 FCD.105 Definitions**

List of acronyms used in CS FCD

ACARS	Aircraft Communication Addressing and Reporting System
AGNA	Advisory Group of National Authorities
ATA	Air Transport Association
ATQP	Alternative Training and Qualification Programme
BRNAV	Basic Area Navigation
CBT	Computer-Based Training
CTL	Common Take-off and Landing Credit
CRD	Comment-Response Document
CRT	Comment-Response Tool
CS	Certification Specifications
DR	Difference Requirement
ECL	Electronic Check List
EFB	Electronic Flight Bag
EFIS	Electronic Flight Instrument System
ETOPS	Extended range operations with two-engine aeroplane
EVS	Enhanced Vision System
FAA	Federal Aviation Administration
FCD	Flight Crew Data
FCL	Flight Crew Licensing
FD	Flight Director
FFS	Full Flight Simulator
FGCS	Flight Guidance Control System
FMS	Flight Management System
FNPT	Flight and Navigation Procedures Trainer
FSTD	Flight Simulation Training Devices
FTD	Flight Training Device
GM	Guidance Material
GPWS	Ground Proximity Warning System
HEMS	Helicopter Emergency Medical Service
HHO	Helicopter Hoist Operations
HUD	Head Up Display
INS	Inertial Navigation System
JAA	Joint Aviation Authorities
JOEB	Joint Operational Evaluation Board
LBS	Load & Balance and Servicing
LIFUS	Line Flying Under Supervision
LOF	Line Oriented Flying
LVO	Low Visibility Operations
MDR	Master Difference Requirement
MNPS	Minimum Navigation Performance Specification

M MEL	Master Minimum Equipment List
M FF	Military Free Fall
N AA	National Aviation Authorities
N PA	Notice of Proposed Amendment
N VIS	Night Vision Imaging System
O DR	Operator Difference Requirement
O EB	Operational Evaluation Board
O PT	Operational Performance Tool
O SD	Operational Suitability Data
O TD	Other Training Devices
P IC	Pilot-In-Command
Q RH	Quick Reference Handbook
R VSM	Reduced Vertical Separation Minima
S SCC	Safety Standards Consultative Committee
S VS	Synthetic Vision System
T C	Type Certificate
T CAS	Traffic Collision Avoidance System
T CCA	Transport Canada
T oR	Terms of Reference
T RI	Type Rating Instructor
V FR	Visual Flight Rules



**GM1 FCD.200 Determination of a pilot type rating**

For the category of aircraft described in CS FCD.200(a)(3) during the type certification process an assessment will be performed whether the aircraft type requires a pilot type rating. The applicant for a type certificate is then requested to apply for approval of a minimum syllabus for pilot type rating training unless he/she can show that type training is not required to fly the aircraft safely. This should be based on the considerations listed in that subparagraph.

**GM1 FCD.300 Pilot type rating training requirements for a specific aircraft**

- (a) The following table presents an example of an evaluated full type rating course which was found to be compliant with the applicable requirements.

<b>Day 1</b> <b>Tablet Introduction</b> <b>CBT Module 1</b> (x:xx hrs)	<b>Day 2</b> <b>CBT MODULE 2</b> (x:xx hrs)	<b>Day 3</b> <b>CBT MODULE 3</b> (x:xx hrs)	<b>Day 4</b> <b>CBT MODULE 4</b> (x:xx hrs) <b>OTD MODULE 1</b> (x:xx hrs)	<b>Day 5</b> <b>Tutorial 1 OPT</b> (x:xx hrs)
<b>Day 6</b> <b>CBT MODULE 5</b> (x:xx hrs) <b>OTD MODULE 2</b> (x:xx hrs)	<b>Day 7</b> <b>CBT MODULE 6</b> (x:xx hrs) <b>OTD MODULE 3</b> (x:xx hrs)	<b>Day 8</b> <b>CBT MODULE 7</b> (x:xx hrs) <b>OTD 4</b> (x:xx hrs)	<b>Day 9</b> <b>CBT MODULE 8</b> (x:xx hrs) <b>OTD MODULE 5</b> (x:xx hrs)	<b>Day 10</b> <b>CBT MODULE 9</b> (x:xx hrs) <b>OTD MODULE 6</b> (x:xx hrs)
<b>Day 11</b> <b>CBT MODULE 10</b> (x:xx hrs) <b>OTD MODULE 7</b> (x:xx hrs)	<b>Day 12</b> <b>CBT MODULE 11</b> (x:xx hrs) <b>OTD MODULE 8</b> (x:xx hrs)	<b>Day 13</b> <b>CBT MODULE 12</b> (x:xx hrs) <b>OTD MODULE 9</b> (x:xx hrs)	<b>Day 14</b> <b>CBT MODULE 15</b> (x:xx hrs) <b>OTD MODULE 10</b> (x:xx hrs)	<b>Day 15</b> <b>Tutorial 2 EFB, QRH</b> (x:xx hrs) <b>Tutorial 3 LBS</b> (x:xx hrs)
<b>Day 16</b> <b>Variances (if needed)</b> (x:xx hrs)	<b>Day 17</b> <b>FFS MODULE 1</b> (x:xx hrs)	<b>Day 18</b> <b>FFS MODULE 2</b> (x:xx hrs)	<b>Day 19</b> <b>FFS MODULE 3</b> (x:xx hrs)	<b>Day 20</b> <b>FFS MODULE 4</b> (x:xx hrs)
<b>Day 21</b> <b>FFS MODULE 5</b> (x:xx hrs) <b>Wind shear briefing</b> (x:xx hrs)	<b>Day 22</b> <b>FFS MODULE 6</b> (x:xx hrs)	<b>Day 23</b> <b>FFS MODULE 7</b> (x:xx hrs)	<b>Day 24</b> <b>FFS MODULE 8</b> (x:xx hrs)	<b>Day 25</b> <b>Skill test</b> (x:xx hrs)

*Note:* Times for OTD and FFS modules include time for briefing and debriefing.

(b) Reduced training footprint

Type rating training is based on pilot's prerequisites.

If there is commonality between the base and candidate aircraft, a reduced type rating training footprint may be provided by giving credit to the common characteristics between these types.

If the determination is made that the base and candidate aircraft are considered variants, only differences or familiarization training is required.

(c) Training methods

For the training methods for pilot type rating training:

- (1) knowledge can be adequately addressed through self-instruction and aided instruction;
- (2) hands-on training can be adequately addressed by part task trainers or system devices (for example for FMS and TCAS);
- (3) demonstration can only be adequately addressed in a flight training device enabling integration of knowledge, skills and abilities. Depending upon the element to be trained, acceptable training media could be an FNPT, FTD or FFS.

**GM1 FCD.400 Operational evaluation process**

(a) At the request of the applicant, the following may be evaluated as appropriate:

- (1) specific type of operations or specific aircraft missions;
- (2) use of the aircraft in specific environmental context (special approval);
- (3) use of optional aircraft equipment.

(b) Type of operations and aircraft missions include, but are not limited to:

- (1) LVO;
- (2) ETOPS;
- (3) operations dedicated to helicopters such as HHO, HEMS and off-shore operations;
- (4) adverse weather such as winter conditions, heavy rain fall, wind shear, thunderstorms, turbulences, volcanic activity and widespread sandstorm;
- (5) transport of dangerous goods and cargo flights;
- (6) single-pilot operations.

(c) Environmental context for operations includes, but is not limited to:

- (1) specific environment such as mountainous area, desert area, particular airports with short or narrow runways, steep approach;
- (2) specific airspace such as RVSM, MNPS and BRNAV;
- (3) security considerations.

(d) Optional equipment

Use of new aircraft technology or specific equipment such as HUD, EFB, NVIS, ECL customisation, EVS and SVS.

**GM1 FCD.405 Credit for operation on more than one type or variant**

Credit can be given for common equipment, common procedures, and types of operations which include, but are not limited to:

- (a) TCAS training or GPWS training;
- (b) alternating proficiency checks;
- (c) take-off and landing currency;
- (d) currency in conduct of special operations (for example low visibility operations, HUD use, and NVIS operations).

**GM1 FCD.415 Master Difference Requirement (MDR) tables****Proposed MDRs**

MDR tables are established when candidate aircraft is evaluated in comparison to base aircraft.

*MDRs example:*

<i>Aircraft type</i>		<b>FROM AIRCRAFT (base)</b>		
		<b>aircraft 1</b>	<b>aircraft 2</b>	<b>aircraft</b>
<b>T O  A I R C R A F T  (candidate)</b>	<b>aircraft 1</b>	n/a	A / A / A	C / B / B
	<b>aircraft 2</b>	A / A / A	n/a	D/B/B
	<b>aircraft</b>	C / B / B	D / B / B	n/a

**GM1 FCD.425 Difference levels — Training, checking and currency**

- (a) While particular aircraft are often assigned the same level for training, checking and currency (for example C/C/C), such assignment is not necessary. Levels might be assigned independently. As an example, candidate aircraft may be assigned level C for training, level B for checking, and level D for currency (for example C/B/D).

(b) Difference level — Training

As an example for the use of a device associated with a higher difference level than required, if level C differences have been assessed due to installation of a different FMS, pilots may be trained using the FMS installed in an FFS as a system trainer, if a dedicated part task FMS training device is not available.

(1) Level A training

Compliance with level A training is typically achieved by methods such as issuance of operating manual page revisions, dissemination of flight crew operating bulletins or differences hand-outs to describe minor differences between aircraft.

Level A training is normally limited to situations such as the following:

- (i) the change introduces a different version of a system or component for which the flight crew has already demonstrated the ability to understand and use (for example an updated version of an engine);
- (ii) the change results in minor or non-procedural changes and does not result in adverse safety effects if the information is not reviewed or is forgotten;
- (iii) information highlighting a difference that, once called to the attention of a crew, is self-evident, inherently obvious and easily understood (for example different location of a communication radio panel, a different exhaust gas temperature limit which is placarded, or changes to abnormal 'read and do' procedures).

(2) Level B training

Level B aided instruction typically employs means such as presentations, tutorials, CBT, stand-up lectures, or videotapes or DVDs.

(3) Level C training

While level C systems knowledge or skills relate to specific rather than fully integrated tasks, performance of steps to accomplish normal, abnormal and emergency procedures or manoeuvres related to particular systems (for example flight guidance control systems, flight management systems, etc.) may be necessary.

Examples of devices acceptable for level C training:

- (i) interactive computer-based training to include FMS trainers, systems trainers;
- (ii) qualified training devices;
- (iii) specific systems incorporated in FFS;
- (iv) a static aircraft.

- (4) Level D training

FFS or aircraft training may be specified for the conduct of specific manoeuvres or handling differences, such as HUD training or a manoeuvre (for example no-flap landing, tail-rotor control failure, etc.). In such cases, the number of hours required in an FFS or aircraft should normally be limited to two hours for aeroplanes and an appropriate number of hours for other aircraft.
- (5) Level E training

If training is performed in an aircraft, it should be modified for situations like setting the affected engine at idle thrust to simulate an engine failure, for safety reasons.
- (c) Difference level — Checking
  - (1) Level A checking

Differences items should be included as an integral part of subsequent proficiency checks.
  - (2) Level B checking

Level B checking typically applies to particular tasks or systems, such as INS, FMS, TCAS, or other individual systems or related groups of systems.
  - (3) Level C checking

An example of level C checking would be the evaluation of a sequence of manoeuvres demonstrating a pilot's ability to use a flight guidance control system or flight management system. An acceptable scenario would include each relevant phase of flight but would not necessarily address manoeuvres that do not relate to set up or use of the FD or FMS.
- (d) Difference level — Currency
  - (1) Level A currency

Level A currency consists of a self-review as necessary.
  - (2) Level B currency

Self-review is usually accomplished by review of material provided by the operator to pilots. Such currency may be undertaken at an individual pilot's initiative; however, the operator identifies the material and the frequency or other situations in which the material should be reviewed. Self-review may be based on manual information, bulletins, aircraft placards, memos, class hand-outs, videotapes or DVDs, or other memory aids that describe the differences, procedures, manoeuvres, or limits for the aircraft that pilots are flying.

An example of acceptable compliance with level B currency would be the issuing of a bulletin which directs pilots to review specific operating manual information. Level B currency may be regained by review of pertinent information to include bulletins, if that variant has not been flown within a specified period (for example fly that variant or have completed a review of the differences in limitations and procedures within the past 90 days).

Another method of compliance would be pilot certification on a dispatch release that they have reviewed pertinent information for a particular variant to be flown on that trip. However, level B currency cannot be achieved solely by review of class notes taken by and at the

initiative of an individual pilot, unless the adequacy of those notes is verified by the operator.

(3) Level C currency

An example of level C currency would be the establishment of INS currency, FMS currency, flight guidance control system currency, or other particular currency that is necessary for safe operation of an aircraft. Establishment of level C currency for an FMS would typically require a pilot to fly the aircraft within a specified period or to re-establish currency. Typically, currency constraints for level C are 90 days. However, some systems or procedures may require shorter time limits while others may be longer than the normal interval for proficiency checks, if the pertinent items are not always addressed by these checks.

Examples of methods acceptable for addressing level C currency are:

- (i) pilot scheduling practices resulting in a pilot being scheduled to fly a variant with the pertinent system or procedure within the specified period;
- (ii) tracking of an individual pilot's flying to ensure that the particular system or procedure has been flown within the specified period;
- (iii) use of a higher level method (level D or E currency).

Re-establishing level C currency

Means to re-establish currency include flights with an appropriately qualified TRI, completion of proficiency training, or a proficiency check. In the case of a non-current co-pilot, a designated PIC may be authorised to accompany a flight crew member to re-establish currency. In some instances, a formal re-familiarisation period in the actual aircraft with the applicable system operating while on ground may be acceptable. Such re-familiarization periods are completed using an operator-established procedure under the supervision of a pilot designated by the operator.

(4) Level D currency

A typical application of level D currency is to specify selected manoeuvres, such as take-off, departure, arrival, approach, or landing, which are to be performed using a particular FGCS and instrument display system. A pilot either flies an aircraft equipped with the FGCS and particular display system sufficiently often to retain familiarity and competence within the specified currency period, or re-establishes currency.

Examples of methods acceptable for addressing level D currency are:

- (i) tracking of flights by an individual pilot to assure experience within the specified currency period;
- (ii) tracking of completion of specific manoeuvres based on logbook entries, ACARS data, or other reliable records to assure experience within the specified currency period;
- (iii) scheduling of aircraft or crews to permit currency requirements to be met with verification that each pilot has actually accomplished the assigned or an equivalent schedule;
- (iv) completion of pilot certification, proficiency check, proficiency training, ATQP evaluations, or other pertinent events in which

designated manoeuvres are performed in a device or simulator acceptable for level D currency;

- (v) use of a higher level method (level E currency).

Re-establishing level D currency

Means to re-establish currency include flight with an appropriately qualified TRI during training or in line operations, completion of proficiency training, a proficiency check, or ATQP proficiency evaluation.

- (5) Level E currency

If FGCS, FMS, EFIS, navigation, or other system or manoeuvre experience is the basis for a currency requirement, approval of an operator's programme at level E includes use of those systems in conjunction with satisfactory take-off and landing requirements. In such an instance making three simulator take-offs and landings in VFR closed traffic without using the FGCS, EFIS, or FMS may not be sufficient to meet level E currency requirements.

When credit is permitted between aircraft of common flight characteristics, pertinent currency requirements for knowledge, skills, procedures, or other manoeuvres not related to take-off and landings may be necessary.

Re-establishing level E currency

Means to re-establish currency include flight with an appropriately qualified TRI during training or in line operations, completion of proficiency training, a proficiency check, or ATQP evaluation.

## **GM1 FCD.435 Evaluation process and evaluation descriptions**

Definition of the evaluation process and evaluation descriptions.

- (a) Steps in the evaluation process

Normally for level A and B differences a two-way evaluation is not necessary. Typically, T3 evaluation to validate level C and D differences is done in both directions (base to candidate aircraft, and candidate to base aircraft). However, the applicant may request that T3 evaluation be done in only one direction (for example from the base to candidate aircraft). If this is done, the MDR and DR tables will only reflect findings for this direction. No credit will be given in the MDR or DR tables for the other direction (candidate to base aircraft).

- (b) T2 evaluation: handling qualities comparison

T2 manoeuvres are flown in the base aircraft or simulator and in the candidate aircraft.

The T2 evaluation profile is subject to the characteristics of the base and candidate aircraft. The evaluation profile should incorporate all relevant handling quality aspects of the candidate aircraft. T2 consists of a comparison between selected pilot type rating check manoeuvres (normal, abnormal; please refer to Part-FCL) performed first in the base aircraft (using either the actual aircraft or a level C or D simulator), then in the candidate aircraft.

Although T2 evaluations should always be accomplished in the candidate aircraft, some portions that significantly affect aircraft safety (such as flight control failures) may be conducted in a simulator suitable for the test.

Subject pilots are evaluated on performance of required manoeuvres consistent with the standards set in Part-FCL and on the degree of difficulty in performing manoeuvres in the candidate aircraft compared to the base aircraft.

(c) T4 evaluation: currency validation

T4 evaluation is a currency test that can be used when an applicant seeks relief from existing currency provisions as set in the applicable ODR tables. This test may be done before or after the aircraft enters into service.

(d) T6 evaluation: CTLC

Test subjects should be evaluated on their ability to fly the aircraft manually through take-off, initial climb, and approach and landing (including the establishment of final landing configuration). The applicant should consider the effects on the take-off and landing manoeuvres for the following factors when designing the T6 test:

- (1) aircraft weight;
- (2) aircraft centre of gravity;
- (3) take-off and landing crosswinds.