



Explanatory Notes
Transition from Operational Evaluation Board (OEB) Reports
to Operational Suitability Data (OSD)
for Flight Crew Data

27 March 2015

1. General

Based on request from industry, operational evaluations have been conducted by the JAA and then by EASA since 1997. Associated OEB reports are published on the EASA website in support of Approved Training Organisations (ATO) and operators, for the aircraft, equipment and/or operations which have been evaluated in the relevant OEB reports.

With the entry into force of Commission Regulation (EU) No 69/2014 on 18 February 2014 the concept of Operational Suitability Data (OSD) was implemented, integrating operational evaluation elements into the certification design process as foreseen in the Basic Regulation¹. Available operational suitability data are then referenced in the applicable Type Certificate Data Sheet (TCDS).

2. Transition of existing OEB reports to OSD

Commission Regulation (EU) No 69/2014 introduces Article 7a of Commission Regulation (EU) No 748/2012. Paragraph 3 of Article 7a states: "*Operational Evaluation Board reports and master minimum equipment lists issued in accordance with JAA procedures or by the Agency before the entry into force of this Regulation [18 February 2014] shall be deemed to constitute the operational suitability data approved in accordance with point 21.A.21(e) of Annex I (Part 21) and shall be included in the relevant type-certificate. Before 18 June 2014 the relevant type-certificate holders shall propose to the Agency a division of the operational suitability data in mandatory data and non-mandatory data.*"

The Agency is in the process of reviewing the division of the operational suitability data of OEB reports. Completed reviews may be attached to published OEB reports on the EASA website as an interim measure, or may lead to completely transposed OSD documents held by the TC/STC holders.

The transition of OEB reports will be completed with the inclusion of OSD references in the relevant TCDS, the OEB reports concerned will be withdrawn from the EASA website, and associated OSD documents will be held by the manufacturer (TC/STC holder).

3. Provision of Operational Suitability Data (OSD) to users

Commission Regulation (EU) No 69/2014 amends Annex I (Part 21) to Regulation (EU) No 748/2012, para. 21.A.62 which regulates the provision of operational suitability data, as follows:

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

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

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."*

4. Integration of OSD provisions by users

4.1 OSD Flight Crew (OSD FC) Data

In addition to reference of OSD FC data in the TCDS, the Agency maintains the EASA Type Rating & License Endorsement Lists Flight Crew on its website, one for Helicopters and one for all other aircraft. These lists constitute the class and type of aircraft categorisations in accordance with Part-FCL². The lists also reference Operational Evaluation Board (OEB) Flight Crew reports and Operational Suitability Data (OSD) Flight Crew, where available.

Type rating training approved before the approval of the minimum syllabus of pilot type rating training in the Operational Suitability Data for the relevant type of aircraft shall include the mandatory training elements not later than 18 December 2017 or within two years after the operational suitability data was approved, whichever is the latest³.

The ATO shall ensure that students meet all the pre-requisites for training as defined in the mandatory part of the operational suitability data, if established [Regulation (EU) No 748/2012, ORA.ATO.145]³.

Operators shall ensure that flight crew members who are already in operation and have completed training which did not include the mandatory elements established in the relevant operational suitability data, undertake training covering those mandatory elements not later than 18 December 2017 or two years after the approval of the operational suitability data, whichever is the latest³.

Annex III (PART-ORO) and Annex V (PART-SPA) to Regulation (EU) No 965/2012 contain further amendments.

4. Further transition arrangements

Commission Regulation (EU) No 69/2014, No. 70/2014, and No. 71/2014 should be consulted for further transition arrangements.

² Annex I of Commission Regulation (EU) No 1178/2011 of 3 November 2011 ("Part-FCL"), as amended

³ Commission Regulation (EU) No 70/2014 of 27 January 2014 amending Regulation (EU) No 1178/2011

Operational Suitability Data (OSD) for the Airbus A320 Family

A318, A319, A320 & A321

In accordance with Article 7a, para 3 of Commission Regulation (EU) No 69/2014 of 27 January 2014, the JOEB report, titled Airbus A320 (A318, A319, A320 & A321) dated 21 August 2003 shall be deemed to constitute the operational suitability data approved in accordance with point 21.A.21(e) of Annex I (Part 21).

The following table establishes the division of the operational suitability data in mandatory data and non-mandatory data.

<u>MANDATORY DATA</u>	<u>NON MANDATORY DATA</u>
§2 Type Rating requirements	
	§3 Master Common requirements
§4 Master Difference Requirements	
§5 ODR tables	
§6.1.1 Areas of emphasis	§6.1.2 Type Rating Course
	§6.2.1 Purpose of LIFUS
§6.2.2 LIFUS in case of initial type rating onto any A320 variant	
§6.3 Familiarization courses	§6.4 Recurrent training
§7.1 Skill test following type rating course	§7.2 Recurrent checks
§7.3 Line Checks	
§8 Currency / recent experience	
	Annex 1 – A320 family footprint
Annex 2 – ODR STR	

The data were established in accordance with the processes detailed in the JAA JOEB Handbook, dated December 2002 and are in compliance with CS-FCD, initial issue dated 31 January 2014.

Provisions contained in the A320 JOEB report are related to the corresponding regulations for civil aviation aircrew and air operations.

These data will be included in the relevant type-certificate(s) in due course.

**CENTRAL
JOINT AVIATION AUTHORITIES
JOINT OPERATION EVALUATION BOARD REPORT**



**Airbus A320
A318, A319, A320 & A321
21/08/03**

Airbus has requested a JOEB process for evaluation of the A318. The following subgroups have been set up and are:

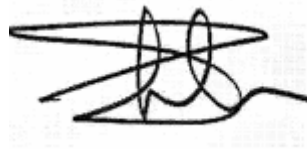
- MMEL Subgroup
- FCL & OPS Subgroup
- Cabin Crew subgroup

The enclosed report only covers the activities of the FCL & OPS subgroup, as some work is still going on in other areas; the respective subgroups will issue as required subgroup reports. No specific report will be issued for the MMEL as the MMEL is the actual document recommended for approval by the JAA.

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JAA Operation Evaluation Board – FCL& OPS Subgroup



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Preamble

This Joint Operation Evaluation has been performed by an integrated team composed of JAA, FAA, and TCCA members. However, this report is applicable to the JAA only.

As no JAA JOEB report is available for Airbus A320, A319 and A321 (named hereafter A320 family), this Joint Operation Evaluation report includes the differences between the variants using the findings of existing evaluation reports from JAA national aviation Authorities (JAA NAA) and the FAA FSB.

The report specifies the JAA type rating, initial training course, familiarization courses, Checking and Currency minimum requirements:

- for an initial type rating on the A320,
- for pilots already qualified on one A320 family variant and moving onto another variant. (A318, A319 or A321)

This Evaluation has been made in compliance with the JAA Terms of Reference and the JOEB handbook.

JAA recommends the approval of the Airbus proposed training courses for initial type rating on the A320 and familiarization training for all variants.

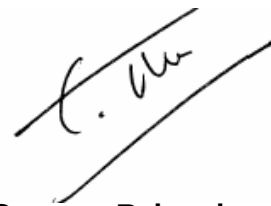
JAA recommends approval of the Airbus referenced ODR Tables

Central JAA recommends a single licence endorsement (same type rating) for all variants of the A320.



Fergus Woods

Licensing Division Director



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Executive Summary

The Operational Evaluation (OE) was conducted as a joint effort by the Joint Aviation Authorities (JAA), Federal Aviation Administration (FAA), and Transport Canada Civil Aviation (TCCA) to simultaneously meet the JAA requirement for the JOEB, the FAA requirement for a Flight Standardization Board (FSB) and the Canadian requirement for an Operational Evaluation. Each Authority used the results of the evaluation process to produce a report specific to its particular requirements which, while similar in intent, differ somewhat in detail.

Airbus proposed that the A318 share a same type rating with the A320, and should therefore have a single licence endorsement for all variants A318/319/320/321.

The base aircraft for comparison purposes for the OE was the A320, and handling assessment was conducted by comparing the A321 and the A318.

In addition Airbus submitted that pilots holding an A320 rating achieved on the A320, A319, or A321 should be able to qualify on the A318 after completion of familiarization training (difference training under TCCA-FAA terminology). The same qualification criteria should apply to pilots who achieve the A320 type rating on the A318, and subsequently convert to the A320, A319 or A321.

The familiarization training included ground school (CBT) to cover technical differences.

The Operational Evaluation was conducted in accordance with the processes detailed in the JAA *JOEB Handbook*, dated December 2002 and in the FAA AC 120-53 *Crew Qualification and Pilot type rating requirements for Transport category Aircraft operated under FAR Part 121*, dated 13 May 1991.

JAR requirements as in JAR-OPS 1 (§ 1.940, 1.945, 1.950, 1.965, 1.970 and 1.980 including associated appendices, AMCs and IEMs), JAR-FCL 1 (§1.215, 1.220, 1.225, 1.230, 1.235, and 1.261 including associated appendices, AMCs and IEMs) have been considered.

Airbus provided the Operational Evaluation team with proposed Operator Differences Requirements (ODR) tables to be used as a basis for the evaluation.

Six Pilots (FAA, Transport Canada and JAA crews) qualified and current on the A320 family shared an agreed flight programme for the handling comparison test.

The joint evaluation of the Airbus A318 aircraft by the JAA, FAA, and TCCA was completed by April 24th, 2003. System differences were reviewed and Normal, Abnormal, and Emergency procedures compared for the A320 and A318. Airbus proposed Operator Difference Requirements were examined and proposed Computer Based Training (CBT) reviewed. Both the A321 and A318 aircraft were flown to assess any potential differences in handling qualities.

The Operational Evaluation team recommends that the same type rating, A318/319/320/321 (single licence endorsement), is applied to all variants of the A320 (A318, A319, A320, A321).

The Operational Evaluation team determined that the maximum level of differences that existed between the A318 and A321 were level B. Ground courseware on CBT/Video/Transparencies is adequate to cover differences when transitioning from:

- The A320 variant to the A321 variant, and vice-versa,
- The A320 variant to the A319 variant, and vice-versa,
- The A320 variant to the A318 variant, and vice-versa

Operational Evaluation Report / FCL & OPS Subgroup

1. Purpose and Applicability

This report

- Defines the Type Rating assigned to the A320 family.
- Proposes Master Common Requirements (MCR).
- Describes Master Differences Requirements (MDR) for crews requiring differences training
- Provides reference of acceptable Operator Difference Requirements (ODR tables).
- Makes recommendations for initial Training
- Makes recommendations for Familiarization training course
- Makes recommendations for checking
- Makes recommendations for currency

2. Pilot Type Rating requirements

In reference to JAR FCL1 Subpart F and to the JOEB evaluation procedure, the same Type Rating and, consequently the same Licence Endorsement is assigned to the A318, A319, A320 and A321.

Pilots completing necessary trainings and checks in the A318, A319, A320, A321 per JAR-FCL 1, Subpart F, as prescribed by this report, are assigned the A318/319/320/321 type rating.

Important: To ease the reading of this report, the expression 'A320' will be used throughout to designate A318, A319, A320, A321.

3. Master Common Requirements

These Master Common Requirements have been jointly agreed with the TCCA and FAA Flight Standardisation Board, through the integrated evaluation process.

MCRs are requirements common to the A318, A319, A320 and A321.

The A318, A319, A320 and A321 have been designed with a very high level of commonality in terms of:

- 1) cockpit layout,
- 2) system definition and operation, and
- 3) handling characteristics.

This level of commonality has a direct and significant impact on the definition of the training programmes.

3.1 Altitude callouts during landing

Use of automatic voice callouts for landing is the same for all aircraft from the A320 family.

These callouts may be customized consistent with JARs for low visibility operations (JAR-AWO) for the intended operation. Unless otherwise agreed to by the NAA, operators flying mixed A 320 variants, should standardize those callouts within the fleet.

3.2 Aircraft Approach and circling Categories:

Ref: Appendix 2 to jar-Ops 1.430(c)

Aircraft	Category
A318	C
A319	C
A320	C
A321	C

4. Master Differences Requirements tables

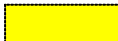
Master Difference Requirements for the A320 family of aircraft are shown in the table below and represents the result of work performed in the joint JAA, FAA and TCCA evaluation. The table also includes the requirements for A319, A320 and A321 based on FAA FSB report (catch up process).

Definitions of the various levels for Training/ Checking/ Currency are the ones from the JOEB handbook, and the relevant definitions are included after the table for reference.

TO FROM	A318	A319	A320	A321
A318	NA	B/A/A	B/A/A	B/A/A
A319	B/A/A	NA	B/A/A	B/A/A
A320	B/A/A	B/A/A	NA	B/A/A
A321	B/A/A	B/A/A	B/A/A	NA

Notes :

NA = Not Applicable

 Correspond to the cases demonstrated, the other have been deduced from analysis, based on FAA FSB report.

Difference level definitions Training/Checking/Currency extracted from the JOEB handbooks:

Level B Training. Level B difference training is applicable to functionally similar aircraft with system or procedure differences that can adequately be addressed through aided instruction. At Level B, aided instruction is appropriate to ensure crew understanding, emphasize issues, provide a standardised method of presentation of material, or to aid retention of material following training. Level B aided instruction typically employs such methods as slide/tape presentations, computer based training (CBT), stand-up lectures, or video tapes.

Level A Checking. *Level A checking indicates that no check related to differences is required at the time of differences training. A crew member is, however, responsible for knowledge of each variant flown, and differences may (and should) be included as an integral part of subsequent recurring proficiency checks.*

Level A Currency. *At Level A currency is considered to be common to each variant. Thus, assessment or tracking of currency for separate variants is not necessary or applicable. Maintenance of currency at in any one variant or a combination of variants suffices for any other variant.*

5. Operator Differences Requirements Tables

ODR tables are used to show an operator's compliance method. Detailed Airbus generic ODR tables are on file with the Central JAA. Copies are available on request. These ODR tables are provided as Airbus generic, and therefore may not include items that are applicable to particular operators. The ODR tables assume that pilots are qualified, current and experienced in operating the base aircraft.

The Airbus ODR tables have been developed in accordance with AMC 1.980(b) & IEM 1.980(b) of JAR-OPS 1 Subpart N.

These ODR tables have been found acceptable by JAA. They represent an acceptable means of compliance with MDR provisions for the aircraft evaluated based on those differences and compliance methods shown. These tables do not necessarily represent the only means of compliance for operators with aircraft having other differences.

Operators flying "more than one A320 variant fleet" must have approved ODR tables pertinent to their fleet.

6 Specification for Training

6.1 Type rating course (transition course)

6.1.1 Area of emphasis

Features within the electronic flight control system and its associated sidestick controller, the A/THR system, the Electronic Centralized Aircraft Monitoring system (ECAM) warrant special interest and emphasis.

NOTE: The following applies to the A320 family but also to all aircraft types and variants which belongs to the Airbus “fly by wire” family.

In light of the unique features of this aircraft family, the JOEB has determined that certain aspects of knowledge, skills and abilities must be emphasized during the initial training process:

- Fly by wire
 - Knowledge of flight characteristics and the degree of flight envelope protection provided by the various flight control laws both for pitch, roll and yaw control.
 - Procedural and handling consequences following multiple failures that result in alternate and/or direct law.
 - Knowledge of the use of “sidestick controller” with a special emphasis on the relationship between the two controllers and the transfer of control.

- Use of Flight Management System
 - Knowledge of the various modes of automation
 - Knowledge and skills related to MCDU / FCU use
 - Recognition of mode awareness and transition modes through the FMA
 - CRM issue linked to automation (task sharing and crosschecks)

- Use of ECAM
 - Knowledge of appropriate use of ECAM in conjunction with system failures
 - Crew discipline for ECAM actions: respect of the depicted procedure, crosscheck of irreversible actions, aircraft status analysis

- Auto thrust system
- Knowledge of the thrust control system in conjunction with the “non moving throttles”
- Recognition of all messages associated to Auto thrust failure, engagement and disconnection

6.1.2 Type rating course (Transition course)

The Airbus proposed type-rating training (transition course) is in compliance with the AMC 1.261 (c) (2) of JAR-FCL 1 (A) .

The course is divided in the following phases:

- Ground phase
- Normal phase
- Abnormal/Emergency phase
- LOFT phase
- Skill test (See checking §7 for details)
- Flight phase (base training if applicable)

All Students are “Trained to Proficiency”. The objectives and phases breakdown are included in Appendix 1. They are extracted from the Airbus TRTO documentation and reflect the status of the A320 type rating course at the time of the evaluation (April 2003).

a) Qualification onto A318:

At this stage no dedicated A318 simulator exists, consequently to qualify onto the A318 the path is:

- Type Rating course conducted onto A320 simulator then familiarization course from A320 to A318.
- Note : it may also be possible to qualify onto A318 following type rating course conducted onto an A321 simulator, provided A321 to A318 familiarization course is available and approved.

b) Qualification onto A319:

At this stage no dedicated A319 simulator exists, consequently to qualify onto the A319 the path is:

- Type Rating course conducted on A320 simulator then familiarization course from A320 to A319.
- Note : it may also be possible to qualify onto A319 following type rating course conducted onto an A321 simulator, provided A321 to A319 familiarization course is available and approved.

b) Qualification onto A320:

- Type rating course conducted on an A320 simulator, or
- Type Rating course conducted on an A321 simulator then familiarization course from A321 to A320.

c) Qualification onto A321:

- Type rating course conducted on an A321 simulator, or
- Type Rating course conducted on an A320 simulator then familiarization course from A320 to A321.

In summary, for type rating course on the A320 family, any simulator from the A320 family can be used provided that the familiarisation training for the variant to be flown is subsequently conducted.

6.2 Line flying under supervision (LIFUS)

6.2 .1 Purpose of Line Flying Under Supervision (LIFUS)

There are a variety of reasons why the JOEB may specify LIFUS in conjunction with master difference requirements. One or more of the reasons described below may apply:

- a. Introduction of new aircraft types or variants;
- b. Introduction of new systems (e.g., FMS, TCAS);
- c. Introduction of new operations (e.g. oceanic operations);
- d. Experience for a particular crew position (e.g. PIC, SIC, F/E);
- e. Post qualification skill refinement (e.g. refining alternate or multiple ways to use particular equipment to increase operating efficiency, operating flexibility, or convenience);

- f. Special characteristics (e.g. unique airports, mountainous areas, unusual or adverse weather, special air traffic control procedures, non-standard runway surfaces, etc.)

6.2.2 LIFUS in case of initial type rating onto any A320 variant

In the case of an initial type rating onto the A320, a minimum of 8 sectors including a line check should be recommended for Line Flying Under Supervision (LIFUS).

This may be reduced at the discretion of NAA taking in account relevant factors such as conclusions to be established by the JAA Cross Crew Qualification / Mixed Fleet Flying (CCQ/MFF) working group and previous Airbus "fly by wire" experience of the pilots.

Where there is a change of operating conditions or route structure this should also be taken into account and may need the addition of sectors to cover these elements.

6.3 Familiarization courses

JAA, FAA and TCCA recommend approving the Airbus familiarization training courses:

- The transition between A320 and A318 is assessed as requiring training level B.
- The transition between A320 and A319 is assessed as requiring training level B.
- The transition between A320 and A321 is assessed as requiring training level B.

Note : for the A319, a dedicated familiarization course has been set up to cover the specifics from the A319 to the A319 CJ (Corporate Jet), which is a very long range A319. Highlights of the specifics for A319CJ are included in the Annex 2 (ODR A320 family)

Familiarisation training is based upon clearly defined learning objectives and addresses all ODRs as identified in the ODR tables and validated by JAA, FAA and TCCA in their joint OE/FSB evaluation.

Airbus familiarization courses provided under Computer Based Training (CBT) have been assessed and found acceptable.

6.4 Recurrent training

The recurrent training program must comply with JAR-OPS 1.965.

All A320 variants are under the same license endorsement, as a consequence, recurrent training on one variant is valid for all, provided that the differences between variants are covered.

Differences between A320 variants are identified in ODR tables as specified under JAR-OPS 1.980.

The differences between the A320 variants have been assessed at level B which means that recurrent training shall be addressed through aided instruction such as:

- Slide / tape presentations
- Computer based instruction which may be interactive
- Video
- Classroom instruction

As a consequence recurrent training can be conducted on any simulator from the A320 family, provided that the differences are covered as per the proposed synthesis ODR document enclosed in Annex 2.

7. Specification for Checking

7.1 Skill test following type rating course (Transition course)

In addition to the mandatory items from the skill test as per Appendix 2 to of JAR-FCL 1.240 the following features must be checked:

- Use of sidestick controller
- Knowledge of the various mode of automation
- Knowledge and skills related to the use of MCDU/ FCU and crosschecks using the FMA
- Use of ECAM
- Use of Auto thrust system

7.2 Recurrent Checking Checks

Proficiency Checks must be conducted in compliance with JAR-FCL 1.245 and JAR-OPS 1.965.

The JAA JOEB, as well as FAA and TCCA confirmed that a Proficiency Check conducted on one variant is valid for all, provided that the differences have been covered during the recurrent training, as per the proposed synthesis ODR document enclosed in Annex 2.

Consequently Proficiency Checks can be conducted on any simulator from the A320 family.

7.3 Line checks

As all aircraft from the A320 family share same type rating (single licence endorsement), a Line Check on any of them is valid for all.

8. Currency / Recent experience

Compliance with JAR-OPS 1.970 or JAR-FCL 1.026 as appropriate is required for recent experience.

Concerning the A320 family, JAA, FAA and TCCA concluded that take off and landings performed on one A320 variant are valid for all variants. This means that for pilots operating a mix of A318, A319, A320 and A321, the recent experience requirement is satisfied as soon as they achieve 3 Take-offs and landings, as handling pilot, regardless the aircraft flown.

Annex 1

A320 Airbus type Rating Course

Objectives and phases breakdown – Extracted from the approved TRTO documentation

TITLE	GENERAL OBJECTIVES	MEDIA
PHASE 1 GROUND COURSE	- Welcome To clarify all administrative aspects of trainee involvement while at Airbus Training Center. To present Airbus Training Center. - Presentation of course and documentation To introduce the instruction system and the instructors. Trainees are briefed on the evaluation method and necessity for some "home-work" with the FCOM and the FCTM. To present the documentation. To present the philosophy of the new aircraft systems. -Systems Study To provide trainees with technical information on system knowledge. To provide the knowledge required for the execution of all Normal, Abnormal and Emergency procedures. - Performances To make the trainee able to: - use performance data in the Airbus documentation, or the FOVE software from his laptop, - review theory and acquire knowledge on limitations, - calculate Take-off, Landing and Go-Around performances, - calculate Engine out performances, - calculate operational performances. -Safety, Cabin Presentation To be familiarized with location and operation of safety equipment doors, exits, and use of escape slides. - Walk-around visit (self study on laptop) To give the necessary knowledge to perform an exterior inspection. <u>- Examination – Systems and Performance</u> To demonstrate the level of knowledge required for the safe operation of the aircraft. - Airbus CRM - OPTIONAL To reinforce basic cockpit resource management skills.	Video CBT FMGS freeplay 3D FBS Cabin Mockup ECAM Trainer 2D

Annex 1

A320 Airbus type Rating Course

Objectives and phases breakdown – Extracted from the approved TRTO documentation

TITLE	GENERAL OBJECTIVES	MEDIA
PHASE 2 NORMAL OPERATIONS	- Normal procedure To execute the complete normal procedure with each crewmember performing his own task, in crew coordination. To make each trainee capable of performing his tasks in normal flight conditions (no failure). - Normal flight conditions To demonstrate aircraft characteristics in flight without failure, from "basic" manual flight to "managed" (from lowest to highest level of automation). Normal procedures are practiced until the trainee reaches proficiency in all phases of flight. - Progress Check	FMGS freeplay 2D. FBS FFS
PHASE 3 ABNORMAL EMERGENCY OPERATIONS	- Abnormal/Emergency procedures To use the Abnormal/Emergency procedures with each crewmember performing his own task in crew coordination. - Abnormal/Emergency flight conditions To demonstrate aircraft characteristics in flight with failures. Abnormal/emergency procedures are practiced until the trainee demonstrates proficiency in all phases of flight. - Progress Check	FMGS Freeplay 2D. FBS FFS
PHASE 4 ALOFT TYPE RATING SKILL TEST	- Loft To perform ALOFT session taking into account CRM objectives including decision making and crew coordination. ALOFT is used to reinforce the trainees' confidence in an operational environment prior to the operation of the aircraft. Type Rating Skill Test Type rating skill test: to demonstrate the skills required for the safe operation of the aircraft.	Cabin Mockup FFS
PHASE 5 BASE TRAINING	Flight training to proficiency.	Aircraft Or FFS (for operators who wish to have this authorization from their National Aviation Authority)

Base aircraft : A320

Difference aircraft : A318 – A319 – A321

Annex 2

A320 , A321 , A319 * , A318 SAME TYPE RATING

*A319 including A319CJ

This document based on the three sets of ODR tables recapitulates all the major differences from the A320 to the other variants , which have been assessed at no more than level B.

The purpose of the document is to assist the Authorities in their approval process and also to provide guidelines to the Airlines that want to define their customised training programs when operating more than one variant.

Enclosed:

- APPENDIX 1: ODR A/C General
- APPENDIX 2: ODR Systems
- APPENDIX 3: ODR Maneuvres

The ODR tables are addressing recurrent training as training level B.

Base aircraft : A320

Difference aircraft : A318 – A319 – A321

APPENDIX 1

ODR TABLES : A/C GENERAL

Base aircraft : A320

Difference aircraft : A318 – A319 – A321

N°	Design	Differences	Flt chr	Proc chg	Training lvl	Device	REC training
1	GENERAL	The A318, A319 (CJ), A321 are variants of the A320	No	No	A	--	--
2	DIMENSIONS	A320 : Length = 37.6m / height = 11.8m A319 : Length = 33.8m / height = 11.8m A321 : Length = 44.5m / height = 11.8m A318 : Length = 31.4m / height = 12.5m	No	No	A	--	--
3	COCKPIT	Same cockpit arrangement Two crew member operations Option: LCD and ISIS	No	No	A	--	--
4	CABIN	Max passenger capacity: A320 = 180 A319 = 145 A319 CJ = 8 for max range operations A321 = 220 A318 = 145	No	No	A	--	--
5	CARGOS	A319, A318 Bulk cargo door does not exist.	No	No	A	--	--
6	FLIGHT CONTROLS	Both aircraft are equipped with electrically signaled flight controls, with side stick controllers	No	No	--	--	--
7	FMGEC	Same flight envelope protections are provided on both aircraft Option: Honeywell or Thales FM2	No	No	--	--	--
			No	Yes	B	CBT	B

Base aircraft : A320

Difference aircraft : A318 – A319 – A321

N°	Design	Differences	Flt chr	Proc chg	Training lvl	Device	REC training
8	ENGINES	- CFM56-5A = A319, A320 - CFM56-5B = A318, A319, A320, A321 - V2500- A5 = A319, A320, A321 - PW 6000 = A318 All engines are equipped with FADEC. Refer to ODR systems	No	Yes	B	CBT	B
9	LIMITATIONS Weight	Due to increased weight and dimensions, limitations are different Maximum take off weight (basic) - A320 = 75.5 t (166400 lb) - A319 = 64.0 t (141000 lb) - A319 CJ = 75.5 t (166330 lb) - A321 = 83.0 t (183000 lb) - A318 = 59.0 t (130040 lb) Max landing weight (basic) - A320 = 64.5 t (142200 lb) - A319 = 61.0 t (134500 lb) - A319 CJ = 62.5 t (137690 lb) - A321 = 73.5 t (162040 lb) - A318 = 56.0 t (123420 lb)	Yes	No	B(Perf)	CBT/ BRf	B
10	LIMITATIONS Center of gravity	Center of gravity limits : - A320: 13 to 45 % - A319: 12 to 40 % - A319 CJ: specific limitations for take-off - A321: 10 to 41% - A318: 15 to 35%	Yes	No	B(Perf)	CBT/ BRf	B

Base aircraft : **A320**

Difference aircraft : **A318 – A319 – A321**

N°	Design	Differences	Flt chr	Proc chg	Training lvl	Device	REC training
11	LIMITATIONS Speeds	Vmca, Vmcg according to engine type and configuration Refer to specific version for more precise values	Yes	No	B(Perf)	CBT/BRF	B
12	LIMITATIONS Altitude	Maximum altitude: - A320, A319, A321, A318 : 39100 or 39800 feet - A319 CJ : 41000 feet	Yes	No	B(Perf)	CBT/BRF	B

Base aircraft : A320

Difference aircraft : A318 – A319 – A321

APPENDIX 2

ODR TABLES : SYSTEMS

Base aircraft : A320

Difference aircraft : A318 – A319 – A321

N°	Systems	Differences	Flt chr	Proc chg	Training lvl	Device	REC training
1	21- AIR CONDITIONING	A321 – A318: The Pack Flow rotating knob is replaced by ECONFLOW Pb sw A318: The 2 Packs Controllers and the Zone Controller have been replaced by 2 Air Conditioning System Controllers which includes 2 lanes					
2	22- AUTOFLIGHT	A318: basic FM 2 Option:FM 2: new functions can be retrofitted on all variants - RNP improvements - Required Time of Arrival (RTA) - Constant Mach number - New DIR TO : with abeam, radial in and out - Report page - IRS monitoring page - Along track waypoints insertion - LOC Back beam approach - FIX INFO with abeam and radial - LAT/LONG crossing waypoints - INIT: fuel planning - New airway stringing function - Closest airports - Equitime Point calculation (ETP) - STEP ALT page - Cruise winds page - Multiple Time Markers Option: FM 2 Thales	No	No	B	CBT	B
3	22- AUTOFLIGHT	A319 CJ: - FM 2 is basic on the corporate version - Extension of CG calculation with 6 ACT - Fuel prediction computation up to 41000 feet	No	No	B	CBT	B

Base aircraft : A320

Difference aircraft : A318 – A319 – A321

N°	Systems	Differences	Flt chr	Proc chg	Training lvl	Device	REC training
4	24- ELECTRICITY	A318, A319, A321: Emergency generation Emergency generator remains powered at L/G extension	No	Yes	B	CBT	--
5	27- FLIGHT CONTROLS	A318: Speed brakes available in configuration Full	Yes	No	B	CBT	--
6	27- FLIGHT CONTROLS	Rudder Travel Limit : Max deflection A320 = 25° A319 - A318 = 30° Rudder trim: A320 = 30° A319 = 25°	No	No	B	CBT	B
7	28 - FUEL	A321: - <u>Tanks</u> : Wing tanks have been divided into 2 tanks: consequently transfer valves have been removed - <u>Fuel transfer</u> : CTR to Wing tanks is carried out by 2 jet pumps (without control) and 2 transfer valves - <u>Engine feed</u> : Center tank direct feeding is deleted Engines are always fed from their associated wing tanks	No	Yes	B	CBT	B

Base aircraft : A320

Difference aircraft : A318 – A319 – A321

N°	Systems	Differences	Flt chr	Proc chg	Training lvl	Device	REC training
8	28 - FUEL	A321: - <u>Control panel and monitoring:</u> Control panel: identical, label on CTR tank pump replaced by XFR R or L ECAM: same philosophy, design modifications reflected on the fuel system page	No	No	B	CBT	B
9	28 - FUEL	A319 CJ: - ACT: from 1 to 6 according to the customization - Fuel quantity: . A319: 18730 t . A319 CJ: 32070 t - Additional fuel overhead panel for ACT transfer - ECAM page modification - New ECAM warnings	No	Yes	B	CBT	B
10	28 - FUEL	A318: ECAM : minor changes in display, fuel flow indication Monitoring: new message FU/FOB disagree for fuel leak Modification of fuel imbalance procedure	No	Yes	B	CBT	B
11	31 - EIS	A318: basic EIS 2 Option: on all other variants - LCD for PFD and ECAM - Stand by instruments are replaced by ISIS	No	No	B	CBT	--
12	32 – LANDING GEAR	A318: - NWS: On yellow system – ECAM: minor modifications - Braking: Both normal and abnormal systems have been isolated Alternate braking is electrically controlled Alternate braking by the ABCU (1000 PSI is limited) - ECAM page: Minor changes	No	Yes	B	CBT	B

Base aircraft : A320

Difference aircraft : A318 – A319 – A321

N°	Systems	Differences	Flt chr	Proc chg	Training lvl	Device	REC training
13	34 - NAVIGATION	A318: EGPWS Pb sw is labeled differently Can be retrofitted on all other variants	No	No	B	CBT	--
14	52- DOORS	A321: 4 exit doors located forward and back of the wings ECAM is modified accordingly A319,A318 : - 2 emergency exit doors (4 on A320) - No bulk cargo door - ECAM is modified accordingly	No	No	B	CBT	--
15	70- POWER PLANT	ENGINES: A320 : CFM 56 5A / B or IAE V2500 - V2527 A319 : CFM 56 5A / B or IAE V2522-A5 A321: CFM 56 5B or V2500-A5 A318: CFM 56 5B or PW6000 No difference training is required if the difference aircraft is equipped with the same engine, otherwise the differences will be covered in a reduced engine module.	Yes	No	B	CBT	B

Base aircraft : A320

Difference aircraft : A318 – A319 – A321

APPENDIX 3

ODR TABLES : MANEUVERS

Base aircraft : A320

Difference aircraft : A318 – A319 – A321

N°	Maneuvers	Differences	Flt chr	Proc chg	Training lvl	Device	REC training
1	SURFACE OPERATION Taxi	A319, A318: Reduced distance between nose wheel and main gear. Taxi technique is identical A321: Increased distance between nose wheel and main gear Taxi technique is identical	No	No	B	CBT/BRF	--
2	TAKE OFF Normal / Alternate	- Tail strike : avoidance technique same as A320	No	No	B	CBT	B