Flight Standardization Board Report

Revision: 3
Date: XX/XX/XXXX

Manufacturer
Airbus Canada Limited Partnership,
Formerly Bombardier, Inc.

Type Certificate Data Sheet (TCDS)	TCDS Identifier	Marketing Name	Pilot Type Rating
T00008NY	BD-500-1A10	A220-100	BD500
T00008NY	BD-500-1A11	A220-300	BD500

Approved by the Aircraft Evaluation Division
Federal Aviation Administration
Air Carrier Branch (AFS-110)
800 Independence Avenue, S.W.
Washington, DC 20591

AED Email: 9-AVS-AFS-100@faa.gov

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1. RECORD OF REVISIONS

Revision Number	Section(s)	Date
Original	All	02/08/2017
1	1, 3, 4.1 thru 4.4, 5, 7.3, Appendices 2, 3, 6 and 7	04/09/2019
2	1, 4, 5, 8, 9, 12, 13, Appendices 2, 3, 4, 5, 6, 7, 8	02/21/2020
3	All	XX/XX/XXXX

2. INTRODUCTION

The Aircraft Evaluation Divisions (AED) is responsible for working with aircraft manufacturers and modifiers, during the development and Federal Aviation Administration (FAA) certification of new and modified aircraft to determine:

1) The pilot type rating,
2) Flightcrew member training, checking, and currency requirements, and
3) Operational suitability.

This report lists those determinations for use by:

1) FAA employees who approve training programs,
2) FAA employees and designees who certify airmen, and
3) Aircraft operators and training providers, to assist them in developing their flightcrew member training, checking and currency.

3. HIGHLIGHTS OF CHANGE

The purpose of this revision is to add Avionics Software version 6.5 (Build 8.0A3), update the Flight Standards Board Report (FSBR) into the new template and update pilot training to expand on special emphasis areas and update Pilot Currency, amend, make corrections, and update the FSBR content, Master Differences Requirements (MDR), Differences Tables (DT), and appendices to represent current A220 conditions.

Starting in this revision the "CSeries", "CS100" and "CS300" will be identified as the A220, A220-100 or A220-300, as appropriate. Certain historical information will still maintain the previous names.

This revision converts this document to the new FSBR format and complies with Section 508. Change bars are not included in this document because the entire report is revised and updated.

4. BACKGROUND

The Transport Aircraft Long Beach AEG formed a Flight Standardization Board (FSB) that evaluated the Bombardier BD-500-1A10 and BD-500-1A11 aircraft as defined in FAA Type

Certificate Data Sheet (TCDS) No. T00008NY. The evaluation of both aircraft was conducted during October and November 2016 using the methods described in the current edition of AC 120-53, Guidance for Conducting and Use of Flight Standardization Board Evaluations.

For simplicity in identification of the two models of C Series aircraft, the BD-500-1A10 will be referenced throughout this report as the "CS100," and the BD-500-1A11 as the "CS300."

The CS100 and CS300 are a two-pilot, medium-range, twin-engine aircraft powered by two ultra-high bypass, wing-mounted, turbofan engines. These aircraft are a new type design.

The CS100 is the initial Entry-Into-Service (EIS) model and the CS300 is nearly identical to the CS100, with a 12-foot stretched fuselage, more windows, larger brakes, and heavier weight. See Appendix 3, Differences Tables.

Each aircraft features Fly-By-Wire (FBW) technology controlled by dual sidesticks, Pratt and Whitney PW1500G Geared Turbofan Engines, and the widespread use of advanced-material surfaces and structures. The flight deck incorporates an integrated Rockwell Collins "Fusion" Electronic Flight Instrument System (EFIS) with five large adaptive displays, an integrated electronic checklist (ECL), and dual Rockwell Collins flight management systems (FMS).

Pratt & Whitney PW1500G series engines power the CS100 in four different thrust ratings (PW1519G, PW1521G, PW1524G, and PW1525G). The CS300 can be ordered with the same engine combinations with the exception of the PW1519G version.

Both aircraft can be equipped with an optional single or dual Head-Up Display (HUD) system and optional dual tiller installation.

The CS100 is certified to a maximum of 133 occupants (including one pilot, one co-pilot, one observer, and three cabin crew) and the CS300 is certified to a maximum of 153 occupants (including one pilot, one co-pilot, one observer, and three cabin crew). Two pressurized cargo compartments are located under the cabin floor.

Maximum takeoff weight (MTOW) (certified) for the CS100 is 134,000 lbs. and for the CS300, it is 145,000 lbs.

In June 2018, the FSB conducted flight evaluations of a Build 8.0A avionics software upgrade in a CS300 aircraft. The software upgrade added a display unit (DU) Revisionary mode, Noise Abatement Departure Profile (NADP), Vertical Situation Display (VSD), and an optional satellite communications (SATCOM) system. The associated Airplane Flight Manual (AFM)/Flightcrew Operations Manual (FCOM) changes were found to be operationally suitable.

In June 2018, the FSB conducted flight evaluations of Category (CAT) II and CATIII (Fail Passive and Fail Operational) approaches and autoland in a CS100 Level D full flight simulator (FFS) and a CS300 aircraft. The associated AFM/Airplane Flight Manual Supplement (AFMS)/FCOM changes were found to be operationally suitable.

In December 2018, the FSB conducted an evaluation of Future Air Navigation System 1/A+ (FANS 1/A+), which incorporated Controller-Pilot Data Link Communications (CPDLC) and Automatic Dependent Surveillance-Contract (ADS-C) in a CS100 Level D FFS. The associated AFM/AFMS/FCOM change, were found to be operationally suitable.

In June 2019, the FSB conducted an evaluation of RNP AR 0.3 in a CS100 Level D FFS and a CS300 aircraft. The associated AFM/AFMS/FCOM changes were found to be operationally suitable.

In January 2026, the FSB, including the AED Human Factors Technical Advisor, conducted Operational Evaluations of Avionics Software version 6.5 (Build 8.0A3). The FSB evaluated a change in the Avionics Software from v5.6 (Build 8.0A2) to Avionics Software v6.5 (Build 8.0A3) by analysis.

5. ACRONYMS

- 14 CFR   Title 14 of the Code of Federal Regulations
- AC   Advisory Circular
- ACFT   Aircraft
- ACLP   Airbus Canada Limited Partnership
- ADS   Automatic Dependent Surveillance
- ADS-C   Automatic Dependent Surveillance-Contract
- ADSP   ADS Panel
- AED   Aircraft Evaluation Division
- AEG   Aircraft Evaluation Group
- AFCS   Automatic Flight Control System
- AFM   Airplane Flight Manual
- AFMS   Airplane Flight Manual Supplement
- AH   Alert Height
- ALTN   Alternate
- APPR   Approach
- AOA   Angle of Attack
- AT   Autothrottle
- ATN   Aeronautical Telecommunication Network
- AV   Audiovisual Presentation
- CAS   Crew Alerting System
- CAT   Category
- CB   Circuit Breaker
- CBT   Computer-Based Training
- CG   Center of Gravity
- CTLR   Controller
- CPDLC   Controller-Pilot Data Link Communications
- CPT   Cockpit Procedures Trainer
- CSALP   CSeries Aircraft Limited Partnership
- DA   Decision Altitude

- DH   Decision Height
- DLK   Datalink Communication
- DMC   Data Module Cabinet
- DT   Differences Table
- DU   Display Unit
- ECL   Electronic Checklist
- EFB   Electronic Flight Bag
- EFIS   Electronic Flight Instrument System
- EICAS   Engine Indicating and Crew Alerting System
- EIS   Entry-Into-Service
- ELEV   Elevation
- EMER   Emergency
- EQUIP   Equipment
- ESS   Essential
- FAA   Federal Aviation Administration
- FAF   Final Approach Fix
- FANS 1/A+   Future Air Navigation System 1/A+
- FBW   Fly-By-Wire
- FCOM   Flightcrew Operating Manual
- FE   Flight Engineer
- FFS   Full Flight Simulator
- FG   Flight Guidance
- FIDEX   Fire Detection and Extinguishing
- FMA   Flight Mode Annunciator
- FMS   Flight Management System
- FSB   Flight Standardization Board
- FSBR   Flight Standardization Board Report
- FSTD   Flight Simulation Training Device
- FTD   Flight Training Device
- HDD   Head-Down Display
- HO   Handout
- HUD   Head-Up Display
- ICBI   Interactive Computer-Based Instruction
- IFIS   Integrated Flight Information System
- LDG   Landing
- LVTO   Low Visibility Takeoff
- ISI   Integrated Stand-by Instrument
- MDR   Master Differences Requirements
- MEL   Minimum Equipment List
- MLG   Main Landing Gear
- MRW   Maximum Ramp Weight
- MTOW   Maximum Takeoff Weight
- NADP   Noise Abatement Departure Profile
- NAS   National Airspace System

- OMS   Onboard Maintenance System
- PF   Pilot Flying
- PFCC   Primary Flight Control Computer
- PFD   Primary Flight Display
- PIC   Pilot in Command
- PM   Pilot Monitoring
- POS   Position
- PTT   Part Task Trainer
- PWR   Power
- RA   Radio Altitude
- RIU   Radio Interface Unit
- RNP AR   Required Navigation Performance Authorization Required
- RVR   Runway Visual Range
- SATCOM   Satellite Communications
- SIC   Second in Command
- SKM   System Knowledge Module
- SMGCS   Surface Movement Guidance and Control System
- SU   Stand-Up Instruction
- SYS   System
- TAT   Total Air Temperature
- TC   Type Certificate
- TCBI   Tutorial Computer-Based Instruction
- TCCA   Transport Canada Civil Aviation
- TCDS   Type Certificate Data Sheet
- TO   Takeoff
- VMC   Visual Meteorological Conditions
- VNAV   Vertical Navigation
- V_{REF} Reference Landing Speed
- VSD   Vertical Situation Display
- WX DEV   Weather Deviation

6. DEFINITIONS

These definitions are for the purposes of this report only.

6.1 Base Aircraft. An aircraft identified for use as a reference to compare differences with another aircraft.

6.2 Current. A crewmember meets all requirements to operate the aircraft under the applicable operating part.

6.3 Differences Tables. Describe the differences between a pair of related aircraft, and the minimum levels operators must use to conduct differences training and checking of flightcrew members. Differences levels range from A to E.

6.4 Master Differences Requirements (MDR). Specifies the minimum levels of training and checking required between a pair of related aircraft, derived from the highest level in the Differences Tables.

6.5 Mixed Fleet Flying (MFF). The operation of a base aircraft and one or more related aircraft for which credit may be taken for training, checking, and currency events.

6.6 Operational Evaluation. The AED process to determine pilot type rating, minimum flightcrew member training, checking and currency requirements, and unique or special airman certification requirements (e.g., specific flight characteristics, no-flap landing).

6.7 Operational Suitability. The AED determination that an aircraft or system may be used in the National Airspace System (NAS) and meets the applicable operational regulations (e.g., Title 14 of the Code of the Federal Regulations (14 CFR) parts 91, 121, 125, and 135).

6.8 Qualified. A flightcrew member holds the appropriate airman certificate and ratings as required by the applicable operating part.

6.9 Related Aircraft. Any two or more aircraft of the same make with either the same or different type certificates (TC) that have been demonstrated and determined by the Administrator to have commonality.

6.10 Seat-Dependent Tasks. Maneuvers or procedures using controls that are accessible or operable from only one flightcrew member seat.

6.11 Special Emphasis Area. A training requirement unique to the aircraft, based on a system, procedure, or maneuver, which requires additional highlighting during training. It may also require additional training time, specialized flight simulation training devices (FSTD), or training equipment.

6.12 Specific Flight Characteristics. A maneuver or procedure with unique handling or performance characteristics that the FSB has determined must be checked.

7. PILOT TYPE RATING

7.1 Type Rating. The Airbus Canada Limited Partnership A220 type rating designation is BD500.

7.2 Common Type Ratings. Not applicable.

7.3 Military Equivalent Designations. Military aircraft that qualify for the BD500 type rating (if any) can be found at www.faa.gov under "Pilots and Airmen," "Airmen Certification," "Quick Links," "Pilot Certificate Aircraft Type Designations." This webpage is kept up-to-date and can be found at: https://registry.faa.gov/typeratings/.

8. RELATED AIRCRAFT

8.1 Related Aircraft on Same TCDS. The BD-500-1A10 and BD-500-1A11 are related aircraft. The aircraft series are identified as:

- Airbus A220-100 is the marketing name for a BD-500-1A10.
- Airbus A220-300 is the marketing name for a BD-500-1A11.

NOTE: A220 refers to the A220-100, A220-300, CS100 and CS300 unless otherwise specified (e.g., A220-300).

NOTE: The CS100 was the previous marketing name for the A220-100 and the CS300 was the previous marketing name for the A220-300.

8.2 Related Aircraft on Different TCDS. Not applicable.

9. PILOT TRAINING

9.1 Airman Experience. Airmen receiving the BD500 initial type training will benefit from prior experience operating multiengine transport turbojet aircraft in accordance with 14 CFR part 91, 121, 125, or 135. Additionally, a working knowledge of systems, such as automatic flight control systems (AFCS), autothrottle (AT), FMS, Integrated Flight Information System (IFIS), ECL, Electronic Flight Bag (EFB), HUD, and highly integrated avionics systems with electronic flight displays, is highly recommended. Pilots without this experience may require additional training.

Position	Licensing Level	Licensing Country	Experience
PIC	ATP	United States	Unrestricted ATP minimums or greater
SIC	ATP	United States	Unrestricted ATP minimums or greater

9.2 Special Emphasis Areas.

NOTE: References to "pilots" in this section include both pilot in command (PIC) and second in command (SIC) unless otherwise specified.

9.2.1 Pilots must receive special emphasis on the following areas during ground training:

a) Principles of vertical navigation (VNAV), including the proper interpretation of VNAV Flight Mode Annunciations during climb, descent, and approach (Initial and Transition training).

b) FBW System. Normal and direct modes and associated envelope protections or degradations (Initial, Recurrent, Upgrade, and Transition training).

c) ECL usage during normal, abnormal, and emergency operations (Initial, Recurrent, Upgrade, and Transition training).

d) Manual Flight Operations Maneuvers. To build and maintain overall expertise and proficiency in cognitive, psychomotor, and communication skills required for Manual Flight Operations, Operators should develop a list of specific manual flight maneuvers. The manual flight maneuvers should include associated tasks and knowledge to ensure they are identifying, appropriate training, and assessing required knowledge for the entire range of tasks throughout the manually flown maneuvers and profiles.

9.2.2 Pilots must receive special emphasis on, and perform the following areas during flight training:

a) Primary Flight Control Computer (PFCC) Direct Mode. Stall Prevention, Steep Turns, and either visual or instrument approaches ending with a landing in PFCC Direct Mode. This training can only be accomplished in an FFS (Initial, Recurrent, Upgrade, and Transition training).

b) Manual flight of the aircraft with the minimal use of automation during takeoffs and landings (Initial, Recurrent, Upgrade, and Transition training).

c) Appropriate use of speed selection modes and intervention (manual versus FMS speed) (Initial, Recurrent, Upgrade, and Transition training).

d) Alternate methods of checklist usage (normal, abnormal, and emergency) in the event of deferral of the ECL by the minimum equipment list (MEL) (Initial, Recurrent, Upgrade, and Transition training).

e) Manual Flight Operations Maneuvers. To build and maintain overall expertise and proficiency in cognitive, psychomotor, and communication skills required for Manual Flight Operations. Operators should develop a list of specific manual flight maneuvers. The manual flight maneuvers should include associated tasks, knowledge, and skills to ensure they are identifying, appropriate training, and assessing required knowledge and skills for the entire range of tasks throughout the manually flown maneuvers and profiles.

9.3 Specific Flight Characteristics. There are no specific flight characteristics for the A220.

9.4 Seat-Dependent Tasks. Pilots must receive training in these seat-dependent tasks:

a) HUD (left seat, right seat, when installed); initial, transition, upgrade, and recurrent training.
b) Nosewheel steering (left seat, right seat, when installed); initial, transition, upgrade, and recurrent training.

9.5 Regulatory Training Requirements Which Are Not Applicable to the A220-100 and A220-300.

9.5.1 Title 14 CFR Part 121, Appendix E:

a) Tuck and Mach buffet. Demonstration of the aircraft's overspeed protection capabilities is an acceptable substitute.

b) Operation of systems and controls at the Flight Engineer (FE) station. FE is not required for the operation of this aircraft.

c) Runaway and jammed stabilizer. Not applicable due to aircraft design.

d) Fuel jettisoning. Not applicable due to aircraft design.

e) Recovery from specific flight characteristics that are peculiar to the airplane type. No specific flight characteristics are identified for either the A220-100 or A220-300.

9.6 Flight Simulation Training Devices (FSTD).

a) The manufacturer's training program included aircraft systems integration training as an extension of and key component of ground training. The FSB evaluated this training in a Level 6 flight training device (FTD) and determined that the training as delivered was adequate; training offered in a lower level device would need further evaluation.

b) HUD (single or dual installations) must be trained in a Level C FFS with a daylight visual display or Level D FFS in both day and night conditions. See Appendix 5, Head-Up Display (HUD), for more information.

c) Low visibility CAT II/III approaches and Low Visibility Takeoffs (LVTO) must be trained in an FSTD approved for CAT II/III approaches and autoland training. See Appendix 7, Low Visibility CAT II, CAT III, and Autoland Operations, for more information.

9.7 Training Equipment. There are no specific systems or procedures that are unique to the A220 that require specific training equipment.

9.8 Differences Training Between Related Aircraft. Pilots must receive training in the differences from the A220-100 to the A220-300 or from the A220-300 to the A220-100, if applicable. The level of training is specified in Appendix 3.

10. PILOT CHECKING

10.1 Landing from a No-Flap or Nonstandard Flap Approach. The probability of flap extension failure on the A220 is not extremely remote due to system design. Therefore, demonstration of a no-flap approach and landing during pilot certification is required. During a 14 CFR §§ 61.58 proficiency check, 91.1065 competency check, 121.441 proficiency check, 125.287 competency check, or 135.293 competency check, this task may be required. Refer to Order 8900.1, Volume 5, Airman Certification, when the test or check is conducted in an aircraft versus an FFS.

10.2 Specific Flight Characteristics. There are no specific flight characteristics.

10.3 Seat-Dependent Tasks. Pilots must be checked in these seat-dependent tasks:

a) HUD (left seat, right seat), if installed (initial, recurrent, upgrade, and transition checking). See Appendix 5 for specific checking requirements.

b) Nosewheel steering (left seat, right seat, when installed); initial, transition, upgrade, and recurrent training.

10.4 Other Checking Items. Not applicable.

10.5 Flight Simulation Training Devices (FSTD). HUD (single or dual installations) must be checked in a Level C FFS with a daylight visual display or Level D FFS in both day and night conditions. See Appendix 5 for specific checking requirements.

10.6 Equipment. There are no specific systems or procedures that are unique to the A220 that require specific equipment checking.

10.7 Differences Checking Between Related Aircraft. There are no differences checking required between the A220-100 and A220-300.

11. PILOT CURRENCY

There are no additional currency requirements for the A220 aircraft other than those already specified in 14 CFR parts 61, 121, 125 and 135. Meeting the currency requirements in the A220-100 satisfies all currency requirements for the A220-300, or meeting currency requirements in the A220-300 satisfies all currency requirements for the A220-100.

11.1 Differences Currency Between Related Aircraft. Not applicable.

12. OPERATIONAL SUITABILITY

The A220 is operationally suitable for operations under 14 CFR parts 91, 121, 125, and 135. The FSB determined operational compliance by conducting an evaluation of aircraft serial number 50005 (A220-100) and 55002 (A220-300) during a series of flights from November 9, 2016, through November 16, 2016. The list of operating rules evaluated is on file at the AED Air Carrier Branch.

In addition, the FSB has determined that the A220 is operationally suitable for HUD operations (single or dual HUD installations, LVTO) with HUD, CAT II approaches, and right-seat taxi operations with optional tiller installed.

See Appendix 4, Head-Down Display (HDD) – Reduced and Low Visibility Operations and CAT II Approaches, regarding training, checking, and currency determinations for aircraft with CAT II approach capability and optional HUD installations.

13. MISCELLANEOUS

13.1 Forward Observer Seat. The A220 forward observer seat as installed by TCDS No. T00008NY has been evaluated and determined to meet requirements of 14 CFR §§ 121.581(a), 125.317(b), 135.75(b) and AC 120-83, Flight Deck Observer Seat and Associated Equipment.

13.2 Aircraft Approach Category.

a) Reference 14 CFR part 97, § 97.3 – Both the A220-100 and A220-300 are considered CAT C aircraft for the purposes of determining "straight-in landing weather minima."
b) Circling approaches for the A220 are flown with the landing gear down, Flaps 4 or 5, and reference landing speed (V_{REF}) +10 kts. The approach category and associated approach minima shall not be less than CAT C on a circling approach.

13.3 Emergency Evacuation.

a) A full-scale emergency evacuation was successfully completed on the A220-100 (CS100) by Bombardier on December 14, 2014. The aircraft was configured with 133 passenger seats and three flight attendants. The demonstration complied with 14 CFR § 121.291(a).
b) For the A220-300 (CS300), compliance with § 121.291(a)(1) and 14 CFR part 25, § 25.803 has been demonstrated by analysis in Bombardier Document Number RAQ BA503-120. This analysis was based on a seating of 145 passenger seats with a single overwing exit per wing (two overwing exits per wing are optional on the CS300). The responsible Aircraft Certification office in New York has accepted this emergency evacuation analysis through the bilateral agreement with Transport Canada Civil Aviation (TCCA).

13.4 Normal Landing Flaps.
The A220 normal "final flap settings" per 14 CFR § 91.126(c) are Flaps 4 or Flaps 5.

13.5 Aircraft History/Name Change.

- December 17, 2015 – Initial Type Certification issued to Bombardier, Inc.
- October 2, 2017 – Bombardier, Inc. transferred Type Certification to CSeries Aircraft Limited Partnership (CSALP).
- June 1, 2019 – CSALP transferred Type Certification to Airbus Canada Limited Partnership (ACLP).

The BD-500-1A10 marketing name is A220-100 and previously was CS100.

The BD-500-1A11 marketing name is A220-300 and previously was CS300.

NOTE: A220 refers to the A220-100, A220-300, (CS100 and CS300) unless otherwise specified (e.g., A220-300).

APPENDIX 1. DIFFERENCES LEGEND

Training Differences Legend

Differences Level	Type	Training Method Examples	Conditions
A	Self-Instruction	• Operating manual revision (handout (HO)) • Flightcrew operating bulletin (HO)	• Crew has already demonstrated understanding on base aircraft (e.g., updated version of engine). • Minor or no procedural changes required. • No safety impact if information is not reviewed or is forgotten (e.g., different engine vibration damping mount). • Once called to attention of crew, the difference is self-evident.
B	Aided Instruction	• Audiovisual presentation (AV) • Tutorial computer-based instruction (TCBI) • Stand-up instruction (SU)	• Systems are functionally similar. • Crew understanding required. • Issues need emphasis. • Standard methods of presentation required.
C	Systems Devices	• Interactive (full-task) computer-based instruction (ICBI) • Cockpit Procedures Trainers (CPT) • Part task trainers (PTT) • Level 4 or 5 flight training device (FTD 4-5)	• Training can only be accomplished through systems training devices. • Training objectives focus on mastering individual systems, procedures, or tasks versus highly integrated flight operations or "real-time" operations. • Training devices are required to assure attainment or retention of crew skills to accomplish more complex tasks usually related to aircraft systems.
D	Maneuvers Devices	• Level 6 or 7 flight training device (FTD 6-7) • Level A or B full flight simulator (FFS A-B)	• Training can only be accomplished in flight maneuver devices in a real-time environment. • Training requires mastery of interrelated skills versus individual skills. • Motion, visual, control-loading, and specific environmental conditions may be required.
E	Level C/D FFS or Aircraft	• Level C or D full flight simulator (FFS C-D) • Aircraft (ACFT)	• Motion, visual, control-loading, audio, and specific environmental conditions are required. • Significant full-task differences that require a high-fidelity environment. • Usually correlates with significant differences in handling qualities.

Checking Differences Legend

Differences Level	Checking Method Examples	Conditions
A	None	None
B	• Oral or written exam • Tutorial computer-based instruction (TCBI) self-test	Individual systems or related groups of systems.
C	• Interactive (full-task) computer-based instruction (ICBI) • Cockpit Procedures Trainers (CPT) • Part task trainers (PTT) • Level 4 or 5 flight training device (FTD 4-5)	• Checking can only be accomplished using systems devices. • Checking objectives focus on mastering individual systems, procedures, or tasks.
D	• Level 6 or 7 flight training device (FTD 6-7) • Level A or B full flight simulator (FFS A-B)	• Checking can only be accomplished in flight maneuver devices in a real-time environment. • Checking requires mastery of interrelated skills versus individual skills. • Motion, visual, control-loading, and specific environmental conditions may be required.
E	• Level C or D full flight simulator (FFS C-D) • Aircraft (ACFT)	Significant full-task differences that require a high-fidelity environment.

APPENDIX 2. MASTER DIFFERENCES REQUIREMENTS (MDR) TABLE

These are the minimum levels of training and checking required, derived from the highest level in the Differences Tables in Appendix 3. Differences levels are arranged as training/checking.

To Related Aircraft ↓	From Base Aircraft →	BD-500-1A10 (A220-100)	BD-500-1A11 (A220-300)
BD-500-1A10 (A220-100)		Not applicable	B/A D*/C*
BD-500-1A11 (A220-300)		B/A D*/C*	Not applicable

*The asterisk denotes training and checking for the A220-100/A220-300 CAT II/III and autoland capabilities (see Appendix 7).

APPENDIX 3. DIFFERENCES TABLES

A220-100 to A220-300

This Design Differences Table was proposed by Bombardier and validated by the FSB on 11/14/16 and 11/15/16. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: BD-500-1A10 (A220-100) TO RELATED AIRCRAFT: BD-500-1A11 (A220-300)	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Dimensions	• Overall length increased 12 ft, 3 in. • Nosewheel to Main Landing Gear (MLG) length is 50 ft.	No	No	A	A
	Weights	• Maximum Ramp Weight (MRW) increased to 146,000 lbs. • MTOW increased to 145,000 lbs. • Minimum flight weight is 80,000 lbs.	No	No	A	A
	Cabin	Increased aircraft capacity to 153 occupants.	No	No	A	A
	Cargo	Increased capacity.	No	No	A	A

FROM BASE AIRCRAFT: BD-500-1A10 (A220-100) TO RELATED AIRCRAFT: BD-500-1A11 (A220-300)	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Limitations	• Structural Weight Limits increased. • Center of gravity (CG) Limits changed. • Design Maneuvering Speed changed. • Minimum speed changed with wing anti-ice inoperative above 30,000 ft. • Reduced fuel capacity. • Different engine variations (thrust ratings). • AFM demonstrated runway width increased to 150 ft.	No	No	B	A
	ATA 9 Towing and Taxiing	Fuselage length increase results in larger turning radius.	No	No	A	A
	ATA 28 Fuel	Decreased fuel capacity.	No	No	A	A
	ATA 52 Doors	Two additional overwing emergency exits (optional).	No	No	A	A
	ATA 56 Windows	Additional windows due to increased length.	No	No	A	A

FROM BASE AIRCRAFT: BD-500-1A10 (A220-100) TO RELATED AIRCRAFT: BD-500-1A11 (A220-300)	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	ATA 71–80 Powerplant	Three engine thrust ratings choices vs four on A220-100 PW1521G-3, PW1524G-3, and PW1525G-3 (PW1519G-3 engine is not available on A220-300).	No	No	A	A

This Maneuver Differences Table, from the A220-100 (CS100) to the A220-300 (CS300), was proposed by Bombardier validated by the FSB on 11/14/16 and 11/15/16. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: BD-500-1A10 (A220-100) S/N 50005 TO RELATED AIRCRAFT: BD-500-1A11 (A220-300) S/N 55002	MANEUVER	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	None	No Maneuver Differences.				

A220-300 (CS300) to A220-100 (CS100)

This Design Differences Table was proposed by Bombardier and validated by the FSB on 11/14/16 and 11/15/16. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: BD-500-1A11 (A220-300) S/N 55002 TO RELATED AIRCRAFT: BD-500-1A10 (A220-100) S/N 50005	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Dimensions	• Overall length decreased 12 ft, 3 in. • Nosewheel to MLG length reduced to 43 ft.	No	No	A	A
	Weights	• MRW decreased to 135,000 lbs. • MTOW decreased to 134,000 lbs. • Minimum flight weight is 77,000 lbs.	No	No	A	A
	Cabin	• Additional (optional) overwing emergency exits are not available. • Decreased aircraft capacity to 133 occupants.	No	No	A	A
	Cargo	Decreased cargo capacity.	No	No	A	A

FROM BASE AIRCRAFT: BD-500-1A11 (A220-300) S/N 55002 TO RELATED AIRCRAFT: BD-500-1A10 (A220-100) S/N 50005	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Limitations	• Structural Weight Limits decreased. • CG Limits changed. • Design Maneuvering Speed changed. • Increased fuel capacity. • Different engine variations (thrust ratings). • AFM demonstrated runway width decreased to 100 ft.	No	No	B	A
	ATA 9 Towing and Taxiing	Fuselage length is reduced, resulting in decreased turning radius.	No	No	A	A
	ATA 28 Fuel	Increased fuel capacity.	No	No	A	A
	ATA 52 Doors	Additional overwing emergency exit doors not available.	No	No	A	A
	ATA 56 Windows	Fewer windows due to decreased fuselage length.	No	No	A	A

FROM BASE AIRCRAFT: BD-500-1A11 (A220-300) S/N 55002 TO RELATED AIRCRAFT: BD-500-1A10 (A220-100) S/N 50005	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	ATA 71–80 Powerplant	PW1519G-3 engine available for A220-100 only.	No	No	A	A

This Maneuver Differences Table, from the A220-300 (CS300) to the A220-100 (CS100), was proposed by Bombardier validated by the FSB on 11/14/16 and 11/15/16. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: BD-500-1A11 (A220-300) S/N 55002 TO RELATED AIRCRAFT: BD-500-1A10 (A220-100) S/N 50005	MANEUVER	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	None	No Maneuver Differences.				

Build 8.0A Avionics Software Upgrade

This Design Differences Table for the A220 Build 7.5 to Build 8.0A Avionics Software Upgrade was proposed by Bombardier and validated by the FSB on 06/18/18 through 06/26/18. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AVIONICS: BUILD 7.5 SOFTWARE TO RELATED AVIONICS: BUILD 8.0A SOFTWARE	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	ATA 22 Autoflight	CAT III A/B capability introduced AFMS 8.	No	Yes	D	C
	ATA 23 Communication	Iridium® SATCOM installed RS-034 **(optional)**.	No	No	B	A
	ATA 31 Indications	Primary flight display (PFD) reversion function redesigned AFMS RS 034.	No	Yes	B	A
	ATA 34 Navigation	VSD introduced RS-034.	No	No	B	A
	ATA 34 Navigation	FMS-controlled NADP introduced RS-034.	No	Yes	B	A

Avionics Software V5.6 (Build 8.0A2) to V6.5 (Build 8.0A3) Upgrade

This Design Differences Table for the A220 Build 8.0A2 to Build 8.0A3 Avionics Software Upgrade was proposed by ACLP and validated by the FSB. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AVIONICS: BUILD 8.0A2 TO RELATED AVIONICS: BUILD 8.0A3	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	General	Avionics Software v6.5 (Build 8.0A3) upgrade is applicable to both A220-100 & A220-300 aircraft with production ModSum 500T103427 or Service Bulletin BD500-314005.	No	No	-	-

FROM BASE AVIONICS: BUILD 8.0A2 TO RELATED AVIONICS: BUILD 8.0A3	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	General	The Avionics software v6.5 (Build 8.0A3) corrects multiple reported anomalies and updates the following A220 avionics systems: • Air Data System, • Autothrottle, • Brakes, • Electrical, • Engine Indicating and Crew Alerting System (EICAS), • Environment, • Fire and Overheat Protection, • Flight Guidance, • Fuel, • Hydraulic.	No	No	A	A
	Limitations Communication	AFM SUPPLEMENT 6 - OPERATIONAL CAPABILITIES (1)DATA LINK FANS-1/A+ Limitation removed: "Use of the ALTITUDE selection on the WHEN CAN WE page is prohibited."	No	Yes	A	A

FROM BASE AVIONICS: BUILD 8.0A2 TO RELATED AVIONICS: BUILD 8.0A3	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Limitations Communication	AFM SUPPLEMENT 6 - OPERATIONAL CAPABILITIES (1) DATA LINK FANS-1/A+ Limitation removed: "Use of WX DEV TO POS from the ROUTE REQUEST page is prohibited."	No	Yes	A	A
	Limitations FMS	AFM SUPPLEMENT 12 - Derated thrust and reduced thrust (FLEX) takeoff. Limitation removed: "Reduced thrust (FLEX) from derated takeoff thrust (TO-1, TO-2, or TO-3) is prohibited."	No	Yes	A	A

FROM BASE AVIONICS: BUILD 8.0A2 TO RELATED AVIONICS: BUILD 8.0A3	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Limitations FMS	AFM SUPPLEMENT 12 - Derated thrust and reduced thrust (FLEX) takeoff. Note revised/added to limitation: During a derated thrust takeoff procedure, the takeoff thrust setting parameter is considered a limitation for takeoff and thrust levers should not be advanced. • Note 1 (Revised). • Note 2 (Added).	No	Yes	A	A

FROM BASE AVIONICS: BUILD 8.0A2 TO RELATED AVIONICS: BUILD 8.0A3	SYSTEMS	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	ATA 23 Communication	CPDLC - FANS A+B (ATN B1 and FANS-1/A+) option <C23240003> contains multiple improvements including a dual-stack capability with seamless transition between FANS A & B.	No	Yes	A	A
	ATA 27 Flight Controls	**SLAT SLOW** (Advisory) **FLAP SLOW** (Advisory) The two advisory messages are now displayed to advise the flight crew of a SLAT and FLAP slow condition when the SLAT/FLAP lever is failed and the ALTN FLAP switch is selected before engine start.	No	No	A	A

FROM BASE AVIONICS: BUILD 8.0A2 TO RELATED AVIONICS: BUILD 8.0A3	SYSTEMS	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	ATA 27 Flight Controls	FBW SYSTEM OPERATION – NORMAL MODE Pitch protection functions. High angle-of-attack protection. Added note: A single "SPEED" aural alert sounds. **NOTE:** The single "SPEED" aural alert is inhibited during landing below 30 ft RA.	No	No	A	A
	ATA 27 Flight Controls	FBW SYSTEM OPERATION – DIRECT MODE High Angle-Of-Attack (AOA) protection direct mode. Added note: A single "SPEED" aural alert sounds. **NOTE:** The single "SPEED" aural alert is inhibited during landing below 30 ft RA.	No	No	A	A

FROM BASE AVIONICS: BUILD 8.0A2 TO RELATED AVIONICS: BUILD 8.0A3	SYSTEMS	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	ATA 31 Indications	A new dual electronic checklist (ECL) **Option** <C31400001> introduces the capability: • To store two ECL databases at the same time; • For the flight crew to select and activate (on the ground only) the other ECL database as required for operations; • For the flight crew to resume the checklist uninterrupted (including last shown procedure and last item checked) on another Display Unit in the event of a Display Unit failure during ECL use.	No	Yes	A	A
	ATA 31 Indications	**L PFD-ISI SAME ADS** (Advisory) **R PFD-ISI SAME ADS** (Advisory) Added two new advisory messages indicating that the left (right) PFD and the ISI have the same source of air data.	No	No	A	A

FROM BASE AVIONICS: BUILD 8.0A2 TO RELATED AVIONICS: BUILD 8.0A3	SYSTEMS	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	ATA 31 Indications	**CB TRIP** (Advisory) The advisory message now annunciates on the top of the Advisory message list, if any other Advisory message is posted before subsequent CB trips.	No	No	A	A

This Maneuver Differences Table for the A220 Build 8.0A2 to Build 8.0A3 Avionics Software Upgrade was proposed by ACLP and validated by the FSB. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AVIONICS: BUILD 8.0A2 TO RELATED AVIONICS: BUILD 8.0A3	MANEUVER (Per Flight Phase)	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Takeoff	AFM SUPPLEMENT 12 - Derated thrust and reduced thrust takeoff. NORMAL PROCEDURES Derated thrust and reduced thrust (FLEX) takeoff is now permitted collectively.	No	Yes	A	A
	Approach	AFM SUPPLEMENT 7 – RNP Authorization Required Operations. Approach: Added Note 3, as it is no longer required to "deselect and reselect APPR.	No	Yes	A	A

FROM BASE AVIONICS: BUILD 8.0A2 TO RELATED AVIONICS: BUILD 8.0A3	MANEUVER (Per Flight Phase)	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	ATA 22 Automatic Flight	AUTOMATIC FLIGHT CONTROL SYSTEM (AFCS) Autothrottle system: In the event the AT **RETARD** (White FMA Message) armed Mode logic and the AT **RETARD** (Green FMA Message) active has not been met, an **AT RETARD INHIBIT** (Caution message) will be posted while in approach or landing phase.	No	No	A	A

FROM BASE AVIONICS: BUILD 8.0A2 TO RELATED AVIONICS: BUILD 8.0A3	MANEUVER (Per ATA Chapter)	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	ATA 21 Environmental	**L AIR SYS CTLR FAIL** (Caution) Added steps and note: (9) EQUIP COOLING, EXHAUST………ON (10) CABIN PWR (if galley chiller installed) ……………OFF **NOTE:** Minimize time below 10,000 ft.	No	Yes	A	A
	ATA 21 Environmental	**R AIR SYS CTLR FAIL** (Caution) Added step and note: (6) EQUIP COOLING, EXHAUST..............ON **NOTE:** Minimize time below 10,000 ft.	No	Yes	A	A
	ATA 21 Environmental	**LDG ELEV MISCONFIG** (Caution) Consolidated "In flight" and "On ground" procedures and added Note.	No	Yes	A	A

FROM BASE AVIONICS: BUILD 8.0A2 TO RELATED AVIONICS: BUILD 8.0A3	MANEUVER (Per ATA Chapter)	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	ATA 21 Environmental	When **EMER PWR ONLY** (Warning) is displayed, **EQUIP BAY SMOKE FAIL** (Caution) and **EQUIP BAY SMOKE DET REDUND LOSS** (Info) are not displayed.	No	Yes	A	A
	ATA 21 Environmental	**EQUIP BAY SMOKE FAIL** (Caution) Removed steps: • **EMER PWR ONLY** (warning message) or **AIR SYS ESS CTLR FAIL** (caution message) is also displayed: • (4) **EMER PWR ONLY** (warning message) or **AIR SYS ESS CTLR FAIL** (caution message) are not displayed.	No	Yes	A	A

FROM BASE AVIONICS: BUILD 8.0A2 TO RELATED AVIONICS: BUILD 8.0A3	MANEUVER (Per ATA Chapter)	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	ATA 31 Indications	**DUAL ADS FAIL** (Caution) Added to description: DMC channels 1B and 2B have failed. **NOTE:** TAT source of ADSP 3 and ADSP 4 are not available.	No	No	A	A

APPENDIX 4. HEAD-DOWN DISPLAY (HDD) – REDUCED AND LOW VISIBILITY OPERATIONS AND CAT II APPROACHES

1. BACKGROUND

A220 aircraft are capable of reduced and low visibility taxi and takeoff in visibilities as low as 600 Runway Visual Range (RVR) using the HDD and for HDD CAT II approach operations.

Reduced and low visibility taxi, takeoff, and CAT II approach training, checking, and currency requirements using the HUD or the HUD LVTO function is found in Appendix 5, paragraphs 8 through 11.

2. PILOT TYPE RATING

Pilot type rating remains BD500.

3. RELATED AIRCRAFT

HDD-reduced and low visibility training, checking, and currency requirements accomplished in a A220-100 Level C FFS with daylight visuals, or Level D FFS or A220-100 aircraft, satisfies the training, checking, and currency requirements for the A220-300. HDD training, checking, and currency requirements accomplished in the A220-300 Level C FFS with daylight visuals, or Level D FFS or A220-300 aircraft, satisfies the training, checking, and currency requirements for the A220-100.

4. PILOT TRAINING

Pilot training requirements for low visibility operations (taxi, takeoff, and CAT II approaches) applicable to the A220 aircraft are defined in the current edition of Advisory Circular (AC) 120-118, Criteria for Approval/Authorization of All Weather Operations (AWO) for Takeoff, Landing, and Rollout.

5. PILOT CHECKING

Pilot checking requirements for low visibility operations (taxi, takeoff, and CAT II approaches) applicable to the A220 aircraft are defined in AC 120-118.

6. PILOT CURRENCY

Pilot currency requirements for low visibility operations (taxi, takeoff, and CAT II approaches) applicable to the A220 aircraft are defined in AC 120-118.

7. OPERATIONAL SUITABILITY

HDD-reduced and low visibility taxi, takeoff, and CAT II approaches were found to be operationally suitable when conducted in an A220 aircraft.

APPENDIX 5. HEAD-UP DISPLAY (HUD)

1. BACKGROUND

The HUD Qualification Program is generic in nature and should not be construed to dictate or limit the scope or content of the course of instruction. Operators with existing HUD training programs may continue to use their approved program or integrate elements of this sample HUD training program.

The A220 aircraft may be equipped with an optional single or dual HUD installation. This appendix provides generic training, checking, and currency requirements for the operational use by operators of a single or dual HUD in all phases of flight.

Additional training and checking is required for operators conducting taxi and takeoff operations using the HUD for reduced and low visibility operations, LVTO function, and using the HUD for CAT II approaches (see paragraphs 8 through 11 of this appendix).

2. PILOT TYPE RATING

Pilot type rating remains BD500.

3. RELATED AIRCRAFT

HUD training, checking, and currency requirements accomplished in a A220-100 Level C FFS with daylight visuals, or Level D FFS or A220-100 aircraft, satisfies the training, checking, and currency requirements for the A220-300. HUD training, checking, and currency requirements accomplished in the A220-300 Level C FFS with daylight visuals, or Level D FFS or A220-300 aircraft, satisfies the training, checking, and currency requirements for the A220-100.

4. PILOT TRAINING – Initial, Transition, And Upgrade (If Dual HUD Installation)

The HUD pilot training is integrated in all A220 ground and flight training. The HUD could be a single or dual installation. Depending on the installation, both pilots would need to satisfactorily complete HUD training, checking, and currency requirements.

Additional training is required for operators to receive credit for low visibility operations (see paragraphs 8 through 11 of this appendix).

The following training program is generic in nature and should not be construed to dictate what is included in the course of instruction. This training can be integrated in the initial aircraft training course. Each operator has his or her own unique requirements, route structure, fleet composition, and operations policies to consider in developing their training program. Therefore, what follows might be considered as a guide to an operator who is tailoring a HUD training program to fit his or her own needs.

4.1 **Initial or Transition Ground Training.** For air carriers, initial or transition training should be conducted in accordance with the applicable provisions of 14 CFR §§ 121.415, 121.419, 121.424, and 121.427, and the air carrier's operation specifications. For all operators, the initial ground training program should include the following elements:

a) Computer-based training (CBT) or classroom instruction covering HUD operational concepts, crew duties and responsibilities, and operational procedures including preflight, normal, and non-normal operations.
b) CBT or Classroom instruction on the HUD symbology and its interrelationship with airplane aerodynamics, inertial factors, and environmental conditions.
c) A HUD pilot reference manual or equivalent material, which explains all modes of operation, the use of various HUD controls, clear descriptions of HUD symbology, and the incorporation of the HUD into existing crew procedures.

4.2 **Initial and Transition Flight Training.** For all operators, initial or transition flight training should be conducted in accordance with the applicable provisions of 14 CFR part 121 or 142. HUD familiarization and proficiency is integrated into the flight training program. For flight simulator training, approach training should be conducted with a sufficient final approach segment (e.g., final approach fix (FAF) or glideslope intercept) to adequately train HUD usage.

a) Airwork. Emphasis should be placed on HUD symbology (i.e., flight path vector, flight path acceleration, airspeed cues, and the commonality with the HDD (the PFD)). Maneuver training should include stall prevention, steep turns, and unusual attitudes.
b) Takeoffs. Sufficient number of HUD assisted takeoffs to the lowest authorized takeoff minima to show centerline control and crosswind conditions.
c) Visual Approaches. Sufficient number of approaches to show HUD symbology and use in relation to glide path, centerline control, and crosswind conditions.
d) Instrument Approaches. Sufficient number of precision and non-precision approaches, missed approaches, and landings to the lowest authorized weather minimums to show HUD symbology and to gain proficiency in HUD approaches.

5. PILOT CHECKING – Initial, Transition, or Upgrade (If Dual HUD Installation)

There are no additional checking items other than those required by AC 120-118.

6. PILOT TRAINING – Recurrent

Selected ground and flight training elements from initial HUD training may be presented during HUD recurrent training. Procedures should be addressed in recurrent training.

7. PILOT CHECKING – Recurrent

There are no additional checking items other than those required by AC 120-118.

8. PILOT TRAINING: HUD – REDUCED AND LOW VISIBILITY TAXI, TAKEOFF (LVTO), AND CAT II APPROACHES

Pilot training requirements for low visibility operations (taxi, takeoff, and CAT II approaches) applicable to the A220 aircraft are defined in AC 120-118.

9. PILOT CHECKING: HUD – REDUCED AND LOW VISIBILITY TAXI, TAKEOFF (LVTO), AND CAT II APPROACHES

Pilot checking requirements for low visibility operations (taxi, takeoff, and CAT II approaches) applicable to the A220 aircraft are defined in AC 120-118.

10. PILOT CURRENCY: HUD – REDUCED AND LOW VISIBILITY TAXI, TAKEOFF (LVTO), AND CAT II APPROACHES

Pilot currency requirements for low visibility operations (taxi, takeoff, and CAT II approaches) applicable to the A220 aircraft are defined in AC 120-118.

11. OPERATIONAL SUITABILITY

HUD-reduced and low visibility taxi, takeoff, and CAT II approaches were found to be operationally suitable when conducted in an A220 aircraft.

APPENDIX 6. AVIONICS SOFTWARE UPGRADES

For Build 8.0A:

1. BACKGROUND

In June 2018, the FSB conducted flight evaluations of a Build 8.0A avionics software upgrade in an A220-100 (CS100) Level D FFS and a A220-100 (CS300) aircraft. The avionics software upgrade added a change to DU Revisionary mode, NADP, VSD and an optional SATCOM.

In December 2018, the FSB completed the evaluation of a Build 8.0A avionics software upgrade in a A220-100 (CS100) Level D FFS with the addition of FANS 1/A+, which incorporated CPDLC and ADS-C functionality.

2. PILOT TYPE RATING:

Pilot type rating remains BD500.

3. RELATED AIRCRAFT

- BD-500-1A10 (A220-100).
- BD-500-1A11 (A220-300).

4. PILOT TRAINING

Training Differences Level (Build 7.5 to Build 8.0A): Level B.

4.1 Experience/Prerequisite. Pilots should be familiar with the use of the Rockwell Collins Fusion Avionics Suite and the associated Radio Interface Unit (RIU).

4.2 Special Emphasis Areas. Not applicable.

4.3 Ground Training. The initial, transition, and upgrade ground training should include a thorough understanding of the use and any limitations associated with the new DU Revisionary mode, FANS 1/A+, CPDLC, ADS-C, VSD, NADP, and SATCOM.

4.4 Flight Training. The initial, transition, and upgrade flight training should include a thorough understanding of the use and any limitations associated with the new DU Revisionary mode, FANS 1/A+, CPDLC, ADS-C, VSD, NADP, and SATCOM.

5. PILOT CHECKING

Checking Differences Level: A.

6. PILOT CURRENCY

Not applicable.

7. OPERATIONAL SUITABILITY

The new DU Reversionary mode, FANS 1/A+, CPDLC, ADS-C, NADP, VSD and SATCOM were found to be operationally suitable when the Build 8.0A avionics software upgrade is installed and operational in an A220 aircraft.

For Build 8.0A2:

1. BACKGROUND

In November 2020, Airbus Canada (formerly Bombardier) certified the A220 Avionics Software v5.6 (Build 8.0A2) upgrade. The upgrade introduces product improvements and updated FMS Performance, Vspeed, Weight & Balance databases to address CAFM 1.0, High Altitude Airport Operations (HAAO) and MTOW/MZFW/MLW design changes.

As of December 2025, all A220 in service aircraft have been upgraded to Avionics Software v5.6 (Build 8.0A2). The FSB recognizes all pilots currently operating the A220 with Avionics Software v5.6 (Build 8.0A2) have demonstrated the required knowledge and skill associated with the upgrade, during proficiency and competency checks, as required by 14 CFR §§ 61.58, 91.1065, 91.1069, 121.441, 135.293 and 135.297, as appropriate.

Because the entire A220 aircraft fleet has been modified to Build 8.0A2, the FSB will not conduct any further evaluation of differences from Build 8.0A to Build 8.0A2 and the FSB has not made a determination of training or checking differences level from Build 8.0A to Build 8.0A2.

For Build 8.0A3:

1. BACKGROUND

In January 2026, the FSB conducted evaluations of Avionics Software version v6.5 (Build 8.0A3) avionics software upgrade. The Avionics Software version v6.5 (Build 8.0A3) implements numerous updates related to autothrottle (AT), flight guidance (FG), Datalink Communication (DLK), Engine Indicating and Crew Alerting System (EICAS), electronic checklist (ECL), Onboard Maintenance System (OMS), for avionics and other 3rd party systems [Brakes, High Lift, Fuel, Electrical, Interior, Fire Detection and Extinguishing (FIDEX), and Environmental Systems]. It introduces new features and provisions for future functionality post Build 8.0A3 (Avionics Software version v6.5).

2. PILOT TYPE RATING:

Pilot type rating remains BD500.

3. RELATED AIRCRAFT

- BD-500-1A10 (A220-100).
- BD-500-1A11 (A220-300).

4. PILOT TRAINING

Training Differences Level (Build 8.0A2 to Build 8.0A3): Level A.

4.1 Experience/Prerequisite. Pilots who have demonstrated the required knowledge and skill associated with the avionics software v5.6 (Build 8.0A2) upgrade during proficiency and competency checks, as required by 14 CFR §§ 61.58, 91.1065, 91.1069, 121.441, 135.293 and 135.297 can be qualified on v6.5 (Build 8.0A3) with Level A training.

4.2 Special Emphasis Areas. Not applicable.

4.3 Ground Training. The initial, transition, and upgrade ground training should include a thorough understanding of the use and any limitations associated with the new DU Revisionary mode, FANS 1/A+, ATN, CPDLC, ADS-B, ADS-C, ECL, AT, FG, EICAS.

4.4 Flight Training. The initial, transition, and upgrade flight training should include a thorough understanding of the use and any limitations associated with the new DU Revisionary mode, FANS 1/A+, ATN, CPDLC, ADS-B, ADS-C, ECL, AT, FG, EICAS.

5. PILOT CHECKING

Checking Differences Level: A.

6. PILOT CURRENCY

Not applicable.

7. OPERATIONAL SUITABILITY

The Avionics Software version v6.5 (Build 8.0A3) avionics software upgrade was found to be operationally suitable when the avionics software upgrade is installed.

APPENDIX 7. LOW VISIBILITY CAT II, CAT III, AND AUTOLAND OPERATIONS

1. BACKGROUND

In June 2018, the FSB conducted flight evaluations of CAT II/III and autoland operations in a A220-100 (CS100) Level D FFS and an A220-300 (CS300) aircraft. The CAT II/III operations were conducted to CAT II, CAT III minimums while incorporating the autoland functionality.

> **NOTE:** Previously CAT III approaches were identified as CAT IIIa (now known as Fail Passive) and CAT IIIb (now known as Fail Operational). CAT III is used as the default term for all CAT III operations and will be specified as CAT III Fail Passive or CAT III Fail Operational as appropriate when needed.

2. PILOT TYPE RATING

Pilot type rating remains BD500.

3. RELATED AIRCRAFT

- BD-500-1A10 (A220-100).
- BD-500-1A11 (A220-300).

4. PILOT TRAINING

Training Differences Level: Level D.

4.1 Experience/Prerequisite. Pilots should be familiar with the use of the Rockwell Collins Fusion Avionics Suite and the associated RIU.

4.2 Special Emphasis Areas. In conducting low visibility CAT II/III approaches and autoland operations, specified duties and procedures are assigned to both the pilot flying (PF) and pilot monitoring (PM). Therefore, the requirement for initial and recurrent training as defined below is applicable to both pilot in command (PIC) and second in command (SIC).

4.3 Ground Training. The initial, transition, upgrade, and recurrent ground training should include a thorough understanding of low visibility CAT II/III approaches and autoland operations. Pilots must receive special emphasis on the following areas during ground training:

a) Decision height (DH), decision altitude (DA), and alert height (AH).
b) Land 2/CAT III Fail Passive approaches and autoland requirements.
c) Land 3/CAT III Fail Operational approaches and autoland requirements.
d) Down Mode, Up Mode, and Downgrade requirements.
e) MEL requirements for CAT II and CAT III operations.

f) Runway field length requirements.
g) Surface Movement Guidance and Control Systems (SMGCS).
h) Visual reference requirements.
i) AFM Supplement – Category II and Category III, Autoland Operations.
j) FCOM Volume 2 Supplement – Category II and Category III, Autoland Operations.

4.4 Flight Training. The initial, transition, upgrade, and recurrent flight training should include a thorough understanding of low visibility CAT II/III approaches and autoland operations. Pilots must receive special emphasis on and perform in the following areas during flight training:

a) DH, DA, and AH recognition and responses.
b) LAND 2/CAT III fail passive approach and autoland recognition and callout requirements.
c) LAND 3/CAT III fail operational approach and autoland recognition and callout requirements.
d) Down Mode, Up Mode and Downgrade recognition and response requirements.
e) SMGCS visual reference requirements and indications.

5. PILOT CHECKING

Checking Differences Level: C.

6. PILOT CURRENCY

There are no additional currency requirements for the BD-500-1A10 (A220-100) or BD-500-1A11 (A220-300) other than those already specified in 14 CFR part 61, 121, 125, or 135.

7. OPERATIONAL SUITABILITY

7.1 CAT II/III and autoland operations were found to be operationally suitable when installed and all required equipment is operational in an A220 aircraft.

APPENDIX 8. REQUIRED NAVIGATION PERFORMANCE AUTHORIZATION REQUIRED (RNP AR) 0.3

1. BACKGROUND

In June 2019, an FSB convened to determine operational suitability and evaluate training, checking, and currency requirements for conducting RNP AR 0.3.

RNP AR 0.3 approach capability is a standard feature of the Rockwell Collins Fusion software.

2. PILOT TYPE RATING

Pilot type rating remains BD500.

3. RELATED AIRCRAFT

- BD-500-1A10 (A220-100).
- BD-500-1A11 (A220-300).

4. PILOT TRAINING

Training Differences Level: Level D.

In conducting RNP AR approaches, specified duties and procedures are assigned to both the PF and PM. The requirement for initial and recurrent training is defined below and applicable to both PIC and SIC.

4.1 Special Emphasis Areas.

4.1.1 Ground Training:

a) Supplement 7: RNP – Authorization Required Operations.

b) Required equipment to start and continue the RNP AR approach (MEL review and in-flight considerations).

c) Missed approach procedures on Radius to Fix (RF) legs.

d) Temperature compensation.

e) Verification of missed approach RNP restriction of 1.0 nautical mile (NM).

4.1.2 Flight Training:

a) Manually flown approaches and missed approaches.

b) Missed approach procedures on RF legs.

c)   Temperature compensation.

d)   In-flight equipment failure and contingency procedures (navigation signal, terrain, and other hazards).

e)   Speed constraints associated with an RNP AR approach.

f)   Energy management during approaches and missed approaches.

4.2   Initial Ground Training. Initial ground training programs must fully comply with the requirements of the current edition of AC 90-101, Approval Guidance for RNP Procedures with AR.

4.3   Initial Flight Training. Initial flight training programs must fully comply with the requirements of AC 90-101.

NOTE 1: RNP AR training in an Airbus 220-100 satisfies the RNP AR training requirement in an Airbus 220-300; and RNP AR training in an Airbus 220-300 satisfies the RNP AR training requirement in an Airbus 220-100 as long as differences training has been provided and documented.

NOTE 2: Flight training when conducted in the aircraft must be in visual meteorological conditions (VMC).

4.4   Recurrent Training.

4.4.1   Ground training must include, as a minimum, a review of "Pilot Procedures" and "Abnormal/Failures" as defined in AC 90-101.

4.4.2   Flight training must fully comply with the requirements of AC 90-101.

NOTE: Recurrent RNP AR training in an Airbus A220-100 satisfies the recurrent RNP AR training requirement in an Airbus 220-300; and recurrent RNP AR training in an Airbus 220-300 satisfies the recurrent RNP AR training requirement in an Airbus 220-100.

5.   PILOT CHECKING

5.1   Checking Differences Level: Level D.

5.1.1   While conducting an RNP AR approach, specific duties and procedures are assigned to the PF and PM. Therefore, the requirement for initial and recurrent checking is applicable to both PIC and SIC.

5.1.2   Initial and recurrent RNP AR checking in a qualified FFS or Airbus 220 aircraft must include as a minimum:

a)   Two RNP AR approaches: (flown as PF).

b) One RNP AR approach flown to an RNP published missed approach.

c) One RNP AR approach flown to a landing.

d) One of the two RNP AR approaches must have RF legs.

5.1.3 The PM must be RNP AR current and qualified in accordance with this appendix for all checks with the exception of an initial qualification check.

NOTE: RNP AR initial or recurrent checking in an Airbus A220-100 satisfies the initial or recurrent checking requirement in an Airbus A220-300; and initial or recurrent RNP AR checking in an Airbus A220-300 satisfies the initial and recurrent RNP AR checking requirement in an Airbus A220-100 with RNP AR capability.

6. PILOT CURRENCY

6.1 While conducting an RNP AR approach, specific duties and procedures are assigned to the PF and PM. Therefore, the currency requirement is applicable to both PIC and SIC.

6.2 PF and PM must have accomplished at least one RNP AR approach to either a missed approach or landing within the preceding 6 months.

6.3 The RNP AR approach must be accomplished in either an appropriately qualified FFS or Airbus A220 aircraft.

6.4 Any checking under 14 CFR part 61, 121, or 125 that requires a demonstration of RNP AR approach competency accomplished within the preceding 6 months satisfies this currency requirement.

6.5 If the RNP AR currency requirements specified in this report are not met, then currency can be reestablished by completing the RNP AR training in subparagraph 4.5 and checking elements in subparagraph 5.1.2 of this appendix.

7. OPERATIONAL SUITABILITY

The FSB has determined that RNP AR approach capability installed in the Airbus A220 aircraft is operationally suitable under 14 CFR parts 91, 121, and 125.

*An operational suitability determination and completion of RNP AR training and checking does not constitute an operational authorization. Operators should reference AC 90-101 for RNP AR application preparation and processing.