

Civil Aviation Authority United Kingdom



TYPE-CERTIFICATE DATA SHEET

UK.TC.A.00091

for

EMBRAER EMB-505

Type Certificate Holder

EMBRAER S.A.

Av. Brigadeiro Faria Lima. 2170
12227-901 São Jose dos Campos - SP
Brazil

Model(s): EMB-505
Issue: 2
Date of issue: 21 June 2024

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Section 1 General (All Models)

I. General

This Type-Certificate Data Sheet (TCDS) is the concise definition of the type-certificated product accepted and or approved by the CAA in the UK for the affected types and models.

This TCDS includes:

1. Details of the type design that affect the TCDS that have been approved or accepted by the CAA in the UK from 01 January 2021.
2. Details of the type design that affected the TCDS and were approved or accepted by EASA before 01 January 2021, and were incorporated into EASA TCDS EASA.IM.A.158 at Issue 9 dated 14 May 2020 and are therefore accepted by the UK under Article 15 of Annex 30 of the UK-EU Trade and Cooperation Agreement.

II. Marketing Designations

The EMB-505 is often referred to in Embraer marketing literature as the “PHENOM 300” or “PHENOM 300E”. These names are strictly marketing designation and are not part of the official model designation.

Section 2 EMB-505**I. General****1. Type / Variant / Model**

- a) Type: Embraer EMB-505
b) Variant or Model: EMB-505

2. Airworthiness Category

CS-23 Commuter Category.

3. Certifying Authority

Agência Nacional De Aviação Civil - ANAC
Gerência Geral de Certificação de Produtos Aeronáuticos
Rua Dr. Orlando Feirabend Filho, 230 -
Centro Empresarial Aquarius
Torre B Andares 14 a 18,
Parque Residencial Aquarius,
12246-190 - São José dos Campos – SP
Brazil

4. Manufacturer

Embraer S.A
Av. Brigadeiro Faria Lima 2170
12227-901 – São José dos Campos – SP
Brazil

Embraer Executive Aircraft Inc. (Note 9)
1205 General Aviation Drive
Melbourne, FL 32935-6309
United States of America

5. EASA Validation Application Date

30 June 2007 (this is the reference date for EASA and UK CAA validation)

6. ANAC Type Certification Date

03 December 2009

7. EASA Validation Date

29 April 2010

8. UK CAA Type Validation Application Date

UK CAA Type Validation Application Date Prior to 31 December 2020, application dates for type certification are covered by the EASA type validation application date, as per Section 5 above. New applications for UK CAA type validation received after 01 January 2021 will be recorded in this section. At the current issue of this UK CAA TCDS, no new applications for type validation have been received since 01 January 2021.

II. Certification Basis**1. Reference Date****1.1 For ANAC Certification**

28 February 2007

1.2 For Operational Suitability Requirements

28 February 2007

2. ANAC (Certifying Authority) Type Certificate Data Sheet

ANAC Type Certificate Data Sheet No. EA-2009T12

3. ANAC (Certifying Authority) Certification Basis

RBHA 23 - Requisitos de Aeronavegabilidade. Aviões Categoria Normal, Utilidade, Acrobática e Transporte Regional (Airworthiness Standards. Normal, Utility, Acrobatic, and Commuter Category Airplanes), corresponding to U.S. 14 CFR Part 23 including amendments 23-1 through 23-57; and additional requirements as per ANAC FCAR HT-01.

4. EASA Airworthiness Requirements

Refer to EASA TCDS EASA.IM.A.158

5. UK CAA Airworthiness Requirements

CS 23 – “Normal, Utility, Aerobatic and Commuter Category Aeroplanes” of 14 November 2003, as applicable to Commuter Category Certification; and additional requirements as per EASA CRI A-01. (see note 11)

CS-ACNS (Subpart D, section 4) - initial issue of 17 December 2013 (see note 10)

6. Special Conditions:

The following Special Conditions have been applied.

B-01	Part 23 Jets - Handling and Performance Requirements
B-02	High Speed Characteristics
B-03	Part 23 Jets - Stall Speed Determination
B-52	Human Factors - Integrated Avionics System
B-102	Performance Credit for APR during Go-Around
C-01	Sonic Fatigue
C-02	Pressurisation into Non-Pressurised Areas
C-03	Speed Margins
C-04	Yawing Manoeuvre
C-05	Dynamic Response
C-06	Out of Trim Characteristics (Structures)
D-01	Take-Off Warning System
D-02	Extension and Retraction System
D-03	Wheels
D-04	Brakes and Braking Systems
D-05	Doors

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D-06	Bird Strike
D-08	Steering Systems
D-09	Operation above 41.000 ft
D-103	Belted Toilet Seat – Single Place Sidefacing Seat
D-104	Sideward Seating Arrangement
D-105	Inflatable Restraints
E-01	Fuel Tank Crashworthiness
E-02	Fuel System Hot Weather Operation, Turbine Fuel
E-04	Lines, Fittings and Components
E-06	Powerplant Fire Extinguishing Systems
E-07	Negative Acceleration
E-10	Fuel Tank Ignition Prevention
E-11	Cold Soaked Fuel
F-01	Battery Endurance Requirement (High Altitude)
F-02	Hydraulic Systems
F-03	Interaction of Systems and Structures
F-52	Protection from effect of HIRF
F-56	FADEC Integration
F-58	Lithium Battery Installations
F-63	Ice Protection, Special Condition for Auto-Activated Anti-ice Systems
F-90	Security Protection of Aircraft Systems and Networks
F-92	Data link services for single European Sky.
F-93	Flight recorders including data link recording.
N-02	Effects Reference take-off speed for part 23 jets noise certification
O-01	Steep Approach and Landing.
O-04	Towbarless towing

7. Exemptions

No exemptions have been granted.

8. Equivalent Safety Findings:

The following Equivalent Safety Findings have been granted:

D-102	Ditching emergency exit for passenger
D-106	Video Monitors Deployed from Aisle Ceiling
E-102	Digital only N2 and Fuel Flow
E-103	Usable Fuel Quantity Markings
E-104	ELOS ATR/ APR

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F-57 Use of LED for Navigation Lights and Anti-Collision Lights

9. Environmental Standards:

Prevention of intentional fuel venting:

ICAO Annex 16, Volume II, Part II, Chapter 2

Noise:

ICAO Annex 16, Volume I (see TCDSN UK.TC.A.00091 for details)

10. Operational Suitability Requirements

The UK CAA type certification basis with respect to Operational Suitability Data (OSD) is defined as follows:

FCD: CS-FCD - Certification Specifications for Operational Suitability Data (OSD) Flight Crew Data CS-FCD, Initial issue dated 31 January 2014.

MMEL JAR-MMEL/MEL - Master Minimum Equipment List/ Minimum Equipment List Section 1, Subpart A and B, Amdt. 1, dated 01 August 2005, as defined in CRI A-MMEL.

There are no Special Conditions, Deviations, Exemptions or Equivalent Safety Findings for OSD.

III. Technical Characteristic and Operating Limitations**1. Design Standard**

Defined by Report 505TDSD002 "Type Design Standard Document – EASA" at Revision Original or later approved revision.

2. Description

Low wing jet with a T-tail configuration, powered by two high bypass turbofan engines mounted on aft fuselage pylons.

The structure is conventional, with a predominant aluminium-alloy fuselage and wing. The landing gear is retractable tricycle type, and both main and nose landing gears are single wheeled.

3. Dimensions

Length 15.64 m (51 ft 3.74 in)

Span 15.91 m (52 ft 2.38 in)

Height 5.10 m (16 ft 8.78 in)

Wing Area 28.5 m² (306.77 ft²)

4. Engines

Two Pratt & Whitney Canada PW535E or PW535E1 turbofans (TC/TCDS reference EASA.IM.E.048).

5. Fluids**5.1 Fuel**

Refer to applicable approved manuals

5.2 Oil

Refer to applicable approved manuals

6. Airspeeds

V_{MO} 320 KIAS, M_{MO} 0.78 (See Airplane Flight Manual)

V_{MO} 320 KIAS, M_{MO} 0.80 (See Airplane Flight Manual) (see note 12)

7. Maximum Operating Altitude

13,716 m (45,000 ft) pressure altitude

8. Operational Capability

Single Pilot / Two Pilots

VFR Day and Night

IFR Day and Night

RVSM

Flight into Known Icing

Extended Over Water

9. Maximum Certified Weights

Takeoff: 8150 kg (17968 lb)
8340 kg (18387 lb) (see note 8)
8415 kg (18551 lb) (see note 12)

Landing: 7650 kg (16865 lb)
7730 kg (17042 lb) (see note 8)
7835 kg (17272 lb) (see note 12)

Zero Fuel: 6350 kg (13999 lb)
6450 kg (14220 lb) (see note 8)
6470 kg (14263 lb) (see note 12)

Ramp: 8200 kg (18078 lb)
8390 kg (18497 lb) (see note 8)
8455 kg (18617 lb) (see note 12)

10. Centre of Gravity

See Airplane Flight Manual

11. Datum

2.286 m (90 in) forward and 0.154 m (6.06 in) leftward of the jig point (nose jack pad location).

12. Mean Aerodynamic Chord (MAC)

2.05 m (80.71 in.) (L.E. of MAC at + 6.72 m (264.51 in.)

13. Levelling Means

Located in the main door region on the omega beam between frames 11 and 12 (see AMM for further information).

14. Minimum Flight Crew

(See note 5 for cockpit equipment /arrangement restrictions)

One pilot (in the left pilot seat) plus additional equipment as specified in the Limitations Section of the UK CAA Approved Airplane Flight Manual or

One pilot and one copilot.

15. Maximum Passenger Capacity

Maximum ten (10) (see note 7)

16. Baggage / Cargo Compartment

LH Forward Cabinet	20 kg (44 lb)
Lavatory Cabinet	15 kg (33 lb)
Aft Baggage Compartment	210 kg (463 lb)

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Forward Baggage Compartment	50 kg (110 lb)
Refreshment Center	32 kg (71lb)

Note: Some airplanes have stowage compartments, LH Forward Cabinet, Lavatory Cabinet, Refreshment Center and Aft Baggage Compartment with higher load capacities. Refer to their respective placards and Flight Manual to find this information.

IV. Operating and Service Instructions

1. Airplane Flight Manual (AFM):

AFM-2666, revision original (or later approved or accepted by the UK CAA)

2. Airplane Maintenance Manual (AMM):

Airplane Maintenance Manuals, part number AMM-2757 or AMM-4610 revision original (or later revision approved or accepted by the UK CAA). See Chapter 4, "Airworthiness Limitations" (Note 3). "Airworthiness Limitations" may not be changed without the approval of the UK CAA.

V. Operational Suitability Data

1. Master Minimum Equipment List

The Operational Suitability Data elements listed below were approved by the European Union Aviation Safety Agency under the EASA Type Certificate EASA.IM.A.158 as per Commission Regulation (EU) No. 748/2012 as amended by Commission Regulation (EU) No. 69/2014 and are therefore accepted by the UK under Article 15 of Annex 30 of the UK-EU Trade and Cooperation Agreement. MMEL-3849 revision 05, dated 08 January 2020 was in force as of 31 December 2020.

Following EU-exit, the updated Operational Suitability Data with a specific UK reference listed below is approved by the UK CAA under UK.MAJ.00386 acting in accordance with Assimilated Regulations (EU) 2018/1139 and (EU) No. 748/2012.

- a. The Master Minimum Equipment List has been approved as per the defined Operational Suitability Data Certification Basis recorded in CRI A-MMEL and as documented in EMB-505 UK CAA Master Minimum Equipment List MMEL-4850, Original Revision, dated 21 June 2024.
- b. Required for entry into service by UK operator.

2. Flight Crew Data

The Flight Crew Data revisions up to 31 December 2020 were approved by the European Union Aviation Safety Agency under the EASA Type Certificate EASA IM.A.158 as per Commission Regulation (EU) No. 748/2012 as amended by Commission Regulation (EU) No. 69/2014 and were accepted by the UK under Article 15 of Annex 30 of the UK-EU Trade and Cooperation Agreement. OSD-FCD report 500MSO097 Revision I (09 March 2020) was in force as of 31 December 2020.

Following EU-exit, the updated Operational Suitability Data with a specific UK reference listed below is approved by the UK CAA under UK.ADMIN.00131 acting in accordance with Assimilated Regulations (EU) 2018/1139 and (EU) No. 748/2012.

The Flight Crew Data is defined in 500MSO136 Revision A dated 12 December 2023 or later revisions approved by the UK CAA.

3. Cabin Crew Data

Not applicable.

4. SIM Data

Not applicable.

5. Maintenance Certifying Staff Data

Not applicable.

VI. Notes

NOTE 1 - Weight and balance

Current weight and balance report, including the list of equipment that are part of the certificated basic empty weight and loading instructions, must be provided for each aircraft at the time of original certification.

The certificated empty weight and corresponding center of gravity location must include:

Unusable fuel: 22.8 kg (50.26 lb) at + 6.51 m (256.22 in.) aft of datum

Full engine oil: 16 kg (35.27 lb) at + 9.83 m (386.85 in) aft of datum*

Hydraulic Fluid: 8.8 kg (19.40 lb) at + 7.96 m (313.50 in) aft of datum

*It is considered the oil from the engine installation (filters and lines)

NOTE 2 - Markings and placards

All marking and placards required by the applicable certification requirements (see certification basics) and by the operational requirements must be installed in the appropriated locations. Required placards and marking are listed in chapter Eleven (11) of the Aircraft Illustrated Parts Catalog (AIPC) and Airplane Maintenance Manual (AMM).

NOTE 3 - Continuing Airworthiness

See Maintenance Manual, Chapter Four (4), "Airworthiness Limitations" for Systems Airworthiness Limitations, Structure Airworthiness Limitations (ALI) and Life-Limited Items (LLI). The life limit for rotating parts on the PW535E and PW535E1 engines are in the Airworthiness Limitations Section of the Pratt & Whitney Canada Engine Maintenance Manual P/N 3072702, latest revision approved or accepted by the UK CAA.

NOTE 4

All replacement seats (crew and passenger), although they may comply with TSO C127, must also be demonstrated to comply with installation requirements into the aircraft listed in CS 23.2, 23.561, 23.562, and 23.785.

The foam cushion buildup of all seats (crew and passenger) may not be altered. Any deviation in the foam construction or stiffness must be demonstrated by test or analysis to comply with the CS 23.562 paragraph.

NOTE 5

Approval for operation with a minimum crew of one pilot (in the left pilot seat) is based upon the cockpit equipment installation and arrangement evaluated during ANAC certification testing. No significant changes may be made to the installed cockpit equipment or arrangement (EFIS, autopilot, avionics, etc.), except as permitted by the approved MMEL, without prior approval from the responsible Aircraft Certification Office.

NOTE 6

Deleted.

NOTE 7

Overall Maximum in passenger compartment is nine passengers; ten passengers only in single pilot configuration as notified in AFM-2666.

NOTE 8

If post-mod SB 505-00-0008. or with an equivalent modification factory incorporated.

NOTE 9

Production Certificate 346CE - The manufacturer Embraer Executive Aircraft Inc. located in Melbourne, Florida, is licensed by Embraer S.A. to manufacture the Model Aircraft listed in this Type Certificate Data Sheet. S/N 50500118 and subsequent may be produced either by Embraer Executive Aircraft Inc. In Melbourne, Florida or Embraer S.A. in Brazil. The manufacturer can be confirmed by the aircraft data plate. Aircraft produced by Embraer Executive Aircraft Inc. in Melbourne, Florida with a S/N 50500118 and 50500122 were produced under the Type Certificate.

NOTE 10

If post-mod SB 505-34-0011 (G3000 avionics) or post-mod SB 505-34-0010 (G1000 avionics), (for single transponder installation of NXT-600 Mode S/ADS-B manufactured by ACSS) for transponder installation of or equivalent factory modifications are incorporated, and any other modification identified applicable by Embraer, and/or for installation of transponders.

NOTE 11

Sections of CS-ACNS, as applicable, may be raised as part of the certification basis for avionic installations.

NOTE 12

For aircraft equipped with PW535E1 engines.

Section 3 Administration**I. Acronyms and Abbreviations**

Acronym / Abbreviation	Definition
ACAS	Airborne Collision Avoidance System
AFM	Airplane Flight Manual
AMC	Acceptable Means of Compliance
ANAC	Agência Nacional De Aviação Civil (CAA Brazil)
APU	Auxiliary Power Unit
AWO	All Weather Operations
CAA	(United Kingdom) Civil Aviation Authority
CRI	Certification Review Item
CS	Certification Specification
EASA	European Union Aviation Safety Agency
EMB	EMBRAER
ERJ	Embraer Regional Jet
ES(F)	Equivalent Safety (Finding)
EWIS	Enhanced Wiring Interconnection System
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FSL	Fuel System Limitation
HIRF	High Intensity Radiated Field
ICA	Instructions for Continued Airworthiness
ICAO	International Civil Aviation Organization
JAR	Joint Aviation Requirements
LLI	Life Limited Item
M MEL	Master Minimum Equipment List
MRB	Maintenance Review Board
OSD	Operational Suitability Data
RVSM	Reduced Vertical Separation Minima
S/N	Serial Number
SB	Service Bulletin
SC	Special Condition
TC	Type Certificate
TCDS	Type Certificate Data Sheet
TCH	Type Certificate Holder
TSO	Technical Standards Order

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II. Type Certificate Holder Record

TCH Record	Period
EMBRAER S.A. Av. Brig. Faria Lima. 2170 12227-901 São Jose dos Campos – SP Brazil	Present

III. Amendment Record

TCDS Issue No.	TCDS Issue Date	Changes	TC Issue and Date
1	19 Dec 2023	<p>The content of the initial issue of UK CAA TCDS was taken from EASA TCDS No. EASA.IM.A.158 Issue 9 dated 14 May 2020 which was the current EASA version at 31 December 2020 and therefore the version of the TCDS for the EMBRAER EMB-505 accepted by the UK under Article 15 of Annex 30 of the UK-EU Trade and Cooperation Agreement.</p> <p>The following general changes have been made to reflect EU-Exit as well as corrections:</p> <ul style="list-style-type: none"> • Where relevant “EASA” removed and replaced by “UK CAA”. • General editorial corrections. • Section 2, IV, 1 – Clarification added on AFM revision approved and accepted by UK CAA. • Note 3 updated to reflect approval or acceptance by the UK CAA. • Section 2, I, 5 – EASA/UK CAA date of application corrected. • Section 2, II, 9 – Environmental requirements corrected. • Section 2, V, 1 – Update of MMEL reference. • Section 1, II added (Marketing Designations) and note 6 deleted as content covered by Section 1, II. <p>Changes relating to UK.ADMIN.00131:</p> <ul style="list-style-type: none"> • Section 2, V, 2 – Clarification added on approved revisions of all OSD elements and addition of a new UK CAA OSD-FCD report reference. 	Issue 1 19 Dec 2023
2	21 June 2024	<p>Changes relating to UK.MAJ.00254 / DCA 0505-046-00212-2019/CAA-UK Rev ‘-’ Flight Stream 510 (FS510) approved by the UK CAA on 12 April 2024 and UK.MAJ.00173 / DCA 0505-031-00052-2020/CAA-UK Rev ‘-’ EMB-505 G3000 Avionics Software Phase 2 additional features approved by the UK CAA on 26 February 2024.</p> <ul style="list-style-type: none"> • Section 2, II, 6 - Added EASA CRI F-90 (UK.MAJ.00254) • Section 2, V, 2 – Updated OSD report 500MSO136 to Revision A (UK.MAJ.00173) <p>Introduction of UK CAA MMEL (UK.MAJ.00386):</p> <ul style="list-style-type: none"> • Section 2, V, 1 – Update to replace EASA MMEL reference with UK CAA MMEL (MMEL-4850) • Section 2, V, 1, 2 - EASA TCDS reference corrected 	Issue 1 19 Dec 2023

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TCDS Issue No.	TCDS Issue Date	Changes	TC Issue and Date
		<ul style="list-style-type: none">Update to reference UK law which is now referenced as Assimilated law.	

– END –