European Aviation Safety Agency

EASA

TYPE-CERTIFICATE DATA SHEET

EASA.IM.A.158

EMBRAER EMB-505

Type Certificate Holder: Embraer

Embraer S.A.
Av. Brig. Faria Lima. 2170
12227-901 São Jose dos Campos SP
Brazil

For model: EMB-505

Issue date 09 December 2016

CONTENT

SECTION A: EMB-505

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1. **Data Sheet No**: EASA IM.A.158

2. **Airworthiness Category:** CS-23 Commuter Category.

3. **Certifying Authority:** Agência Nacional de Aviação Civil - ANAC
Gerência Geral de Certificação de Produtos Aeronáuticos
Rua Laurent Martins, 209, Jd. Esplanada II
12242-431 – São José dos Campos-SP
Brazil

4. **Type Certificate Holder**: **Embraer**
Av. Brig. Faria Lima. 2170
12227-901 São Jose dos Campos SP
Brazil

5. **Manufacturer:** **Embraer S.A.**
Av. Brig. Faria Lima. 2170
12227-901 São Jose dos Campos SP
Brazil

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

A.I. General

1. **Aeroplane:** Embraer EMB-505
(See Note 6)

2. **EASA Certification Application Date:** 30 Jun 2007

3. **ANAC Type Certification Date:** 03 December 2009

4. **EASA Certification Date:** 29 April 2010

A.II. EASA Certification Basis

1a. **Reference Date for ANAC Certification:** 28 Feb 2007

ANAC Type Certificate Data Sheet No. EA-2009T12

1b. **Reference date for Operational Suitability Requirements** 28 Feb 2007

2. **ANAC 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.

3. **EASA Airworthiness Requirements**: (see note 11)
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.

CS-ACNS (Subpart D, section 4) - initial issue of 17/12/2013 (see note 10)

4. **EASA Special Conditions:**

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
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	Inflateable 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-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.

5. **EASA Exemptions:**

N/A

6. **EASA Equivalent Safety Findings:**

D-102	Ditching emergency exit for passenger
E-102	Digital only N2 and Fuel Flow
E-103	Usable Fuel Quantity Markings
E-104	ELOS ATR/ APR
F-57	Use of LED for Navigation Lights and Anti-Collision Lights

7. **EASA Environmental Standards:**

CS 34 - Aircraft Engine Emissions and Fuel Venting, of 17 October 2003;
CS 36 - Aircraft Noise, of 17 October 2003;

8. EASA Operational Suitability Requirements

CS-FCD - Certification Specifications for Operational Suitability Data (OSD) Flight Crew Data CS-FCD, Initial issue dated 31 Jan 2014;
JAR-MMEL/MEL - Master Minimum Equipment List/ Minimum Equipment List Section 1, Subpart A and B, Amdt. 1, dated 1 August 2005, as defined in CRI A-MMEL;

8.1 Special conditions for OSD

none

8.2 Exemptions for OSD:

none

8.3 Deviations for OSD:

none

8.4 Equivalent Safety for OSD:

none

A.III. Technical Characteristics and Operational 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 aluminum-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 m^2	(306.77 ft^2)

4. **Engines:** Two Pratt & Whitney Canada PW535E turbofans (TC/TCDS reference IM.E.048)

5. **Fuel:** Refer to applicable approved manuals

6. **Oil:** Refer to applicable approved manuals

7. **Airspeeds:** V_{MO} 320 K_{IAS}, M_{MO} 0.78 (See Airplane Flight Manual)

8. **Maximum Operating Altitude:** 13,716 m (45,000 ft) pressure altitude

9. **Operational Capability:**
   Single Pilot / Two Pilots
   VFR Day and Night
   IFR Day and Night
   RVSM
   Flight into Known Icing
   Extended Over Water

10. **Maximum Certified Weights:**

Takeoff:	8150 kg (17968 lb)
	8340 kg (18387 lb) (see note 8)
Landing:	7650 kg (16865 lb)
	7730 kg (17042 lb) (see note 8)
Zero Fuel:	6350 kg (13999 lb)
	6450 kg (14220 lb) (see note 8)
Ramp:	8200 kg (18078 lb)
	8390 kg (18497 lb) (see note 8)

11. **Centre of Gravity:** See Airplane Flight Manual

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

13. **Mean Aerodynamic Chord (MAC):** 2.05 m (80.71 in.) (L.E. of MAC at + 6.72 m (264.51 in.) aft of datum)

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

15.	**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 EASA Approved Airplane Flight Manual or One pilot and one copilot.
16.	**Maximum Passenger Capacity:**	Maximum ten (see note 7)
17.	**Baggage / Cargo Compartment:**	LH Forward Cabinet 20 kg (44 lb) Lavatory Cabinet 15 kg (33 lb) Aft Baggage Compartment 210 kg (463 lb) 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.

A.IV. Operating and Service Instructions

1. Airplane Flight Manual (AFM):

Airplanes must be operated according to the EASA approved AFM, part number AFM-2666, revision original (or later approved revision)

2. Airplane Maintenance Manual (AMM):

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

A.V. Operational Suitability Data (OSD)

The Operational Suitability Data elements listed below are approved by the European Aviation Safety Agency under the EASA Type Certificate EASA.IM.A.157 as per Commission Regulation (EU) 748/2012 as amended by Commission Regulation (EU) No 69/2014;

1 **Master Minimum Equipment List**
The MMEL is defined in document MMEL-3849 revision 3, dated 14 Dec 2015 or later approved revisions;

2 **Flight Crew Data**
The Flight Crew Data is defined in 500MSO097 revision A dated 07 Dec 2015 or later approved revisions;

3 **Cabin Crew Data**
Not applicable;

4 **SIM Data**
Not applicable;

5 **Maintenance Certifying Staff Data**
Not applicable;

A.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 engine is in the Airworthiness Limitations Section of the Pratt & Whitney Canada Engine Maintenance Manual P/N 3072702, latest revision.

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 - The EMB-505 is often referred to in Embraer marketing literature as the “PHENOM 300”. This name is strictly marketing designation and is not part of the official model designation.

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.

ADMINISTRATIVE SECTION

I. Acronyms

A.C. – Advisory Circular
A.D. – Airworthiness Directives
AFM – Airplane Flight Manual
C.G. – Centre of Gravity
CFR – Code of Federal Regulations
CRI – Certification Review Items
CS – Certification Specifications
EASA – European Aviation Safety Agency
EFIS – Electronic Flight Information System
EU – European Union
F.S. – Frame Status
FAA – Federal Aviation Administration
FADEC – Full Authority Digital Engine Control
FT – Feet
GAL - Gallons
ICAO – International Civil Aviation Organization
IFR – Instrument Flight Rules
KCAS – Knots Calibrated Air Speed
KG – Kilo Grams
KIAS – Knots Indicated Air Speed
LBS – Pounds
MIL – Military Standard
MMEL – Master Minimum Equipment List
N.A.A. – National Aviation Authority
RVSM – Reduced Vertical Separation Minimum
S.B. – Service Bulletin
T.O. – Take Off
TC – Type Certificate
TCDS – Type Certificate Data Sheet
TCDSN – Type Certificate Data Sheet - Noise.
TSO – Technical Standards Order
VFR – Visual Flight Rules

II. Type Certificate Holder Record

Date	Type Certificate Holder
	Empresa Brasileira de Aeronáutica SA Av. Brig. Faria Lima. 2170 12227-901 São Jose dos Campos SP Brasil
19 Nov 2010	Embraer S.A. Av. Brig. Faria Lima. 2170 12227-901 São Jose dos Campos SP Brasil

III. Change Record

Issue	Date	Changes
Issue 1	29 April 2010	
Issue 2	4 Oct 2011	Adding SC D-103, various corrections
Issue 3	22 May 2012	Adding SC D-104, D-105, max passenger, change record update
Issue 4	30 April 2013	Included the new Maximum Operating Weights values Included the Production Certificate and new manufacturing site
Issue 5	12 March 2015	ANAC Certifying Authority address updated. Removed “Normal Category Certification” from ANAC Certification Basis. New Special Condition CRI’s Added F-92, F-93, O-01, O-04. Baggage compartment weights amended, and note added. AMM-4610 added to approved Manuals. Note 1 “Hydraulic fluid” arm in meters corrected to align with AFM-2666.
Issue 6	16 December 2015	OSD elements are added;
Issue 7	09 December 2016	Added note 10 and 11. Corrected revision date of MMEL