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# **Type Acceptance Report**

**TAR 13/21B/15 Revision 1**

**EMBRAER EMB-505**



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## Executive Summary

New Zealand Type Acceptance has been granted to the Embraer Model EMB-505 Series based on validation of ANAC Type Certificate number EA-2009T12. There are no special requirements for import.

Applicability is currently limited to the Models and/or serial numbers detailed in Appendix 1, which are now eligible for the issue of an Airworthiness Certificate in the Standard Category in accordance with NZCAR §21.191, subject to any outstanding New Zealand operational requirements being met. (See Section 5 of this report for a review of compliance of the basic type design with the operating Rules.) Additional variants or serial numbers approved under the foreign type certificate can become type accepted after supply of the applicable documentation, in accordance with the provisions of NZCAR §21.43(c).

## 1. Introduction

This report details the basis on which Type Acceptance Certificate No. 13/21B/15 was granted in the Standard Category in accordance with NZCAR Part 21 Subpart B.

Specifically the report aims to:

- (a) Specify the foreign type certificate and associated airworthiness design standard used for type acceptance of the model(s) in New Zealand; and
- (b) Identify any special conditions for import applicable to any model(s) covered by the Type Acceptance Certificate; and
- (c) Identify any additional requirements which must be complied with prior to the issue of a NZ Airworthiness Certificate or for any subsequent operations.

## 2. Aircraft Certification Details

### (a) State-of-Design Type and Production Certificates:

Manufacturer: EMBRAER S.A.

Type Certificate: EA-2009T12

Issued by: Agencia Nacional de Aviacao Civil

Production Approval: EMBRAER S.A. [ANAC COP No. E-7203-01]

Embraer Executive Aircraft Inc. [FAA PC 346CE]

### (b) Models Covered by the Part 21B Type Acceptance Certificate:

Model(s): EMB-505

MCTOW 8150 kg [17,968 lb]

8340 kg [18,387 lb] – with SB 505-00-0008 embodied

8415 kg [18,551 lb] – equipped with PW535E1 engines

Max. No. of Seats: 11

Noise Standard: RBHA 36, equivalent to ICAO Annex 16 Volume 1 Chapter 4.

Engine: Pratt & Whitney Canada PW535E or PW535E1

Type Certificate: E-27

Issued by: Transport Canada Civil Aviation

### 3. Application Details and Background Information

The application for New Zealand type acceptance was from the manufacturer, Embraer S.A., dated 18 January 2013. The EMB-505 is a twin-turboprop pressurised business jet with a swept low-wing T-tail configuration.  $V_{MO}/M_{MO}$  for the aircraft is 320 kt and 0.78, with a maximum operating altitude of 45,000 feet. As part of the type acceptance process a CAA team from the Aircraft Certification Unit visited Embraer in San Jose dos Campos for a validation/familiarisation visit. (See Meeting Minutes No. GCF-0644/2013.)

Type Acceptance Certificate Number 13/21B/15 was granted on 20 November 2013 to the Model EMB-505 based on validation of ANAC Type Certificate EA-2009T12. Specific applicability is limited to the coverage provided by the operating documentation supplied. (The PW535E engine has been validated under Type Acceptance Certificate number 13/21B/3.) There are no special requirements for import into New Zealand.

The EMB-505, marketed as the Phenom 300, was a new design of light business jet by Embraer, developed using a lot of fuselage commonality with the EMB-500. Standard club layout is six passengers, although an additional three can be accommodated on the belted toilet and optional twin divan which replaces the entertainment centre. The aircraft is now available with two avionics options, the standard Garmin 1000 system, and for a particular customer Embraer has developed a version using the Garmin 3000 system which uses a touch-screen pilot interface.

The application for a type certificate was made in August 2006, and extended in 2009. First flight of the aircraft was in March 2008 and the Brazilian type certificate was issued in December 2009. The aircraft comes in three basic versions, ANAC, FAA and EASA, depending on the regulatory jurisdiction chosen. Aircraft can be converted by serial number effectivity from one version to another by Service Bulletin. (For example see SB 505-00-0004 General – Reconfiguration from ANAC to FAA Certification Requirements.)

The aircraft is now also assembled at an Embraer subsidiary facility at Melbourne, Florida, under an FAA Production Certificate. However these aircraft are still covered by the Brazilian type certificate.

This report was revised to Revision 1 after an application from the manufacturer to update the type acceptance of the EMB-505 to align with ANAC Type Certificate EA-2009T12 Revision 12 (Revision 0 of this report was based on ANAC Type Certificate EA-2009T12 Revision 8).

The updates to the ANAC Type Certificate captured changes due to a new option for landing flaps at Rev. 9, the addition of an ELOS at Rev. 10 (which is not associated with a design change), the addition of video monitors within the cabin at Rev. 11 and the addition of a new engine model with associated revised limitations at Rev. 12.

#### 4. NZCAR §21.43 Data Requirements

The type data requirements of NZCAR Part 21B Para §21.43 have been satisfied by supply of the following documents, or were already held by the CAA:

(1) State-of-Design Type Certificate:

ANAC Type Certificate Number EA-2009T12

ANAC Type Certificate Data Sheet no. EA-2009T12-12 dated 8 April 2020  
– Model EMB-505 approved 03 December 2009

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the EMB-505 is RBHA 23, which is equivalent to FAR Part 23 effective 1 February 1965, including Amendments through 23-57 effective 5 September 2007, plus twelve Special Conditions, twelve Equivalent Level of Safety Findings, and three Exemptions. Post initial certification, an Equivalent Level of Safety was superceded by a revised issue. These have been reviewed and accepted by the CAA. Compliance with ice protection has also been demonstrated. This is an acceptable certification basis in accordance with NZCAR Part 21B Paragraph §21.41 because FAR Part 23 is the basic standard for Commuter Category Airplanes called up under Part 21 Appendix C. There are no non-compliances and no additional special conditions have been prescribed by the Director under §21.23.

(ii) *Special Conditions:*

Resolução N° 124 – Pressure Vessel Integrity for High Altitude Operations – FCAR ES-21: Damage tolerance analysis (DTA) methods are proposed to assure pressure vessel integrity while operating up to 45,000 ft. It must be demonstrated by crack propagation and DTA supported by testing, and inspection schedules and procedures must be established, to ensure a larger opening or a more severe failure will not occur in normal operations. In addition, a full scale fatigue test will simulate two economic lifetimes providing evidence of no Multiple Site Damage occurrence.

Resolução N° 125 – Oxygen Equipment and Supply – FCAR SM-05: Part 23 for crew supplemental oxygen considers mainly equipment intended for operations up to 40 000 ft. For higher altitudes a quick donning pressure-demand oxygen mask must be provided for each flight crew.

Resolução N° 121 – Ventilation System – FCAR SM-05: For high altitude operations special requirements were applied to ensure in the event of ventilation system failure the temperature and humidity shall not exceed values that are hazardous to the occupants or affect crew performance.

Resolução N° 124 – Pressurisation System – FCAR SM-06: For high altitude operations special requirements were applied to ensure in the event of pressurization system or structural failures the pressurisation system must prevent the cabin exceeding a specified altitude-time history.

Resolução N° 123 – Ice Protection, Special Condition for Auto-Inhibited Anti-Ice Systems – FCAR SM-07: Bleed air is used for ice protection for the wings and empennage.



Due to the potential to overtemp the engines, the system is designed to inhibit operation above 30,000 ft or high ambient temperatures automatically, with no means for the flight crew to override, even if there is ice accretion on the airframe. For certification without restrictions in icing conditions the aircraft controllability, manoeuvrability, stability, stall characteristics warning must not be less than required in Part 23 Subpart B with defined critical ice shapes. There must also be appropriate AFM procedures; the engine anti-icing system must not be subject to the automatic shut-off feature; and it must be shown that engine operation is not affected by ice shedding from the inboard wing.

**Resolução N° 126 – Special Condition for Subpart B (Flight) – FCAR EV-01:** Part 23 was written around lower performance reciprocating powered aircraft that typically do not reach the altitudes and speeds of VLJ. ANAC used the following considerations as motivation for this SC: Small turbofans with faster spool-up times than older turbojets with high performance; Disking drag from turboprops versus very little drag from that jet; and new avionics. The SC applied a range of alternative requirements for FAR 23 performance and handling, which are similar to FAR Part 25.

**Resolução N° 126 – Special Condition for Subpart G (Operating Limitations and Information) – FCAR EV-04:** Similar to the reasoning behind EV-01 this SC applied a range of additional requirements regarding aircraft operating limitations and performance information.

**Resolução N° 127 – Performance Credit for ATR during Go-Around – FCAR EV-11:** Embraer requested credit for the ATR system in the determination of EMB-505 approach-climb limit weights, which under Part 23 Appendix H only applies during take-off. The EMB-505 also has this feature for go-around. Requirements were defined for ATR performance and system reliability; minimum thrust setting; powerplant control system reliability; and crew indications.

**Resolução N° 108 – Special Condition for FADEC – FCAR PR-07:** Even though the engine electronic control system (ECS) will be certificated as part of the engine, the installation must comply with the requirements of §23.1309(a) through (e) at Amendment 23-55. The intent is not to re-evaluate the basic hardware reliability of the control, but rather determine critical environmental effects and possible effects on or by other airplane systems when installing the ECS on the airplane.

**Resolução N° 120 – Hot Weather Operation – FCAR PR-09:** The engine manufacturer indicated the PW535E engine design is such that it may heat the motive flow in a way to increase fuel tank temperature above that envisioned by the current rule. This SC was imposed for the higher fuel system temperatures. Embraer determined by analysis the normal operational conditions which would result in the highest fuel tank temperature and tested the aircraft at this determined condition.

**Resolução N° 198 – Special Condition for Single-Place Side-Facing Seat – FCAR EI-12:** This specified Proposed Injury Criteria for single-place side-facing seats, and included: Existing §23.562 Criteria; Body-to-Wall/Furnishing Contact; Thoracic Trauma; Pelvic Acceleration Limit; Shoulder Strap Loads; Compression Loads; and some other requirements specific to the rear belted toilet installation (per FAA Policy Memorandum ANM-03-115-30).

**Resolução N° 225 – Special Condition for Airbag System on Side Facing Divan Shoulder Belts – FCAR EI-15:** Shoulder strap airbags are a new design feature. Requirements were specified based on satisfactory and effective deployment; protection of a range of stature; prevention of inadvertent deployment or incorrect buckle use/installation; must be stronger than TSO C114; must allow rapid egress; protection from lightning, HIRF and fire; not hazardous for an unoccupied seat or from gas leakage; means to verify system integrity; and life limits established.

*(iii) Equivalent Level of Safety Findings:*

Decisão N° 183 – CFR §23.1305, §23.1309, §23.1321 and §23.1549 Digital Only Display of Turbine Engine High/Intermediate Pressure Rotor Speed (N2) – FCAR PR-02: This was accepted on the basis that N2 is not a basic thrust setting parameter and system architecture monitors and limits N2 without any pilot action. Exceedences are shown by colour change. Additional high rotor overspeed protection is provided by engine certification requirements.

Decisão N° 184 – CFR §23.1553, §23.1337(b)(1) and §23.959 Digital Fuel Quantity Indication – FCAR PR-11: The EMB-505 does not literally display a red radial line, which is not feasible with a digital display, but has compensating features such as FQIS colour changes (background and figures) and redundant displays on the synoptic page with the same colour codes.

Decisão N° 237 – CFR §23.1555(d)(1) and §23.1337(b)(1) Control Markings – Usable Fuel Capacity – FCAR PR-05: The EMB-505 fuel quantity indication system (FQIS) not only measures the actual amount onboard by means of level sensors but also corrects fuel quantity information by inferring fuel density as a function of current temperature. It will also be calibrated to read “zero” when the quantity of fuel left in the tank is equal to the unusable fuel.

Decisão N° 334 – CFR §23.815(b) Width of Aisle – FCAR EI-08: Embraer proposed a reduced width aisle than specified for passenger capacities of 10 or less. (9 inches below 25 inches from the floor, and 13 inches minimum above, instead of the required 12 and 15 inches respectively.) To justify this an evacuation test in a representative interior was carried out to measure the cabin egress time. Two groups of 11 tested both “constricted” and “standard” aisle width configurations. The difference in average escape time was only 1.5 seconds, well below the acceptance margin.

Decisão N° 368 – CFR §23.807(e)(2) Ditching Emergency Exit for Passenger – FCAR EI-03: Because flotation analysis showed the main cabin entry door sill will be underwater the use of a water barrier was accepted subject to demonstration of the stowage, effectiveness and ease of use in conjunction with AFM procedures and placarded instructions.

Decisão N° 393 – CFR §23.904, §23.1301 and §23.1309 Automatic Thrust Reverse Function Deactivation – FCAR PR-13: Control of the Automatic Thrust Reserve (ATR) through the engine FADEC software does not allow the crew to turn it off in flight, so Embraer had to show there was no scenario identified that required a means to deactivate the automatic function.

Decisão N° 394 – CFR §23.855 Forward Baggage Compartment Fire Protection – FCAR EI-10: Embraer applied to certify the forward baggage compartment (FBC) which is not sealed, as required for the commuter category. This was accepted subject to the conditions that: There are no ignition or heat sources inside the FBC; FBC lining materials were individually tested to §23.853 (d)(3)(ii); and a placard is installed near both FWD baggage doors prohibiting the transportation of flammable materials as defined in ICAO 9284-AN/905 (classes 2.1, 3 and 4).

Decisão N° 395 – CFR §23.853(d)(2) “No Smoking” Placard Dimensions – FCAR EI-09: In lieu of 0.5 inch red letters on a 1.0 inch white background Embraer proposed placards of 0.18 inch letters on a 0.54 inches background. This was justified by the size of lettering and location of the placard (appropriate considering the size of the cabin, position of the lavatory and its door); contrast of the placard with furnishings (typically stained wood); and passenger profile (typically frequent flyers familiar with the safety features of the specific plane they are aboard);

Decisão N° 396 – CFR §23.1323 System Error during Accelerate-Takeoff Ground Run – FCAR EV-02: Due to the performance characteristics the calibration of the airspeed indicating system was required to be adequate for the speed range of this type of aircraft, which was by adopting the language and requiring the same takeoff speed margins used in Part 25.

Decisão N° 397 – CFR §23.1389, §23.1391, §23.1393 and §23.1395 Position Lights – FCAR SE-05: The forward position lights do not strictly meet the intensity requirements and exceed the allowable overlapping intensities specified by Part 23. However Embraer showed that the brightness of the LED units more than compensates for the intensity and overlap shortcomings, and actually provide for an overall level of conspicuity much higher than the minimums required.

Decisão N° 398 – CFR §23.841(b)(6) High Elevation Airfield Operation – FCAR SM-08: The Rules require a warning when the cabin altitude exceeds 10 000 ft. To avoid nuisance warnings when operating at airports above 8300 ft. elevation the pressurization system automatically shifts the cabin pressure warning for these high altitude operations, in two steps up to 14,200 ft. This was subject to strict controls on flight crew indications, system scheduling and operation, safety assessments and AFM limitations. One compensating factor required as part of the ELOS is that one pilot is required to use an oxygen mask continuously whenever the aircraft is in High Altitude Mode.

Portaria N° 818 – CFR §23.1305 and §23.1549 Digital Only Display of Turbine Engine High Pressure Rotor Speed (N<sub>2</sub>) – FCAR PR-15: Decisão N° 183 applied an ELOS to the display of N<sub>2</sub>. This ELOS supersedes Decisão N° 183 and applies a similar philosophy to the display of oil pressure, oil temperature and fuel flow as well as N<sub>2</sub> in that a colour change is used to denote relevant thresholds.

Portaria N° 3.815 – CFR §23.185(b) Video monitor hanging from the aisle ceiling – FCAR EI-18: Design Change DCA 0505-00124-2016 incorporates two video monitors in the middle of the main cabin aisle. CFR §23.185(b) defines the minimum width of a main passenger aisle, but does not set out a minimum height clearance. This ELOS acknowledges the potential for issues in aircraft evacuation and compensates by the need to show evacuation times (CFR §23.803(a)) and the consideration of injury potential due to the video monitor protruding into the aisle.

*(iv) Exemptions:*

Decisão N° 391 – CFR §23.181(b) Exemption for Dynamic Stability – FCAR EV-05: VLJ aircraft capable of high speed and high altitude cruising flight typically exhibit deteriorating aerodynamic lateral-directional damping characteristics. An FAA Aviation Rulemaking Committee (ARC) working group reviewed Part 23 for small jets and high performance airplanes and recommended relaxed “Dutch-Roll” damping criteria. (Just using Part 25 requirements were not considered adequate for pilot workload considerations because Part 23 aircraft are often operating with less experienced crew flying single pilot in IMC.) Embraer demonstrated that the combined lateral-directional oscillations are damped to 1/10 of the initial amplitude in 13 cycles, as specified in the ARC criterion, for all operating conditions from 18,000ft up to the maximum certified altitude with the yaw damper on or off, with no adverse effect on safety or workload.

Decisão N° 392 – CFR §23.3(d) Airplane Categories, Commuter Category – FCAR HT-04: Commuter category is currently limited to propeller driven aircraft. The FAA has already granted exemptions to business jets weighing more than 12,500 pounds. (Service history shows that multiengine jets have a better safety track record than turboprops and piston twins in similar operations.) This was granted subject to compliance with §23.562 (which has become a defacto rule for all turbojet aircraft) and that the EMB-505 will not be eligible for operations under RBHA 121.

Decisão N° 37 – CFR §23.562(a) Dynamic Test Requirements for Side-Facing Divans (Sofas) / General Protection for Occupants of Multiple Place Side-Facing Seats (Divans) Installations – FCAR EI-14: Side-facing seats are a novel design feature not covered by the existing rules. Proposed Injury Criteria for single-place side-facing seats were proposed, and included: Existing §23.562 criteria; body-to-body contact; thoracic trauma; pelvic acceleration limit; body-to-wall/furnishing contact; shoulder strap loads; and occupant retention.

(v) *Airworthiness Limitations:*

See Maintenance Manual Chapter Four – Airworthiness Limitations

(3) Aircraft Noise and Engine Emission Standards:

(i) *Environmental Standard:*

The EMB-505 has been certificated under the emission requirements of RBHA 34, equivalent to FAR 34 effective 10 September 1990 as amended on the application date, and the noise requirements of RBHA 36, equivalent to ICAO Annex 16 Vol. 1 Chapter 4 (4<sup>th</sup> Edition) effective July 2005 as amended on the application date for airplanes with MTOW of 8150 kg and FLAP 03. RBAC 36 amendment 28 corresponding to US Title 14 CFR Part 36 including amendments 36-01 up to 36-28 for other airplanes.

(ii) *Compliance Listing:*

Embraer Report No. 505NOR001 – Model 505 – External Noise Certification – Test Report – Volume 1

(4) Certification Compliance Listing:

Embraer Report No.: 505CCC001 – EMB-505 Certification Plan – Rev.A

(5) Flight Manual: Phenom 300 ANAC-Approved Airplane Flight Manual  
Document AFM-2664 – CAA Accepted as AIR 3245

(6) Operating Data for Aircraft:

(i) *Maintenance Manual:*

Aircraft Maintenance Manual – AMM-2757  
Structural Repair Manual SRM-2759  
Standard Wiring Practices Manual – SWPM-3717  
Fault Isolation Manual – FIM-2756  
Wiring Manual – WM-2760

(ii) *Current service Information:*

Service Bulletins and Service Letters

(iii) *Illustrated Parts Catalogue:*

Aircraft Illustrated Parts Catalog – AIPC-2755

(7) Agreement from manufacturer to supply updates of data in (5), and (6):

Access is provided to the [www.flyembraer.com](http://www.flyembraer.com) website

(8) Other information:

Embraer Report No.: 505ELA001 – EMB-505 – Electrical Load Analysis – Rev.C  
Phenom 300 Pilot’s Operating Handbook Volume 1 – POH-2908-04  
Phenom 100 & 300 – Standard Operating Procedures Manual – SOP-4590  
Phenom 300 Minimum Equipment List (MEL) Guide – MEL-3870  
Phenom 300 ANAC Master Minimum Equipment List – MMEL-2910  
Phenom 300 Brazilian Quick Reference Handbook – QRH-2667  
Garmin Embraer Prodigy® Touch Flight Deck 300 – Cockpit Reference Guide  
Garmin Embraer Prodigy® Touch Flight Deck 300 – Pilot’s Guide  
Garmin Embraer Prodigy® Flight Deck 300 – Cockpit Reference Guide  
Garmin Embraer Prodigy® Flight Deck 300 – Pilot’s Guide  
Operational Bulletins and Flight Operations Letters

## 5. New Zealand Operational Rule Compliance

Compliance with the retrospective airworthiness requirements of NZCAR Part 26 has been assessed as they are a prerequisite for the grant of an airworthiness certificate.

### Civil Aviation Rules Part 26

#### Subpart B – Additional Airworthiness Requirements

##### Appendix B – All Aircraft

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
B.1	Marking of Doors and Emergency Exits	<i>To be determined on an individual aircraft basis</i>
B.2	Crew Protection Requirements – CAM 8 Appdx. B # .35	Not Applicable – Agricultural Aircraft only

Compliance with the following additional NZ operating requirements has been reviewed and were found to be covered by either the original certification requirements or the basic build standard of the aircraft, except as noted:

### Civil Aviation Rules Part 91

#### Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
91.505	Seating and Restraints – Safety belt/Shoulder Harness	FAR §23.785/ FAR §23.2
91.507	Pax Information Signs – Smoking, safety belts fastened	Not Applicable – Less than 10 passenger seats
91.509 Min. VFR	(1) ASI (2) Machmeter (3) Altimeter (4) Magnetic Compass (5) Fuel Contents (6) Engine RPM (7) Oil Pressure	FAR §23.1303(b)(1) * FAR §23.1303(c)(2) * FAR §23.1303(b)(2) * FAR §23.1303(a)(3) * FAR §23.1305(a)(2) * FAR §23.1305(c)(3) * FAR §23.1305(a)(4) *
		(8) Coolant Temp (9) Oil Temperature (10) Manifold Pressure (11) Cylinder Head Temp. (12) Flap Position (13) U/C Position (14) Ammeter/Voltmeter
		Not Applicable – Turbojet FAR §23.1305(a)(6) * Not Applicable – Turbojet Not Applicable – Turbojet FAR §23.699 * FAR §23.729(e) * FAR §23.1351 (b)(6) *
91.511	Night VFR Instruments and Equipment	Fitted as Standard *
91.513	VFR Communication Equipment	Fitted as Standard *
91.517	IFR Instruments and Equipment	Fitted as Standard *
91.519	IFR Communication and Navigation Equipment	Fitted as Standard *
	* Garmin G1000 Integrated Instrument and Avionics System has dual GDC74B Air Data Computers; dual GRS77 Attitude Heading Reference Systems; Dual GMU44 magnetometers; dual GIA63W with VHF Nav/Comm and GPS; dual GMA1347D audio control panels; and GWX68 weather radar; Fitted as Standard. (Single KN63 DME is optional) Notes: 1. Garmin G3000 has same functionality, but uses a different touch-key interface and larger displays 2. The Model EMB-505 is approved for VFR and IFR, Icing Conditions and Extended over water operations	
	RVSM – Model EMB-505 is certificated and equipped as standard for RVSM Operations (See AFM Supplement 1)	
	Operational Approvals – The Model EMB-505 is approved as follows: (See AFM Limitations Section) Barometric VNAV to enroute and terminal descents, as per FAA AC 20-129. (G3000 has Barometric VNAV approach capability, in addition to enroute and terminal, as per FAA AC 20-129.) GNSS operations per FAA AC 20-138A; RNP per FAA AC 90-15; and RNAV 1/2 per FAA AC 90-100A. Oceanic/Remote/RNP-10 per FAA Order 8400-12B and RNP-4 per FAA AC 20-138A and Order 8400.33. Enroute and terminal including RNAV5/PRNAV per FAA AC 90-96A and JAA TGL-10. BRNAV/RNAV5 per and FAA AC 90-96A and EASA AMC 20-4. RNP APCH per AMC 20-27 and LPV per AMC 20-28.	
91.523	Emergency Equipment: (a) More Than 9 pax – First Aid Kits per Table 7 – Fire Extinguishers per Table 8 (b) More than 20 pax – Axe readily accessible to crew (c) More than 61 pax – Portable Megaphones per Table 9	Not Applicable – Less than 10 passenger seats Not Applicable – Less than 10 passenger seats Not Applicable – Less than 10 passenger seats Not Applicable – Less than 10 passenger seats
91.529	ELT - TSO C126 406 MHz after 22/11/2007	Kannad 406-AF Fitted as Standard (See POH Section 6-01-70)
91.531	Oxygen Indicators - Volume/Pressure/Delivery	Oxygen system certified to FAR §23.1441 through 1449
	<b>NOTE: §91.531(1)(ii) requires cabin altitude warning at 10,000 ft. The EMB-505 is certificated for high altitude airfield operations. In this mode cabin altitude warning is delayed until 11,500 or 14,200 ft depending on landing airfield elevation.</b>	

91.535	Oxygen Equipment for Pressurised Aircraft: (1) Flight Crew Member On-Demand Mask; (2) Pax mask, Portable oxygen equipment (3) Crew Member – Pax Oxygen Mask and Portable (4) Minimal Supplemental Oxygen Quantity (5) Specified Supplemental/Therapeutic Oxygen Quantity Above FL250 (1) Quick-Donning Crew On-Demand Mask (2) Supplemental O <sub>2</sub> Masks for all Pax/Crew and Toilets (3) 15 Minutes Therapeutic Supply  Above FL300 (1) Total Outlets Exceed Pax Seats by 10% (2) Extra Units Uniformly Distributed throughout Aircraft (3) Automatically Presented if Cabin Altitude ≥ 14000 ft.  (4) Manual Means of Deploying Pax Masks Available  <b>NOTE: Both these oxygen system non-compliances are accepted under the provisions of Exemption 14/EXE/24</b>	Oxygen is supplied to the pilots and passengers through a single 50 cu. ft. bottle pressurized to 1850 psi at 21°C (70°F). (70 cu. ft. bottle optional). The system is sized to provide FAR 135/EU-OPS 1 supplemental oxygen capacity to perform an emergency descent to 10,000 ft with 10 minutes of obstacle clearance at 22,000 ft, oxygen supply of 2 hours for the pilots and 30 minutes for up to 9 pax (8 on the pax cabin seats and 1 on the belted toilet seat). This provides sufficient for compliance with §91.535(a)(4) plus extra for the 15 min therapeutic supply required by §91.535(c)(3). Flight crew quick donning masks & regulators are stowed in oxygen mask boxes near each seat. The aft forward-facing seats share one extra oxygen mask. <b>NOTE: Passenger masks automatic deployment is initiated when cabin pressure attains 14,700 feet (+300/-300 feet) – §91.535(d)(3) requires 14,000 ft.</b> PAX OVRD switch position allows manual deployment.
91.541	SSR Transponder and Altitude Reporting Equipment	GTx33/D Mode S transponder Fitted as Standard *
91.543	Altitude Alerting Device - Turbojet or Turbofan	Fitted as Standard *
91.545	Assigned Altitude Indicator	N/A - Altitude alerting device fitted
A.15	ELT Installation Requirements	<b>To be determined on an individual aircraft basis</b>

## Civil Aviation Rules Part 125

### Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
125.353	Instruments and Equipment – General	Dual Capability – Long Range Communication Equipment <b>NON-COMPLIANCE – The EMB-505 is optionally equipped with one HF and one SATCOM. The comm.s function is controlled through the one audio panel GMA1. In case of a (single) failure of this item no long range communication would be available.</b>
125.355	Seating and Restraints – Shoulder harness pilot seats	FAR §23.785
125.357	Additional Instruments (Powerplant and Propeller)	EMB-505 meets a CAR 21 Appendix C design standard
125.359	Night Flight	Landing light, Pax compartment
125.361	IFR Operations	Speed, Alt, spare bulbs/fuses
125.361	SE IFR Requirements – If Applicable	Not Applicable – Not a single-engined aeroplane
125.363	Emergency Equipment (Part 91.523 (a) and (b))	<b>To be determined on an individual aircraft basis</b>
125.364	Protective Breathing Equipment	Not Applicable – Less than 20 passenger seats
125.365	Public Address and Crew Member Intercom System	Not Applicable – Less than 10 passenger seats
125.367	Cockpit Voice Recorder Appendix B.3 requires TSO C84/C123	L3 CVDR fitted as standard (See POH Section 6-08-15)
125.369	Flight Data Recorder Appendix B.4 requires TSO C124	L-3 FA2100 FDR compliant with EU-OPS 1 available as an option (Standard on EASA aircraft)
125.371	Additional Attitude Indicator	Fitted as standard (FAR §23.1311(5))
125.373	Weather Radar – Appendix B.6 requires TSO C63	Garmin GWX-68 (with G1000) or GWX-70 (with G3000) fitted as standard (See POH Section 6-08-20)
125.375	GPWS – Appendix B.7 requires TSO C92	Not Applicable – TAWS fitted
125.377	AEDRS	Not Applicable – Not SEIFR
125.379	Terrain Awareness and Warning System (TAWS) Appendix B.9 requires TSO C151a or b	TAWS-B Fitted as Standard. (TAWS-A available as option.)
125.381	Airborne Collision Avoidance System (ACAS II) Appendix B.10 requires TSO C118/119a or C119b	ACSS TCAS II 7.0 (TSO C119b) or 7.1 (TSO C119c/DO-185B) available as an option. (Standard on EASA aircraft.)

## Attachments

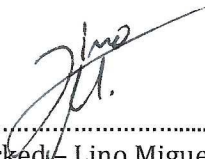
The following documents form attachments to this report:

Three-view drawing Embraer Model EMB-505 "Phenom 300"  
Copy of ANAC Type Certificate Data Sheet Number EA-2009T12

## Sign off

  
.....  
Tim Dutton  
Flight Test Engineer



  
.....  
Checked - Lino Miguel  
Certification Engineer



## Appendix 1

### List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
EMB-505	Embraer S.A.	13/21B/15	29 November 2013
EMB-505*	Embraer S.A.	21/21B/7	11 September 2020

\* PW535E1 engine variant and various major changes.