COMANDO DA AERONÁUTICA
DEPARTAMENTO DE PESQUISAS E DESENVOLVIMENTO
CENTRO TÉCNICO AEROESPACIAL

TYPE CERTIFICATE DATA SHEET Nº 2003T05

Type Certificate Holder:

EMBRAER - EMPRESA BRASILEIRA DE AERONÁUTICA S/A
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12227-901 São José dos Campos – SP
BRAZIL

EA-2003T05-07
Sheet 01

EMBRAER

ERJ 170-100 STD,
ERJ 170-100 LR,
ERJ 170-100 SU,
ERJ 170-100 SE,
ERJ 170-200 STD,
ERJ 170-200 LR
ERJ 170-200 SU

February 2006

This data sheet, which is part of Type Certificate No. 2003T05, prescribes conditions and limitations under which the product, for which the Type Certificate was issued, meets the airworthiness requirements of the Brazilian Aeronautical Regulations.

I - Model ERJ 170-100 STD (Transport Category), approved 19 February 2004.

ENGINES	Two General Electric Aircraft Engines (GE) models: CF34-8E5 or CF34-8E5A1.
APU	Hamilton Sundstrand model APS 2300.
FUEL	Brazilian Specification ANP No. 1/2003 – QAV1; ASTM Specification D-1655 JET A or JET A1; Specification MIL-T-83133A JP-8
APU LIMITS	Maximum RPM: 108% Maximum EGT: 717°C (continuous) 1 032°C (start) Other limitations as stated in Hamilton Sundstrand document No. ESR 1235.
OIL	Engine, APU and IDG: MIL-PRF-7808 or MIL-PRF-23699.
AIRSPEED LIMITS (EAS)	Maximum operating limit speed (V_{MO}): • 0 to 2 438 m (*) 556 km/h (300 kt) • 3 048 to 8 805 m (*) 593 km/h (320 kt) • 8 805 to 12 497 m 0.82 Mach (*) Linear variation from 2 438 m to 3 048 m. Maneuvering speed (V_A): • 0 to 6 096 m (*) 445 km/h (240 kt) • 10 363 m (*) 498 km/h (269 kt) • 10 363 to 12 497 m 0.82 Mach (*) Linear variation from 6 096 m to 10 363 m.

AIRSPEED LIMITS (EAS) (Cont.)

Maximum flap extended speed (V_{FE}) (EAS – up to 6 096 m)

• Flap position 1:	426 km/h (230 kt)
• Flap position 2:	398 km/h (215 kt)
• Flap position 3:	370 km/h (200 kt)
• Flap position 4:	333 km/h (180 kt)
• Flap position 5:	333 km/h (180 kt)
• Flap position full:	306 km/h (165 kt)

Maximum landing gear operating speed (V_{LO}):

• Retraction	463 km/h (250 kt)
• Extension	463 km/h (250 kt)

Maximum landing gear extended speed (V_{LE}):	463 km/h (250 kt)
Maximum tire ground speed:	362 km/h (225 mph)

C. G. RANGE

(landing gear extended)

35 990 kg:	13 238 to 13 787 mm (9.8 % to 27 % of MAC)
34 350 kg:	13 149 to 13 787 mm (7 % to 27 % of MAC)
23 000 kg:	13 149 to 13 787 mm (7 % to 27 % of MAC)
21 800 kg:	13 526 mm (18.8 % of MAC)

(forward flight limit extension)

35 990 kg:	13 142 mm (6.8 % of MAC)
34 350 kg:	13 053 mm (4% of MAC)
23 000 kg:	13 053 mm (4% of MAC)

Straight linear variation between the points given.

Moment due to landing gear retraction:

- 190 000 kg x mm.

  (The aircraft CG is moved forward with the retraction.)

Area limited between the points: 21 800 kg (18.8% of MAC), 23 000 kg (27% of MAC) and 29 600 kg (27% of MAC) is not allowed for takeoff

MAXIMUM WEIGHT

Ramp:	36 150 kg
Takeoff:	35 990 kg
Landing:	32 800 kg 33 300 kg post-mod SB 170-00-0003
Zero Fuel:	29 600 kg

MAXIMUM BAGGAGE

Cargo compartment	Maximum load (kg)
• Forward	1 370
• Aft	1 030

FUEL CAPACITY

Maximum usable fuel: 11 625 liters
(two tanks of 5 812.5 liters at +13 392 mm).
Unusable fuel: 84 liters (42 liters each tank).

MAXIMUM PASSENGERS 78

SERIAL NUMBERS ELIGIBLE 17000002, 17000005 and subsequent.

II - Model ERJ 170-100 LR (Transport Category), approved 19 February 2004.

ENGINE

Two General Electric Aircraft Engines (GE) models: CF34-8E5 or CF34-8E5A1.

APU

Hamilton Sundstrand model APS 2300.

FUEL

Brazilian Specification ANP No. 1/2003 – QAV1;
ASTM Specification D-1655 JET A or JET A1;
Specification MIL-T-83133A JP-8.

APU LIMITS

Maximum RPM: 108%
Maximum EGT: 717°C (operation) 1 032°C (starting)
Other limitations as stated in Hamilton Sundstrand Document No ESR 1235.

OIL

Engine, APU and IDG: MIL-PRF-7808 or MIL-PRF-23699.

AIRSPEED LIMITS (EAS)

Maximum operating limit speed (V_{MO}):

- 0 to 2 438 m (*) 556 km/h (300 kt)
- 3 048 to 8 805 m (*) 593 km/h (320 kt)
- 8 805 to 12 497 m 0.82 Mach

(*) Linear variation from 2 438 m to 3 048 m.

Maneuvering speed (V_A):

- 0 to 6 096 m (*) 445 km/h (240 kt)
- 10 363 m (*) 498 km/h (269 kt)
- 10 363 to 12 497 m 0.82 Mach

(*) Linear variation from 6 096 m to 10 363 m.

Maximum flap extended speed (V_{FE}) (EAS – up to 6 096 m)

- Flap position 1: 426 km/h (230 kt)
- Flap position 2: 398 km/h (215 kt)
- Flap position 3: 370 km/h (200 kt)
- Flap position 4: 333 km/h (180 kt)
- Flap position 5: 333 km/h (180 kt)
- Flap position full: 306 km/h (165 kt)

Maximum landing gear operating speed (V_{LO}):

- Retraction 463 km/h (250 kt)
- Extension 463 km/h (250 kt)

Maximum landing gear extended speed (V_{LE}): 463 km/h (250 kt)

Maximum tire ground speed: 362 km/h (225 mph)

C. G. RANGE
(landing gear extended)

37 200 kg: 13 302 to 13 787 mm (11.8 % to 27 % of MAC)
34 350 kg: 13 149 to 13 787 mm (7 % to 27 % of MAC)
23 000 kg: 13 149 to 13 787 mm (7 % to 27 % of MAC)
21 800 kg: 13 526 mm (18.8 % of MAC)

C. G. RANGE (Cont.)
(forward flight limit extension)

37 200 kg: 13 206 mm (8.8 % of MAC)
34 350 kg: 13 053 mm (4% of MAC)
23 000 kg: 13 053 mm (4% of MAC)
Straight linear variation between the points given.
Moment due to landing gear retraction:

- 190 000 kg x mm.
  (The aircraft CG is moved forward with the retraction.)

Area limited between the points: 21 800 kg (18.8% of MAC), 23 000 kg (27% of MAC) and 29 600 kg (27% of MAC) is not allowed for takeoff.

MAXIMUM WEIGHT

Ramp:	37 360 kg
Takeoff:	37 200 kg
Landing:	32 800 kg 33 300 kg post-mod SB 170-00-0003
Zero Fuel:	29 600 kg

MAXIMUM BAGGAGE

Cargo compartment	Maximum load (kg)
• Forward	1 370
• Aft	1 030

FUEL CAPACITY

Maximum usable fuel: 11 625 liters
(two tanks of 5 812.5 liters at +13 392 mm).
Unusable fuel: 84 liters (42 liters each tank).

MAXIMUM PASSENGERS 78

SERIAL NUMBERS ELIGIBLE 17000002, 17000005 and subsequent

III - Model ERJ 170-100 SU (Transport Category), approved 29 April 2004.

ENGINE

Two General Electric Aircraft Engines (GE) models: CF34-8E5 or CF34-8E5A1.

APU

Hamilton Sundstrand model APS 2300.

FUEL

Brazilian Specification ANP No. 1/2003 – QAV1;
ASTM Specification D-1655 JET A or JET A1;
Specification MIL-T-83133A JP-8.

APU LIMITS

Maximum RPM: 108%
Maximum EGT: 717°C (operation) 1 032°C (starting)
Other limitations as stated in Hamilton Sundstrand Document No ESR 1235.

OIL

Engine, APU and IDG: MIL-PRF-7808 or MIL-PRF-23699.

AIRSPEED LIMITS (EAS)

Maximum operating limit speed (V_{MO}):

• 0 to 2 438 m (*)	556 km/h (300 kt)
• 3 048 to 8 805 m (*)	593 km/h (320 kt)
• 8 805 to 12 497 m	0.82 Mach

(*) Linear variation from 2 438 m to 3 048 m.

AIRSPEED LIMITS (EAS) (Cont.)

Maneuvering speed (V_A):

- 0 to 6 096 m (*) 445 km/h (240 kt)
- 10 363 m (*) 498 km/h (269 kt)
- 10 363 to 12 497 m 0.82 Mach

(*) Linear variation from 6 096 m to 10 363 m.

Maximum flap extended speed (V_{FE}) (EAS – up to 6 096 m)

- Flap position 1: 426 km/h (230 kt)
- Flap position 2: 398 km/h (215 kt)
- Flap position 3: 370 km/h (200 kt)
- Flap position 4: 333 km/h (180 kt)
- Flap position 5: 333 km/h (180 kt)
- Flap position full: 306 km/h (165 kt)

Maximum landing gear operating speed (V_{LO}):

- Retraction 463 km/h (250 kt)
- Extension 463 km/h (250 kt)

Maximum landing gear extended speed (V_{LE}): 463 km/h (250 kt)

Maximum tire ground speed: 362 km/h (225 mph)

C. G. RANGE
(landing gear extended)

37 200 kg: 13 302 to 13 787 mm (11.8 % to 27 % of MAC)
34 350 kg: 13 149 to 13 787 mm (7 % to 27 % of MAC)
23 000 kg: 13 149 to 13 787 mm (7 % to 27 % of MAC)
21 800 kg: 13 526 mm (18.8 % of MAC)
37 200 kg: 13 206 mm (8.8 % of MAC)

(forward flight limit extension)

34 350 kg; 13 053 mm (4% of MAC)
23 000 kg: 13 053 mm (4% of MAC)
Straight linear variation between the points given.
Moment due to landing gear retraction:

- 190 000 kg x mm.

(The aircraft CG is moved forward with the retraction.)
Area limited between the points: 21 800 kg (18.8% of MAC), 23 000 kg (27% of MAC) and 29 600 kg (27% of MAC) is not allowed for takeoff.

MAXIMUM WEIGHT

Ramp: 37 360 kg
Takeoff: 37 200 kg
Landing: 32 800 kg
Zero Fuel: 29 600 kg

MAXIMUM BAGGAGE

Cargo compartment	Maximum load (kg)
• Forward	1 370
• Aft	1 030

FUEL CAPACITY	Maximum usable fuel: 11 625 liters (2 tanks of 5 812.5 liters at +13 392 mm). Unusable fuel: 84 liters (42 liters each tank).
MAXIMUM PASSENGERS	76
SERIAL NUMBERS ELIGIBLE	17000002, 17000005 and subsequent

IV - Model ERJ 170-100 SE (Transport Category), approved 16 September 2004.

ENGINE	Two General Electric Aircraft Engines (GE) models: CF34-8E5 or CF34-8E5A1.
APU	Hamilton Sundstrand model APS 2300.
FUEL	Brazilian Specification ANP No. 1/2003 – QAV1; ASTM Specification D-1655 JET A or JET A1; Specification MIL-T-83133A JP-8.
APU LIMITS	Maximum RPM: 108% Maximum EGT: 717°C (operation) 1 032°C (starting) Other limitations as stated in Hamilton Sundstrand Document No ESR 1235.
OIL	Engine, APU and IDG: MIL-PRF-7808 or MIL-PRF-23699.
AIRSPEED LIMITS (EAS)	Maximum operating limit speed (V_{MO}): • 0 to 2 438 m (*) 556 km/h (300 kt) • 3 048 to 8 805 m (*) 593 km/h (320 kt) • 8 805 to 12 497 m 0.82 Mach (*) Linear variation from 2 438 m to 3 048 m. Maneuvering speed (V_A): • 0 to 6 096 m (*) 445 km/h (240 kt) • 10 363 m (*) 498 km/h (269 kt) • 10 363 to 12 497 m 0.82 Mach (*) Linear variation from 6 096 m to 10 363 m. Maximum flap extended speed (V_{FE}) (EAS – up to 6 096 m) • Flap position 1: 426 km/h (230 kt) • Flap position 2: 398 km/h (215 kt) • Flap position 3: 370 km/h (200 kt) • Flap position 4: 333 km/h (180 kt) • Flap position 5: 333 km/h (180 kt) • Flap position full: 306 km/h (165 kt) Maximum landing gear operating speed (V_{LO}): • Retraction 463 km/h (250 kt) • Extension 463 km/h (250 kt) Maximum landing gear extended speed (V_{LE}): 463 km/h (250 kt) Maximum tire ground speed: 362 km/h (225 mph)

C. G. RANGE (landing gear extended)	37 200 kg: 34 350 kg: 23 000 kg: 21 800 kg: 37 200 kg:	13 302 to 13 787 mm (11.8 % to 27 % of MAC) 13 149 to 13 787 mm (7 % to 27 % of MAC) 13 149 to 13 787 mm (7 % to 27 % of MAC) 13 526 mm (18.8 % of MAC) 13 206 mm (8.8 % of MAC)
(forward flight limit extension)	34 350 kg: 23 000 kg:	13 053 mm (4% of MAC) 13 053 mm (4% of MAC)

Straight linear variation between the points given.
Moment due to landing gear retraction:

- 190 000 kg x mm.
  (The aircraft CG is moved forward with the retraction.)

Area limited between the points: 21 800 kg (18.8% of MAC), 23 000 kg (27% of MAC) and 29 600 kg (27% of MAC) is not allowed for takeoff.

MAXIMUM WEIGHT	Ramp: Takeoff: Landing: Zero Fuel:	37 360 kg 37 200 kg 32 800 kg 29 600 kg

MAXIMUM BAGGAGE	Cargo compartment	Maximum load (kg)
	• Forward	1 370
	• Aft	1 030

FUEL CAPACITY

Maximum usable fuel: 11 625 liters
(2 tanks of 5 812.5 liters at +13 392 mm).
Unusable fuel: 84 liters (42 liters each tank).

MAXIMUM PASSENGERS 70

SERIAL NUMBERS ELIGIBLE 17000002, 17000005 and subsequent

V - <u>Model ERJ 170-200 STD (Transport Category)</u>, approved 22 December 2004.

ENGINE

Two General Electric Aircraft Engines (GE) models: CF34-8E5 or CF34-8E5A1.

APU

Hamilton Sundstrand model APS 2300.

FUEL

Brazilian Specification ANP No. 1/2003 – QAV1;
ASTM Specification D-1655 JET A or JET A1;
Specification MIL-T-83133A JP-8.

APU LIMITS

Maximum RPM: 108%
Maximum EGT: 717°C (operation) 1 032°C (starting)
Other limitations as stated in Hamilton Sundstrand Document No ESR 1235.

OIL

Engine, APU and IDG: MIL-PRF-7808 or MIL-PRF-23699.

AIRSPEED LIMITS (EAS)

Maximum operating limit speed (V_{MO}):

- 0 to 2 438 m (*) 556 km/h (300 kt)
- 3 048 to 8 805 m (*) 593 km/h (320 kt)
- 8 805 to 12 497 m 0.82 Mach

(*) Linear variation from 2 438 m to 3 048 m.

Maneuvering speed (V_A):

- 0 m (*) 448 km/h (242 kt)
- 2 882 m (*) 465 km/h (251 kt)
- 8 401 (*) a 10 300 m 501 km/h (270 kt)
- 10 300 a 12 497 m 0,82 Mach

(*) Linear variation from 0 m to 2 882 m and from 2 882 m to 8 401 m.

Maximum flap extended speed (V_{FE}) (EAS – up to 6 096 m)

- Flap position 1: 426 km/h (230 kt)
- Flap position 2: 398 km/h (215 kt)
- Flap position 3: 370 km/h (200 kt)
- Flap position 4: 333 km/h (180 kt)
- Flap position 5: 333 km/h (180 kt)
- Flap position full: 306 km/h (165 kt)

Maximum landing gear operating speed (V_{LO}):

- Retraction 463 km/h (250 kt)
- Extension 463 km/h (250 kt)

Maximum landing gear extended speed (V_{LE}): 463 km/h (250 kt)

Maximum tire ground speed: 362 km/h (225 mph)

C. G. RANGE
(landing gear extended)

37 500 kg: 14 082 to 14 581 mm (10 % to 25,6 % of MAC)
34 000 kg: 13 987 to 14 625 mm (7 % to 27 % of MAC)
22 500 kg: 13 987 to 14 625 mm (7 % to 27 % of MAC)

(forward flight limit extension)

37 500 kg: 13 987 mm (7 % of MAC)
34 000 kg: 13 891 mm (4 % of MAC)
22 500 kg: 13 891 mm (4 % of MAC)

(aft flight limit extension)

37 500 kg: 14 677 mm (28,6 % of MAC)
34 000 kg: 14 721 mm (30 % of MAC)
22 500 kg: 14 721 mm (30 % of MAC)

Straight linear variation between the points given.
Moment due to landing gear retraction:

- 190 000 kg x mm.
  (The aircraft CG is moved forward with the retraction.)

Area limited between the points: 22 500 kg (21% to 27% of MAC) and 27 500 kg (27% of MAC) is not allowed for takeoff.

MAXIMUM WEIGHT

Ramp:	37 660 kg
Takeoff:	37 500 kg
Landing:	34 000 kg
Zero Fuel:	31 700 kg

MAXIMUM BAGGAGE

Cargo compartment	Maximum load (kg)
• Forward	1 500
• Aft	1 150

FUEL CAPACITY

Maximum usable fuel: 11 625 liters
(2 tanks of 5 812.5 liters at +13 392 mm).
Unusable fuel: 84 liters (42 liters each tank).

MAXIMUM PASSENGERS 80

SERIAL NUMBERS ELIGIBLE 17000014 and subsequent

VI - <u>Model ERJ 170-200 LR (Transport Category)</u>, approved 22 December 2004.

ENGINE

Two General Electric Aircraft Engines (GE) models: CF34-8E5 or CF34-8E5A1.

APU

Hamilton Sundstrand model APS 2300.

FUEL

Brazilian Specification ANP No. 1/2003 – QAV1;
ASTM Specification D-1655 JET A or JET A1;
Specification MIL-T-83133A JP-8.

APU LIMITS

Maximum RPM: 108%
Maximum EGT: 717°C (operation) 1 032°C (starting)
Other limitations as stated in Hamilton Sundstrand Document No ESR 1235.

OIL

Engine, APU and IDG: MIL-PRF-7808 or MIL-PRF-23699.

AIRSPEED LIMITS (EAS)

Maximum operating limit speed (V_{MO}):

• 0 to 2 438 m (*)	556 km/h (300 kt)
• 3 048 to 8 805 m (*)	593 km/h (320 kt)
• 8 805 to 12 497 m	0.82 Mach

(*) Linear variation from 2 438 m to 3 048 m.

Maneuvering speed (V_A):

• 0 m (*)	448 km/h (242 kt)
• 2 882 m (*)	465 km/h (251 kt)
• 8 401 (*) a 10 300 m	501 km/h (270 kt)
• 10 300 a 12 497 m	0,82 Mach

(*) Linear variation from 0 m to 2 882 m and from 2 882 m to 8 401 m.

AIRSPEED LIMITS (EAS) (Cont.)

Maximum flap extended speed (V_{FE}) (EAS – up to 6 096 m)

• Flap position 1:	426 km/h (230 kt)
• Flap position 2:	398 km/h (215 kt)
• Flap position 3:	370 km/h (200 kt)
• Flap position 4:	333 km/h (180 kt)
• Flap position 5:	333 km/h (180 kt)
• Flap position full:	306 km/h (165 kt)

Maximum landing gear operating speed (V_{LO}):

• Retraction	463 km/h (250 kt)
• Extension	463 km/h (250 kt)
Maximum landing gear extended speed (V_{LE}):	463 km/h (250 kt)
Maximum tire ground speed:	362 km/h (225 mph)

C. G. RANGE

(landing gear extended)

38 790 kg:	14 118 to 14 565 mm (11,1 % to 25,1 of % MAC)
34 000 kg:	13 987 to 14 625 mm (7 % to 27 % of MAC)
22 500 kg:	13 987 to 14 625 mm (7 % to 27 % of MAC)

(forward flight limit extension)

38 790 kg:	14 022 mm (8,1 % of MAC)
34 000 kg:	13 891 mm (4% of MAC)
22 500 kg:	13 891 mm (4% of MAC)

(aft flight limit extension)

38 790 kg:	14 661 mm (28,1 % of MAC)
34 000 kg:	14 721 mm (30% of MAC)
22 500 kg:	14 721 mm (30% of MAC)

Straight linear variation between the points given.
Moment due to landing gear retraction:

- 190 000 kg x mm.
  (The aircraft CG is moved forward with the retraction.)

Area limited between the points: 22 500 kg (21% to 27% of MAC) and 27 500 kg (27% of MAC) is not allowed for takeoff.

MAXIMUM WEIGHT

Ramp:	38 950 kg
Takeoff:	38 790 kg
Landing:	34 000 kg
Zero Fuel:	31 700 kg

MAXIMUM BAGGAGE

Cargo compartment	Maximum load (kg)
• Forward	1 500
• Aft	1 150

FUEL CAPACITY

Maximum usable fuel: 11 625 liters
(2 tanks of 5 812.5 liters at +13 392 mm).
Unusable fuel: 84 liters (42 liters each tank).

MAXIMUM PASSENGERS

80

SERIAL NUMBERS ELIGIBLE

17000014 and subsequent

VI - Model ERJ 170-200 SU (Transport Category), approved 30 September 2005.

ENGINE

Two General Electric Aircraft Engines (GE) models: CF34-8E5 or CF34-8E5A1.

APU

Hamilton Sundstrand model APS 2300.

FUEL

Brazilian Specification ANP No. 1/2003 – QAV1;
ASTM Specification D-1655 JET A or JET A1;
Specification MIL-T-83133A JP-8.

APU LIMITS

Maximum RPM: 108%
Maximum EGT: 717°C (operation) 1 032°C (starting)
Other limitations as stated in Hamilton Sundstrand Document No ESR 1235.

OIL

Engine, APU and IDG: MIL-PRF-7808 or MIL-PRF-23699.

AIRSPEED LIMITS (EAS)

Maximum operating limit speed (V_{MO}):

- 0 to 2 438 m (*) 556 km/h (300 kt)
- 3 048 to 8 805 m (*) 593 km/h (320 kt)
- 8 805 to 12 497 m 0.82 Mach

(*) Linear variation from 2 438 m to 3 048 m.

Maneuvering speed (V_A):

- 0 m (*) 448 km/h (242 kt)
- 2 882 m (*) 465 km/h (251 kt)
- 8 401 (*) a 10 300 m 501 km/h (270 kt)
- 10 300 a 12 497 m 0,82 Mach

(*) Linear variation from 0 m to 2 882 m and from 2 882 m to 8 401 m.

Maximum flap extended speed (V_{FE}) (EAS – up to 6 096 m)

- Flap position 1: 426 km/h (230 kt)
- Flap position 2: 398 km/h (215 kt)
- Flap position 3: 370 km/h (200 kt)
- Flap position 4: 333 km/h (180 kt)
- Flap position 5: 333 km/h (180 kt)
- Flap position full: 306 km/h (165 kt)

Maximum landing gear operating speed (V_{LO}):

- Retraction 463 km/h (250 kt)
- Extension 463 km/h (250 kt)

Maximum landing gear extended speed (V_{LE}): 463 km/h (250 kt)
Maximum tire ground speed: 362 km/h (225 mph)

C. G. RANGE (landing gear extended)	38 790 kg:	14 118 to 14 565 mm (11,1 % to 25,1 of % MAC)
	34 000 kg:	13 987 to 14 625 mm (7 % to 27 % of MAC)
	22 500 kg:	13 987 to 14 625 mm (7 % to 27 % of MAC)
(forward flight limit extension)	38 790 kg:	14 022 mm (8,1 % of MAC)
	34 000 kg:	13 891 mm (4% of MAC)
	22 500 kg:	13 891 mm (4% of MAC)
(aft flight limit extension)	38 790 kg:	14 661 mm (28,1 % of MAC)
	34 000 kg:	14 721 mm (30% of MAC)
	22 500 kg:	14 721 mm (30% of MAC)

Straight linear variation between the points given.
Moment due to landing gear retraction:

- 190 000 kg x mm.
  (The aircraft CG is moved forward with the retraction.)

Area limited between the points: 22 500 kg (21% to 27% of MAC) and 27 500 kg (27% of MAC) is not allowed for takeoff.

MAXIMUM WEIGHT

Ramp:	38 950 kg
Takeoff:	38 790 kg
Landing:	34 000 kg
Zero Fuel:	31 700 kg

MAXIMUM BAGGAGE

Cargo compartment	Maximum load (kg)
• Forward	1 500
• Aft	1 150

FUEL CAPACITY

Maximum usable fuel: 11 625 liters
(2 tanks of 5 812.5 liters at +13 392 mm).
Unusable fuel: 84 liters (42 liters each tank).

MAXIMUM PASSENGERS 76

SERIAL NUMBERS ELIGIBLE 17000014 and subsequent

DATA PERTINENT TO ALL MODELS

ENGINE LIMITS CF34-8E5/ CF34-8E5A1

Operating conditions:

- Maximum takeoff [1]
  Rotor speed %: N1 [2]: 99.5
  N2 [3]: 99.4
  Temperature Interturbine ºC (ºF): 990 (1 814) [1] / 1 006 (1 843) [4]
- Maximum continuous
  Rotor speed %: N1 [2]: 99.5
  N2 [3]: 98.0
  Temperature Interturbine ºC (ºF): 960 (1 760)
- Starting (Ground/Flight)

ENGINE LIMITS (Cont.)

Temperature Interturbine ºC (ºF): 815 (1 499) / 927 (1 700)

(1) Time limited to 5 minutes. The 5 minutes maximum takeoff time limit may be extended to 10 minutes for one engine inoperative operation.

(2) 100 percent N1 rotor speed: 7 400 rpm.

(3) 100 percent N2 rotor speed: 17 820 rpm.

(4) Time limited to 2 minutes.

	CF34-8E5/ CF34-8E5A1
Oil temperature::	
• Maximum transient (15 min Max.):	163º C (325º F)
• Maximum continuous:	155º C (311º F)
• Minimum for starting:	- 40º C (- 40º F)
Oil pressure:	
• Maximum transient* (after cold start)	300 psi (95 after 10 minutes)
• Maximum continuous	25 – 95 psi
• Takeoff power	45 –95 psi
• Steady state idle	25 – 60 psi

* The engine must remain at idle until oil pressure returns to normal operating range.

MINIMUM CREW

Two (2): pilot and copilot.

OIL CAPACITY

Per engine:

• Total (liters/U.S quarts)	9.9 (10.5)
• Usable (liters/U.S quarts)	6.8 (7.2)

FUEL TANK TEMPERATURE

-40ºC (-40 ºF) Minimum

HYDRAULIC FLUID

Per system:	6.15 liters
Total (three systems):	18.45 liters

MAXIMUM ALTITUDES

Operating:	12 497 m (41 000 ft)
Takeoff and landing:	3 048 m (10 000 ft)

TEMPERATURE OPERATING LIMITS

Altitude:	Maximum:	Minimum:
• Sea level	+ 50°C	-54°C -40°C (Ground operation)
• 7 620 m (25 000 ft)	+ 0.0°C	-54°C
• 11 000 m (36 089 ft)	-21.5°C	-65°C
• 12 497 m (41 000 ft)	-21.5°C	-65°C

CONTROL SURFACE MOVEMENTS
(See AMM for tolerances)

Rudder[(1)]:	30.7º left	30.7º right
Horizontal stabilizer:	13.0º TE up	2.0º TE down
Aileron:	25º.0 TE up	15.0º TE down
Elevator[(1)]:	24.7º TE up	14.9º TE down
Ground spoiler:	60º	
Outboard spoiler:	40º	

(1) For zero airspeed; maximum deflections vary according to airspeed.

Flap and Slat:

Flap setting position	Inboard flap (main/aft)	Outboard flap (main/aft)	Slat position	
			1	2, 3 & 4
0	0º/0º	0º/0º	0º	0º
1	4.9º/7.3º	4.5º/7.4º	12º	15º
2	9.7º/9.2º	9.2º/10.2º	12º	15º
3	19.6º/11.8º	19.3º/13.3º	12º	15º
4	19.6º/11.8º	19.3º/13.3º	20º	25º
5	19.6º/11.8º	19.3º/13.3º	20º	25º
Full	34.5º/13.8º	34.2º/15.3º	20º	25º

Deflections shown in degrees (º) are in the planes normal to hinge lines, excepting for the flaps, which are in stream wise planes normal to wing reference plane.

Deflections of a surface supported at another movable surface are relative to the parent surface. Stabilizer defections are relative to the airplane horizontal reference.

DATA PERTINENT TO ERJ 170-100 MODELS

CERTIFICATION BASIS

RBHA 25 (Airworthiness Standards: - Transport Category Airplanes), corresponding to the U.S. FAR Part 25, including amendments 25-1 through 25-98 effective on 10 March 1999, plus the following additional requirements:

- Amendment 25-99, integrally adopted;
- Amendment 25-100, integrally adopted;
- Amendment 25-101, integrally adopted;
- Amendment 25-102, paragraph 25.981(a) and (b) only, Appendix H;
- Amendment 25-103, integrally adopted;
- Amendment 25-104, integrally adopted;
- Amendment 25-105, integrally adopted;
- Amendment 25-107, except paragraph 25.735 (h);
- Amendment 25-108, integrally adopted; and
- Amendment 25-109, integrally adopted.

Note: Reinforced cockpit door P/N 170-96000-401: Aircraft incorporating this optional installation have been demonstrated to meet the requirements of RBHA/FAR 25.795(a)(1) and (a)(2), Amendment 25-106.

CERTIFICATION BASIS (Cont.)

Special Conditions:

- Engine Torque Loads for Sudden Engine Stoppage (RBHA 21.16, RBHA/FAR 25.361) – ERJ 170 FCAR HES-01;
- Interaction of systems and structures (RBHA 21.16, RBHA/FAR 25.671 and 25.1309) – ERJ 170 FCAR HES-06;
- High Intensity Radiated Fields (HIRF) Protection (RBHA 21.16, RBHA/FAR 25.1309, 25.1333, 25.1431 and 25.1529) – ERJ 170 FCAR HSI-01;
- Operation Without Normal Electrical Power (RBHA 21.16, RBHA/FAR 25.1165(b), 25.1309, 25.1333(b) and 25.1351) – ERJ 170 FCAR HSI-02;
- Smart Probe (RBHA 21.16, RBHA/FAR 25.1303, 25.1309, 25.1323, 25.1325, 25.1326, 25.1331 and 25.1333) – ERJ 170 FCAR HSI-08;
- Command Signal Integrity (RBHA 21.16, RBHA/FAR 25.671, 25.672, 25.1309, 25.1353, 25.1355, 25.1431 and 25.1435) - ERJ 170 FCAR HSI-18;
- Nose-wheel steering system (RBHA 21.16, JAR 25X745) - ERJ 170 FCAR HSI-12;
- Electronic flight control system control surface position awareness (RBHA 21.16, RBHA/FAR 21.16, 25.143, 25.671 and 25.672) ERJ 170 FCAR HDE-02; and
- Performance credit for ATTCS during go-around (RBHA 21.16, RBHA 25.117, 25.119(a), 25.121(d), 25.904, 25.1309 and Appendix I) – ERJ 170 FCAR HDE-17.

Equivalent levels of safety findings:

- Checked maneuver loads (RBHA 21.21(b)(1); RBHA/FAR 25.331(c)(2)) - ERJ 170 FCAR HES-13;
- Doors and hatches (RBHA 21.21(b); RBHA/FAR 25.783)- ERJ 170 FCAR HES-14);
- Fuel tank crashworthiness (RBHA 21.21(b)(1); RBHA/FAR 25.721 and 25.963(d)) – ERJ 170 FCAR HES-19;
- Minor crash criteria (RBHA 21.21(b)(1); RBHA/FAR 25.721 and 25.963(d)) - ERJ 170 FCAR HES-20;
- Equipment, systems and installations (RBHA 21.21(b)(1); RBHA/FAR 25.1309)– ERJ 170 FCAR HSI-15;
- Position Lights (RBHA 21.21(b)(1); RBHA/FAR 25.1389(b), 25.1391, 25.1393 & 25.1395) – ERJ 170 FCAR HSI-27;
- Performance credit for use of automatic power reserve (APR) during reduced thrust takeoffs (RBHA 21.21(b)(1); RBHA/FAR 25.904, 25.149 and Appendix I) – ERJ 170 FCAR HDE-16;
- Flight critical thrust reverser (RBHA 21.21(b)(1); RBHA/FAR 25.933(a)(1)(ii) & 25.1309(b)(1) – ERJ 170 FCAR HPR-06;
- Digital only display of turbine engine high/intermediate pressure rotor speed (N2) (RBHA 21.21(b)(1); RBHA/FAR 25.901, 25.1305, 25.1309, 25.1321 and 25.1549) – ERJ 170 FCAR HPR-14;

CERTIFICATION BASIS (Cont.)

- Adoption of APU harmonized requirements (RBHA 21.21(b)(1); RBHA/FAR 25 Subparts E, F and G) – ERJ-170 FCAR HPR-17; and
- Lack of on/off switch for ATTCS system (RBHA 21.21(b)(1); RBHA/FAR 25.117, 25.119(a), 25.121(d), 25.904, 25.1301, 25.1309, Appendix I)-ERJ 170 FCAR HPR-23.

Exemptions:

- Uncontained engine rotor burst hitting pressurized cabin [RBHA/FAR 25.841(a)(2)(ii)] - Granted through Ordinance DAC No. 1339/DGAC, dated 27 September 2003;
- Uncontrollable high engine thrust [RBHA/FAR 25.901(c)] - Granted through Ordinance No. 506/DGAC, dated 09 April 2003; and
- Ventilation (Humidity Requirement) [RBHA/FAR 25.831(g)] - Granted through Ordinance DAC No. 1194/DGAC, dated 25 August 2003.

RBHA 21 “Certification Procedures for Aeronautical Products and Parts”, Amendment 21-02, effective on 29 July 1993.

Noise Standards:
RBHA 36 (Noise Standard - Type Certification), corresponding to ICAO Annex 16 Volume I Chapter 3 (third edition).

Fuel venting and exhaust emission requirements:

- RBHA 34 (Fuel Venting and Exhaust Emission Requirements for Turbine Engine Powered Airplanes - Type Certification), corresponding to the US FAR Part 34 Amendment 34-03, effective on 03 February 1999.

Optional design requirements:

- RBHA/FAR 25.801 - Ditching
- RBHA/FAR 25.1403 - Wing icing detection lights;
- RBHA/FAR 25.1419 - Ice protection; and
- RBHA/FAR 25.1421 - Megaphones.

In addition to the certification basis above, several FCARs were established as acceptable means of compliance. Ref. CTA FCAR HT-01 “Designation of Applicable Regulations”
Application date for type certification:

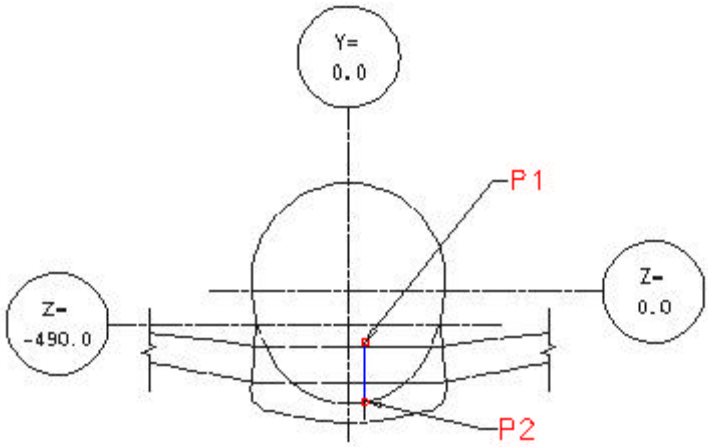
- ERJ 170-100 LR: 20 May 1999;
- ERJ 170-100 STD: 20 May 1999;
- ERJ 170-100 SU: 5 March 2004;
- ERJ 170-100 SE: 20 July 2004.

DATUM

A perpendicular plane to the fuselage centerline, located at 11 650 mm ahead of the wing stub’s front spar. This spar is located 373 mm ahead of the wing jack points.

LEVELING MEANS

Plumb line between the points P1 to P2 located inside of the landing gear compartment on the left side, as illustrated below.



LEVELING OF FUSLG COORDINATE POINTS			
POINT	X	Y	Z
P1	14935.36	-246.60	-768.91
P2	14935.36	-246.60	-1675.09

MEAN AERODYNAMIC CHORD

3 194 mm.
Leading edge of mean aerodynamic chord: X: 12 925 mm
Y: -5 116 mm
Z: -617 mm

PRODUCTION CERTIFICATION

Models ERJ 170-100 STD and LR: Production approved under CHE E-7203-01 , on 19 February 2004.
Model ERJ 170-100 SU: Production approved under CHE E-7203-01_, on 30 April 2004.
Model ERJ 170-100 SE: Production approved under CHE E-7203-01, on 16 September 2004.

REQUIRED EQUIPMENT

The basic required equipment as prescribed in the applicable airworthiness regulations (see certification basis) must be installed in the airplane. The approved equipments are listed in the Embraer Technical Report 170-100TDSD_01. The CTA approved airplane flight manual P/N AFM-1383 must be on board.

DATA PERTINENT TO ERJ 170-200 MODELS

CERTIFICATION BASIS

RBHA 25 (Airworthiness Standards: - Transport Category Airplanes), corresponding to the U.S. FAR Part 25, including amendments 25-1 through 25-101, plus the following additional requirements:

- Amendment 25-102, paragraph 25.981(a) and (b) only, Appendix H;
- Amendment 25-103, integrally adopted;
- Amendment 25-104, integrally adopted;

CERTIFICATION BASIS (Cont.)

- Amendment 25-105, integrally adopted;
- Amendment 25-107, except paragraph 25.735 (h);
- Amendment 25-108, integrally adopted; and
- Amendment 25-109, integrally adopted.

Special Conditions:

- Engine Torque Loads for Sudden Engine Stoppage (RBHA 21.16, RBHA/FAR 25.361) – ERJ 170 FCAR HES-01;
- Interaction of systems and structures (RBHA 21.16, RBHA/FAR 25.671 and 25.1309) – ERJ 170 FCAR HES-06;
- High Intensity Radiated Fields (HIRF) Protection (RBHA 21.16, RBHA/FAR 25.1309, 25.1333, 25.1431 and 25.1529) – ERJ 170 FCAR HSI-01;
- Operation Without Normal Electrical Power (RBHA 21.16, RBHA/FAR 25.1165(b), 25.1309, 25.1333(b) and 25.1351) – ERJ 170 FCAR HSI-02;
- Smart Probe (RBHA 21.16, RBHA/FAR 25.1303, 25.1309, 25.1323, 25.1325, 25.1326, 25.1331 and 25.1333) – ERJ 170 FCAR HSI-08;
- Command Signal Integrity (RBHA 21.16, RBHA/FAR 25.671, 25.672, 25.1309, 25.1353, 25.1355, 25.1431 and 25.1435) - ERJ 170 FCAR HSI-18;
- Nose-wheel steering system (RBHA 21.16, JAR 25X745) - ERJ 170 FCAR HSI-12;
- Electronic flight control system control surface position awareness (RBHA 21.16, RBHA/FAR 21.16, 25.143, 25.671 and 25.672) ERJ 170 FCAR HDE-02; and
- Performance credit for ATTCS during go-around (RBHA 21.16, RBHA 25.117, 25.119(a), 25.121(d), 25.904, 25.1309 and Appendix I) – ERJ 170 FCAR HDE-17.

Equivalent levels of safety findings:

- Checked maneuver loads (RBHA 21.21(b)(1); RBHA/FAR 25.331(c)(2)) - ERJ 170 FCAR HES-13;
- Doors and hatches (RBHA 21.21(b); RBHA/FAR 25.783)- ERJ 170 FCAR HES-14);
- Fuel tank crashworthiness (RBHA 21.21(b)(1); RBHA/FAR 25.721 and 25.963(d)) – ERJ 170 FCAR HES-19;
- Minor crash criteria (RBHA 21.21(b)(1); RBHA/FAR 25.721 and 25.963(d)) - ERJ 170 FCAR HES-20;

- Equipment, systems and installations (RBHA 21.21(b)(1); RBHA/FAR 25.1309)– ERJ 170 FCAR HSI-15;
- Position Lights (RBHA 21.21(b)(1); RBHA/FAR 25.1389(b), 25.1391, 25.1393 & 25.1395) – ERJ 170 FCAR HSI-27;
- Performance credit for use of automatic power reserve (APR) during reduced thrust takeoffs (RBHA 21.21(b)(1); RBHA/FAR 25.904, 25.149 and Appendix I) – ERJ 170 FCAR HDE-16;

CERTIFICATION BASIS (Cont.)

- Flight critical thrust reverser (RBHA 21.21(b)(1); RBHA/FAR 25.933(a)(1)(ii) & 25.1309(b)(1) – ERJ 170 FCAR HPR-06;
- Digital only display of turbine engine high/intermediate pressure rotor speed (N2) (RBHA 21.21(b)(1); RBHA/FAR 25.901, 25.1305, 25.1309, 25.1321 and 25.1549) – ERJ 170 FCAR HPR-14;
- Adoption of APU harmonized requirements (RBHA 21.21(b)(1); RBHA/FAR 25 Subparts E, F and G) – ERJ-170 FCAR HPR-17; and
- Lack of on/off switch for ATTCS system (RBHA 21.21(b)(1); RBHA/FAR 25.117, 25.119(a), 25.121(d), 25.904, 25.1301, 25.1309, Appendix I)-ERJ 170 FCAR HPR-23.

Exemptions:

- Uncontained engine rotor burst hitting pressurized cabin [RBHA/FAR 25.841(a)(2)(ii)] - Granted through Ordinance DAC No. 1339/DGAC, dated 27 September 2003;
- Uncontrollable high engine thrust [RBHA/FAR 25.901(c)] - Granted through Ordinance No. 506/DGAC, dated 09 April 2003; and
- Ventilation (Humidity Requirement) [RBHA/FAR 25.831(g)] - Granted through Ordinance DAC No. 1194/DGAC, dated 25 August 2003.

RBHA 21 “Certification Procedures for Aeronautical Products and Parts”, Amendment 21-02, effective on 29 July 1993.

Noise Standards:
RBHA 36 (Noise Standard - Type Certification), corresponding to ICAO Annex 16 Volume I Chapter 3 (third edition).

Fuel venting and exhaust emission requirements:

- RBHA 34 (Fuel Venting and Exhaust Emission Requirements for Turbine Engine Powered Airplanes - Type Certification), corresponding to the US FAR Part 34 Amendment 34-03, effective on 03 February 1999.

Optional design requirements (See Note 4):

- RBHA/FAR 25.1403 - Wing icing detection lights;
- RBHA/FAR 25.1419 - Ice protection; and
- RBHA/FAR 25.1421 - Megaphones.

In addition to the certification basis above, several FCARs were established as acceptable means of compliance. Ref. CTA FCAR HT-01 “Designation of Applicable Regulations”

Application date for type certification:

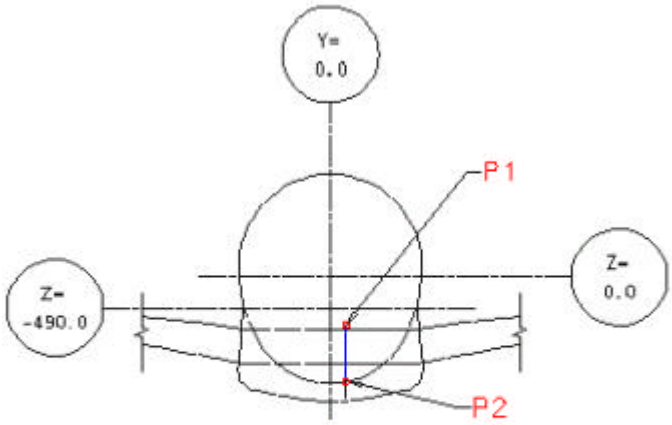
- ERJ 170-200 LR: 1 September 2000;
- ERJ 170-200 STD: 1 September 2000;
- ERJ 170-200 SU: 12 August 2005.

DATUM

A perpendicular plane to the fuselage centerline, located at 12 488 mm ahead of the wing stub's front spar. This spar is located 373 mm ahead of the wing jack points.

LEVELING MEANS

Plumb line between the points P1 to P2 located inside of the landing gear compartment on the left side, as illustrated below.



LEVELING OF FUSLG COORDINATE POINTS			
POINT	X	Y	Z
P1	**15748,16**	-246.60	-768.91
P2	**15748,16**	-246.60	-1675.09

MEAN AERODYNAMIC CHORD

3 194 mm.
Leading edge of mean aerodynamic chord: X: 13 763 mm
Y: -5 116 mm
Z: -617 mm

PRODUCTION CERTIFICATION

ERJ 170-200 models Production Certified Organization is foreseen for June 2005.

REQUIRED EQUIPMENT

The basic required equipment as prescribed in the applicable airworthiness regulations (see certification basis) must be installed in the airplane. The approved equipments are listed in the Embraer Technical Report 170-200TDSD. The CTA approved airplane flight manual P/N AFM-1383 must be on board.

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 basic empty weight and corresponding center of gravity location must include the total engine oil, hydraulic fluid and unusable fuel.

NOTE 2 Markings and placards. All markings and placards required by the applicable certification requirements (see certification basis) and by the operational requirements must be installed in the appropriate locations.

NOTE 3 Continuing Airworthiness. The mandatory systems certification maintenance requirements, raised from the safety analysis, are listed in the "Appendix A – Certification Maintenance Requirements (CMR)" of the document MRB Report P/N 1621, Revision 1 or subsequent CTA approved revision.
The mandatory structure certification maintenance requirements, raised from the damage tolerance analysis, are listed in the "Appendix B - Airworthiness Limitation Items (ALI) - Structures" of the document MRB Report P/N 1621, Revision 1 or subsequent CTA approved revision..
The list of the tasks raised from the compliance with the RBHA/FAR 25-981 Amdt. 102 (a) and (b) is provided in the "Appendix C – Fuel System Limitation Items" of the document MRB Report P/N 1621, Revision 1 or subsequent CTA approved revision..
The list of the life limited components is provided in the "Appendix D – Life - Limited Items (LLI)" of the document MRB Report P/N 1621, Revision 1 or subsequent CTA approved revision.

Remarks: All ERJ 170 airplanes must fully comply with the mandatory limitations in the Appendixes above, corresponding to the appropriate latest approved revision.

The Structures Repair Manual P/N 1583 for the ERJ 170-100 models and P/N 1802 for the ERJ 170-200 models is approved and controlled by CTA, and all Service Bulletins issued by Embraer are approved by CTA. A statement of this approval must be stamped in each Service Bulletin.

NOTE 4 The ERJ 170-200 model is not approved for ditching.

NOTE 5 Systems containing user modifiable software. The systems containing user modifiable software are:

- User Partition of the Owner Requirements Table (ORT) of the SATCOM (Satellite Communication System);
- Airline Modifiable Information (AMI) of the Communication Management Function (CMF);
- System Setting Data - Airline Operational Data (APM) of the Configuration Monitor System – host configuration monitor (NIC); and
- User Application of the Aircraft Condition Monitoring Function (ACMF)

User modifiable software is not approved by CTA as part of the airplane type design.

NOTE 6 The Model ERJ 170-100 XX is often referred to in Embraer marketing literature as the "Embraer 170 XX", with the appropriate model (LR, STD, etc.) substituted for the "XX".
The Model ERJ 170-200 XX is often referred to in Embraer marketing literature as the "Embraer 175 XX", with the appropriate model (LR, STD, etc.) substituted for the "XX".
This names are strictly marketing designations and are not part of the official model designations.

NOTE 7 Type design definition. The type design which was submitted for CTA evaluation and which is considered CTA approved is defined by the following Embraer documents:

ERJ 170-100

- 170-100TDSD_01 "Type Design Standard Definition", revison B, dated 18 February 2004 or later acceptable revision;
- 170EBD001 "Engineering Basic Data", revision C, dated 27 January 2004 or later acceptable revision;

- Annex I to CTA FCAR HT-03 (List of all OTP/TSO/JTSO/etc. articles installed in the ERJ 170-100 ( ) aircraft), dated 10 February 2004 or later acceptable revision; and
- Aircraft Interior Configuration Report, issued for each ERJ 170-100 ( ) serial number airplane.

ERJ 170-200

- 170-200TDSD "Type Design Standard Definition", revison A, dated 21 December 2004 or later acceptable revision;
- 170EBD017 "Engineering Basic Data", revision A, dated 16 December 2004 or later acceptable revision;
- Annex I to CTA FCAR HT-03 (List of all OTP/TSO/JTSO/etc. articles installed in the ERJ 170-100 ( ) aircraft), dated 10 February 2004 or later acceptable revision; and
- Aircraft Interior Configuration Report, issued for each ERJ 170-200 ( ) serial number airplane.

NOTE 8 Any new interior configuration that affects the location and distribution of monuments (lavatory, wardrobe, etc.) in the cockpit door area, specifically for compliance with RBHA/FAR 25.809(b), must be submitted to the CTA for approval.

Original in the Portuguese language signed by:

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Chefe da Divisão de Certificação de Aviação Civil
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