European Aviation Safety Agency

EASA

TYPE-CERTIFICATE DATA SHEET

No. R.002

for
Puma and Super Puma

Type Certificate Holder
Airbus Helicopters

Aéroport International Marseille – Provence
13725 Marignane cedex
France

For Models: SA 330 J
AS 332 C
AS 332 L
AS 332 C1
AS 332 L1
AS 332 L2
EC 225 LP

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SECTION 1: SA 330 J (*SA 330 F and SA 330 G for memory – see Note 5*)

I. General

1. Type/ Variant or Model	
1.1 Type	SA 330
1.2 Variant	SA 330 J
2. Airworthiness Category	Large Rotorcraft, Category A and B
3. Manufacturer	before January 1, 1992: AEROSPATIALE after January 1, 1992: Eurocopter after January 07, 2014: Airbus Helicopters Aeroport International Marseille-Provence 13725 MARIGNANE cedex - France
4. EASA Certification Application Date	N/A (to DGAC-F)
5. National Certifying Authority	DGAC-F
6. National Authority Type Certificate Date	29 April 1976 (DGAC-F National TC No. 56)

II. Certification Basis

(*) according to DGAC letter 02827 SFACT/TC, dated 30 March 1978

1. Reference Date for determining the applicable requirements	N/A
2. Airworthiness Requirements (*)	FAR 29 with amendments 29-1 to 29-9 inclusive and the addition of FAR 29.951 (c), 29.1183, 29.1305 (a) (16) of the Amdt. 29-10 for version 330 J equipped with white anti-collision light
3. Special Conditions (*)	DGAC-F CS n°1 – Icing; DGAC-F CS n°2 – Lightning
4. Exemptions	None
5. Deviations (*)	For SA330J aircraft fitted with red anti-collision light the FAR29 amendment 29-7 is excluded

6. Equivalent Safety Findings	None
7. Requirements elected to comply	None
8. Environmental Protection Requirements	N/A

III. Technical Characteristics and Operational Limitations

1. Type Design Definition	SA 330 J definition is obtained by applying modifications mentioned in note 330A.05.0065 to the definition of former SA330G model, which consisted itself of SA330F previous model with design changes as listed in note 330A.05.0060 (see also Note 5).
2. Description	Large twin-engine helicopter; the SA330J model is designed as a derivative product of the former SA330G, which is originally derived from the SA330F model (see also Note 5.).
3. Equipment	As per compliance with applicable FAR29 airworthiness requirements and referenced within approved Flight Manual

4. Dimensions

4.1 Fuselage	Length	14,82m	
	Width	3,00m	
	Height	5,14m	
4.2 Main Rotor	4 blades	Diameter	15,09m
4.3 Tail Rotor	5 blades	Diameter	3,04m

5. Engine

5.1 Model	2 Turboméca TURMO IV C
5.2 Type Certificate	DGAC-F engine TCDS n° M8
5.3 Limitations	

5.3.1 Installed Engine Limits	Refer to approved Flight Manual
5.3.2 Transmission Torque Limits	Refer to approved Flight Manual

6. Fluids (Fuel/ Oil/ Additives)

6.1 Fuel	Refer to approved Flight Manual
6.2 Oil	Refer to approved Flight Manual
6.3 Additives	Refer to approved Flight Manual

7. Fluid capacities

7.1 Fuel	1,565 l (413 US gals) 1,544 l (408 US gals) usable	
7.2 Oil	Engines	2 x 12 l
	MGB	22 l
	IGB	0,75 l
	TGB	1,4 l
7.3 Coolant system capacity	N/A	

8. Air Speeds Limits	Vne Power on 310km/h (167kt) at ISA See Level for 4.000kg See Flight Manual for other approved airspeed limits	

9. Rotor Speed Limits

Power On:	Nominal governed	265 ± 7 rpm
	Minimum	220 rpm (transient)
Power Off:	Maximum	310 rpm
	Minimum	220 rpm (IAS < 108kt)
		240 rpm (IAS > 108kt)

10. Maximum Operating Altitude and Temperature

10.1 Altitude	Take-off and landing - 1.650ft/ + 13,000ft pressure altitude En route + 16.500ft pressure altitude
10.2 Temperature	- 40°C to + 50°C

11. Operating Limitations		VFR day and night IFR day and night Non-icing conditions
12. Maximum Masses		Take-off and landing: 7.400kg (16.300lb)
13. Centre of Gravity Range		Refer to approved Rotorcraft Flight Manual
14. Datum	Longitudinal	4,70m (183ft 04in) forward of main rotor centreline
	Lateral	aircraft symmetry plane
15. Levelling Means		Levelling plate on right side of the fuselage and graduated plate for plumb line on left side
16. Minimum Flight Crew		VFR: 1 pilot in category B 1 pilot + 1 crew member in category A IFR: 2 pilots in categories A and B
17. Maximum Passenger Seating Capacity		19
18. Passenger Emergency Exit		Refer to approved Flight Manual
19. Maximum Baggage/ Cargo Loads		the cabin floor (from + 2,48 m to + 7,63 m) is provided with the structural strength required for a load of 800kg/m^2 evenly distributed in cargo configuration
20. Rotor Blade control movement		For rigging information, refer to AMM
21. Auxiliary Power Unit (APU)		None

IV. Operating and Service Instructions

1. Flight Manual	SA 330J Flight Manual approved on 29 April 1976 by DGAC-F (*) or subsequent DGAC-F or EASA approved revisions.

(*) there are other Flight Manuals, which resulted from various European type certifications, e.g. Flight Manual with identification code E (CAA-UK).

2. Maintenance Manual	SA 330 Maintenance Manual including: - Maintenance programme as Maintenance Servicing Recommendations (PRE) - Airworthiness Limitations Section as PRE Chapter 05.99 approved by DGAC-F or EASA SA 330 FREM (Transmission assembly overhaul booklets); SA 330 Repair Manual
3. Service Letters and Service Bulletins	As published by Aérospatiale or Eurocopter or Airbus helicopters and approved by DGAC-F or Eurocopter DOA or Airbus helicopters DOA

4. Required Equipment

- As per compliance with applicable FAR 29 requirements and in accordance with the original Type Design standard, refer also to the approved Flight Manual;
- Approved equipment items are covered by document No 330A.04.1155 dated 17 September 1970 updated to issue J on 26 march 1981;
- Approved equipment items required for the flight in icing conditions are covered by document 330A.04.1483

V. Notes

1. Eligible serial numbers: 1371 and subsequent of SA 330 J model

2. The certified “optional” installations are each approved independently of the basic helicopter and an approved Flight Manual Supplement is associated to each optional installation if necessary

3. Cabin Interior and Seating Configurations must be approved.

4. Commercial designation: PUMA

5. Upon Eurocopter request for its surrender, the Type Certificate of both models SA 330 G and SA 330 F has been revoked by EASA as of 12 November 2009 (see EASA Certification Information dated 16 November 2009).

SECTION 2: AS 332 C, C1, L, L1

I. General

1. Type/ Variant or Model		
1.1 Type	AS 332	
1.2 Variant	AS 332 C, AS 332 C1, AS 332 L, AS 332 L1	
2. Airworthiness Category	Large Rotorcraft, Category A and B	
3. Manufacturer	before January 1, 1992: AEROSPATIALE after January 1, 1992: Eurocopter after January 07, 2014: Airbus Helicopters Aeroport International Marseille-Provence 13725 MARIGNANE cedex - France	
4. EASA Certification Application Date (to DGAC-F)	AS 332 C	04 April 1978
	AS 332 L	16 July 1980
	AS 332 C1 and L1	18 June 1984
5. National Certifying Authority	DGAC-F	
6. National Authority TC Date	AS 332 C	24 April 1981
	AS 332 L	02 December 1981
	AS 332 C1 and L1	14 March 1985
	(DGAC-F National TC No. 56)	

II. Certification Basis

(*) according to DGAC letter 53.904 dated 18 August 1980 and doc. “Airworthiness Criteria for Helicopter Instrument Flight” dated 15 December 1978 for IFR flight

1. Reference Date for determining the applicable requirements	See Application Date
2. Airworthiness Requirements	
For original AS 332C, C1, L, L1 (*):	FAR 29 with amendments 29-1 to 29-16 inclusive.
For AS 332 C1 and L1 equipped with AHCAS: (commercial reference	according to Reference CRI A-01 - see Note 8.

AS332C1e and AS332L1e)

3. Special Conditions

For original AS 332 C, C1, L, L1 (*):

- DGAC-F CS n°1 (Icing) and DGAC-F CS n°2 (Lightning) as applicable to previous SA 330 J model and notified with DGAC-F letter 02827 SFACT/TC dated 30 March 1978
- DGAC-F CS n°20.2 dated 11 May 1982 for category II, IFR flight.

For AS332 C1 and L1 equipped with AHCAS: (commercial reference AS332C1e and AS332L1e) see Note 8.

- Minimum in flight experience (Reference CRI B-01)
- Search and Rescue system (Reference CRI B-02)
- Protection from the effects of High Intensity Radiated Fields (HIRF) (Reference CRI F-02)

4. Exemptions None

5. Deviations None

6. Equivalent Safety Findings

For original AS 332 C, C1, L, L1 (*):

- Endurance Tests of redesigned Tail Rotor Hub pitch change control assembly (MOD 07.66205) (Reference CRI E-01)

For AS332 C1 and L1 equipped with AHCAS: (commercial reference AS332C1e and AS332L1e) see Note 8.

- IFR Static Longitudinal Stability – Airspeed Stability (Reference CRI B-04)
- VNE aural warning (Reference CRI F-01)
- Airspeed indicator markings (Reference CRI G-01)
- Powerplant instrument markings (Reference CRI G-02)

7. Requirements elected to comply

For original AS 332 C, C1, L, L1 (*): None

For AS332 C1 and L1 equipped with AHCAS: (commercial reference AS332 C1e and AS332L1e) see Note 8.

8. Environmental Protection Requirements N/A

III. Technical Characteristics and Operational Limitations

1. Type Design Definition	AS 332 C	as per document 332A04.0009 and modifications list in doc. 332A04.3269 for 8.350kg
	AS 332 L	as per doc. 332A04.0010 for 8.350kg
	AS 332 C, L	as per doc. 332A04.3300 for 8.600kg
	AS 332 C1, L1	as per doc. 332A04.3305 for 8.600kg
	AS332C1 and L1 equipped with AHCAS (commercial reference AS332C1e and AS332L1e)	Refer to Note 8

2. Description

Large twin-engine helicopter; designed as a derivative product of the former type certified SA 330 models, that features two fuselage length configurations (standard for AS 332 C, C1 versions and extended body for AS 332 L, L1) and two engines configurations (MAKILA 1A for AS 332 C, L and MAKILA 1A1 for AS 332 C1, L1)

3. Equipment

As per compliance with applicable FAR 29 airworthiness requirements and referenced within approved Flight Manual

4. Dimensions

4.1 Fuselage	AS 332 C, C1	Length	15,53m
		Width	3,79m
		Height	4,94m
	AS 332 L, L1	Length	16,29m
		Width	3,79m
		Height	4,95m
4.2 Main Rotor		4 blades	Diameter 15,60m
4.3 Tail Rotor		5 blades	Diameter 3,05m

5. Engine

5.1 Model	AS 332 C, L	2 Turboméca MAKILA 1A
	AS 332 C1, L1	2 Turboméca MAKILA 1A1
5.2 Type Certificate		EASA engine TCDS No: E.072

5.3 Limitations

5.3.1 Installed Engine Limits — Refer to approved Flight Manual

5.3.2 Transmission Torque Limits — Refer to approved Flight Manual

6. Fluids (Fuel/ Oil/ Additives)

6.1 Fuel — Refer to approved Flight Manual

6.2 Oil — Refer to approved Flight Manual

6.3 Additives — Refer to approved Flight Manual

7. Fluid capacities

7.1 Fuel

	AS 332 C, C1
standard configuration:	1.556 l (411 US gals)
with optional internal 6th tank:	324 l (86 US gals)
with optional sponson tanks	650 l (172 US gals)
Total available:	2.530 l (669 US gals)

	AS 332 L, L1
standard configuration:	2.043 l (540 US gals)
with optional internal 6th tank:	324 l (86 US gals)
with optional sponson tanks	600 l (158 US gals)
Total available:	3.017 l (738 US gals)

see Flight Manual for other approved optional fuel tanks configurations and for unusable fuel quantities.

7.2 Oil

Engines	2 x 7.6 l
MGB	19.6 l
IGB	0.62 l
TGB	1.44 l

8. Air Speeds Limits

Vne Power On: 310 km/h (167kt) at ISA sea Level for M ≤ 8.350kg (18.410 lb.)
278 km/h (150kt) at ISA sea Level for M > 8,350kg (18,410 lb.)

Vne Power Off: 278 km/h (150kt) at ISA sea Level for M ≤ 8.350kg (18.410 lb.)
268 km/h (145kt) at ISA Sea Level for > 8.350kg (18.410 lb.)

9. Rotor Speed Limits

Power On:	Maximum	275 rpm
	Nominal	265 rpm
	Minimum	245 rpm
	Min Transient	220 rpm

Power Off:	Max Transient	310 rpm (20 sec)
	Maximum	290 rpm
	Minimum	245 rpm (IAS > 100kt)
		220 rpm (IAS < 100kt)

10. Maximum Operating Altitude and Temperature

10.1 Altitude - AS332C, L

Take-off and landing

15.000ft pressure altitude for M ≤ 8,350 kg (18,410 lb.)

6.000ft pressure altitude for M > 8,350 kg (18,410 lb.)

En route

20.000ft pressure altitude for M ≤ 8,350 kg (18,410 lb.)

20.000ft pressure altitude for M > 8,350 kg (18,410 lb.)

10.2 Altitude - AS 332C1, L1

Take-off and landing

- 1.640 ft. pressure altitude / 15,000ft density altitude

En route

- 1.640 ft./25,000ft pressure altitude for M ≤ 8,350 kg (18,410 lb.)
- 1.640 ft./ 9.500ft pressure altitude for M > 8,350 kg (18,410 lb.)

10.3 Temperature

- 30°C to ISA + 35°C limited to 50°C.
see relevant Flight Manual Supplement for colder operation down to -45°C.

11. Operating Limitations

VFR day and night
IFR day and night
Non-icing conditions

Flight in full icing conditions is permitted on AS 332C, L and L1 models only when equipment items listed in relevant flight manual supplement are installed.

Flight in limited icing conditions is permitted on AS 332L and L1 models only when equipment items listed in relevant approved flight manual supplements are installed (see Note 6).

12. Maximum Masses

Take-off and landing

AS332C, L	8.350kg (18.410lb), prior SB 01.03 embodiment
	8.600kg (18.960lb), after SB 01.03 embodiment
AS 332 C1, L1	8.600kg (18.960lb)

13. Centre of Gravity Range

Refer to approved Rotorcraft Flight Manual

14. Datum	Longitudinal	4,70m (183ft 4in) forward of main rotor centreline
	Lateral	aircraft symmetry plane
15. Levelling Means		Levelling plate on right side of the fuselage and graduated plate for plumb line on left side
16. Minimum Flight Crew		
	AS 332 C, L	VFR: 1 pilot + 1 qualified crew member(*) IFR: 2 pilots
	AS 332 C1, L1	VFR: below 20.000ft, 1 pilot + 1 qualified crew member (*) above 20.000ft, 2 pilots IFR: 2 pilots
	(*) the qualified crew member is not required if one lane of each AP channel, at least, is in operation	
	AS332 C1 and L1 equipped with AHCAS (commercial reference AS332 C1e and AS332 L1e)	VFR: 1 pilot IFR: 2 pilots
17. Maximum Passenger Seating Capacity		AS 332 C, C1 19 AS 332 L, L1 24
18. Passenger Emergency Exit		Refer to approved Flight Manual
19. Maximum Baggage/ Cargo Loads		the cabin floor (from + 2,48m to + 7,63m) is provided with the structural strength required for a load of 800kg/m^2 evenly distributed in cargo configuration
20. Rotor Blade control movement		For rigging information, refer to AMM
21. Auxiliary Power Unit (APU)		None

IV. Operating and Service Instructions

1. Flight Manual	AS 332 C	Flight Manual approved on 24 April 1981 by DGAC-F (*) or subsequent DGAC-F or EASA approved revisions
	AS 332 L	Flight Manual approved on 2 December 1981 by DGAC-F (*) or subsequent DGAC-F or EASA approved revisions
	AS 332 C1	Flight Manual approved on 14 March 1985 by DGAC-F (*) or subsequent DGAC-F or EASA approved revisions
	AS 332 L1	Flight Manual approved on 14 March 1985 by DGAC-F (*) or subsequent

	DGAC-F or EASA approved revisions
AS332L1 equipped with AHCAS (commercial reference AS332L1e)	Flight Manual approved on 14 June 2012 by EASA or subsequent EASA approved Issues
AS332C1 equipped with AHCAS (commercial reference AS332C1e)	Flight Manual approved on 13 November 2013 by EASA or subsequent EASA approved Issues

(*) there are other Flight Manuals, which resulted from various European type certifications, e.g. Flight Manual with identification code E (CAA-UK), code D (LBA) or code F (ENAC)

2. Maintenance Manual

Airworthiness Limitations: AS 332C, C1, L, L1 Maintenance Servicing Recommendations, Chapter 05.99 , approved by DGAC-F or EASA or Master Servicing Manual Chapter 04 approved by EASA

Maintenance Programme:

- AS 332C, C1, L, L1 Maintenance Servicing Recommendations (PRE),
- AS 332C, C1, L, L1 Aircraft Maintenance Manual (AMM)
- others: AS 332C, C1, L, L1 Overhaul Manual, Repair Manual, IPC

3. Service Letters and Service Bulletins: As published by Aérospatiale or Eurocopter or Airbus Helicopters and approved by DGAC-F or Eurocopter DOA or Airbus Helicopters DOA

4. Required Equipment

- As per compliance with applicable FAR 29 requirements and in accordance with the original Type Design standard;
- Approved equipment items are covered by document No 3320A.04.3254;
- Refer to approved Flight Manual, MMEL and also to Note 7 below.

5. Master Minimum Equipment List: AS 332C, C1, L, L1 approved MMEL

V. Notes

1. Eligible serial numbers: 2001 and subsequent of AS 332 C model
2004 and subsequent of AS 332 L model

2132 and subsequent of AS 332 L1 model
see Note 2 for eligible serial numbers of AS 332 C1 model

2. Conversion from AS 332 C, L models to AS 332 C1, L1 variants is possible through SB 01.00.26.

3. The certified “optional” installations are each approved independently of the basic helicopter and an approved Flight Manual Supplement is associated to each optional installation if necessary

4. Cabin Interior and Seating Configurations must be approved.

5. Commercial designation : SUPER PUMA Mk I corresponds to AS 332 C, C1, L and L1 models; Commercial references AS332 C1e and AS332L1e are used for AS332C1 and AS332L1 equipped with AHCAS system and modifications listed below in Note 8.

6. Flight in “icing conditions of limited severity”:
   - permitted on AS 332L and L1 models only, with relevant Flight Manual Supplement, formerly approved under code E (CAA-UK) at normal revision RN0, or subsequent DGAC-F or EASA approved issues;
   - such code E (CAA-UK) Flight Manual Supplement does not constitute operational approval and operations must be conducted in accordance with applicable operational regulation.

7. AS 332C, L and L1 helicopters without MGB fire detection system are those modified by AMS 07-21653, design change resulting from CAA-UK’s original type certification.

8. For AS332C1,L1 Aircrafts with the following Eurocopter modifications installed (commercial reference AS332C1e,AS332L1e), the design change was classified as Significant per 21A.101 and the certification basis is listed below:
   MOD 07.26640 - Hydraulic and flight control adaptation for AFCS integration;
   MOD 07.26641 - VMS installation;
   MOD 07.26642 - AFCS installation;
   MOD 07.26643 - FDS installation;
   MOD 07.26644 - Primary references installation;
   MOD 07.26645 - Cockpit adaptation for AHCAS installation;
   MOD 07.26646 - Cockpit lighting;
   MOD 07.26647 - Electrical wiring and connections adaptation;
   MOD 07.26648 - Electrical power distribution modification;
   MOD 07.26649 - Warnings/Cautions and ancillaries adaptation;
   MOD 07.26650 - Equipment installation structure adaptation.

   AFFECTED AREA
   The affected area (primary design change) is aircraft avionics referring to the integration of the avionic systems on cockpit instrument panel: AFCS, VMS, MFD, ISIS, ADU and AHRS.

Installation of the avionic equipment includes the display of the information (vehicle parameters, engine parameters and piloting parameters, AFCS modes and upper modes as an option) through:

- MFD on instrument panel (part of the FDS integration),
- EID on instrument panel (part of the VMS integration),
- ISIS on instrument panel (part of the sensors integration).

For this affected area, CS29 Amendment 2, dated 17 November 2008, is applicable and the requirements impacted by are listed below (see reference CRI A-01):

CS29.0771	Pilot compartment
CS29.0773	Pilot compartment view
CS29.0777	Cockpit controls
CS29.1301	Function and installation
CS29.1303	Flight and navigation instruments
CS29.1305	Power plant instruments
CS29.1309	Equipment, systems, and installations
CS29.1321	Arrangement and visibility
CS29.1327	Magnetic direction indicator
CS29.1329	Automatic pilot system
CS29.1333	Instrument systems
CS29.1335	Flight director systems
CS29.1543	Instrument markings: general
CS29.1545	Airspeed indicator
CS29.1547	Magnetic direction indicator
CS29.1549	Powerplant instruments
Appendix B	Airworthiness Criteria For Helicopter Instrument Flight

Special Condition:

Minimum in flight experience (CRI B-01)
Search and Rescue system (CRI B-02)
Protection from the effects of High Intensity Radiated Fields (HIRF) (CRI F-02)

Equivalent Safety Finding:

IFR Static Longitudinal Stability – Airspeed Stability (CRI B-04)
VNE aural warning (CRI F-01)
Airspeed indicator markings (CRI G-01)
Powerplant instrument markings (CRI G-02)

SECONDARY CHANGE

To integrate these systems on Super Puma MK1 AS332 C1,L1, some secondary changes have to be applied:

- Electrical integration of the avionic systems,
- Mechanical integration of the avionic systems,
- Adaptation of hydraulic and flight controls systems,
- AFCS modifications,
- Cockpit lighting modifications,
- Other structural modifications of the airframe,
- Warnings and cautions modifications.

For these secondary changes, the certification basis to be applied is the existing certification basis for the AS332C1,L1.
Nevertheless, Eurocopter has elected to comply with the requirements of affected area, completed by the ones of CS29 Amdt 2 listed below.

Requirements elected to comply:

CS29.0161	Trim control
CS29.0671	General
CS29.0672	Stability augmentation, automatic, and power-operated systems
CS29.1322	Warning, caution, and advisory lights
CS29.1381	Instrument lights
CS29.1523	Minimum flight crew
CS29.1525	Kinds of operation

UNAFFECTED AREA
The existing certification basis (FAR29 amendment 16 and DGAC special conditions) as listed on EASA.TCDS.R.002 is applicable.

SECTION 3: AS 332 L2

I. General

1. Type/ Variant or Model	
1.1 Type	AS 332
1.2 Variant	AS 332 L2
2. Airworthiness Category	Large Rotorcraft, Category A and B
3. Manufacturer	before January 1, 1992: AEROSPATIALE after January 1, 1992: Eurocopter after January 7, 2014: Airbus Helicopters Aeroport International Marseille-Provence 13725 MARIGNANE cedex - France
4. EASA Certification Application Date	3 March 1986 (to DGAC-F)
5. National Certifying Authority	DGAC-F
6. National Authority TC Date	12 June 1991 (DGAC-F National TC No. 56)

II. Certification Basis

according to DGAC letters 53445/SFACT/TC dated 27 April 1989 and 53610/SFACT/N.HE dated June 1991

1. Reference Date for determining the applicable requirements	see Application Date
2. Airworthiness Requirements	FAR 29 with amendments 29-1 to 29-24 inclusive

3. Special Conditions

- Flight Endurance
- Bird and Foreign Object strikes
- Protection against external electro-magnetic disturbances
- 30 Sec and 2 Min contingency ratings
- Maintenance assistance system (not applicable to basic type design definition)

4. Exemptions None

5. Deviations

- reversion to FAR 29 original requirements for § 29.1, 29.605, 29.671 and 29.1323
- reversion to FAR 29 amendment 12 for § 29.603
- reversion to FAR 29 amendment 14 for § 29.1303
- reversion to FAR 29 amendment 14 for § 29.1309 regarding equipment used on previous AS 332 versions

6. Equivalent Safety Findings None

7. Requirements elected to comply None

8. Environmental Protection Requirements

8.1 Noise Compliant with ICAO Annex 16, Volume 1, Part II, Chapter 8 and Apdx 4; see Flight Manual for measured noise levels

III. Technical Characteristics and Operational Limitations

1. Type Design Definition documents ref. 332 A 89 1031 and 332 A 89 1046

2. Description Large twin-engine helicopter; designed as derivative product of former AS332 models

3. Equipment As per compliance with applicable FAR 29 airworthiness requirements and referenced within approved Flight Manual

4. Dimensions

4.1 Fuselage	Length	16,49m	
	Width	3,38m	
	Height	4,97m	
4.2 Main Rotor	4 blades	Diameter	16,20m
4.3 Tail Rotor	4 blades	Diameter	3,15m

5. Engine

5.1 Model 2 Turboméca Makila 1A2

5.2 Type Certificate — EASA engine TCDS No: E.072

5.3 Limitations

5.3.1 Installed Engine Limits — Refer to approved Flight Manual

5.3.2 Transmission Torque Limits — Refer to approved Flight Manual

6. Fluids (Fuel/ Oil/ Additives)

6.1 Fuel — Refer to approved Flight Manual

6.2 Oil — Refer to approved Flight Manual

6.3 Additives — Refer to approved Flight Manual

7. Fluid capacities

7.1 Fuel

standard configuration:	2.043 l (540 US gals)
with optional internal 6th tank:	324 l (86 US gals)
with optional sponson tanks	600 l (158 US gals)
Total available:	2.967 l (784 US gals)

see Flight Manual for other approved optional fuel tanks configurations and for unusable fuel quantities.

7.2 Oil

Engines	2 x 4.9 l
MGB	24 l
IGB	0.75 l
TGB	1.50 l

8. Air Speeds Limits

Vne Power On:	315 km/h (170kt)
Vne Power Off:	278 km/h (150kt)

see flight manual for other approved airspeed limits.

9. Rotor Speed Limits

Power On:	Maximum	275 rpm
	Nominal	265 rpm
	Minimum	245 rpm
	Min Transient	220 rpm
Power Off:	Max Transient	310 rpm (20 sec)
	Maximum	290 rpm
	Minimum	245 rpm (IAS > 100kt)
		220 rpm (IAS < 100kt)

10. Maximum Operating Altitude and Temperature		
10.1 Altitude		Take-off and landing – 2.000ft pressure altitude + 7.200ft density altitude En route – 2.000ft pressure altitude + 20.000ft pressure altitude
10.2 Temperature		- 30°C to ISA + 35°C limited to 50°C
11. Operating Limitations		VFR day and night IFR day and night Non-icing conditions
Flight in limited icing conditions is permitted when equipment items listed in relevant approved Flight Manual supplements are installed (see Note 5)		
12. Maximum Masses		Take-off and landing: 9300kg (20.502lb)
13. Centre of Gravity Range		Refer to approved Rotorcraft Flight Manual
14. Datum	Longitudinal	4,67m (183ft 4in) forward of main rotor centreline
	Lateral	aircraft symmetry plane
15. Levelling Means		Levelling plate on right side of the fuselage and graduated plate for plumb line on left side
16. Minimum Flight Crew		VFR: 1 pilot IFR: 2 pilots
17. Maximum Passenger Seating Capacity		25
18. Passenger Emergency Exit		Refer to approved Flight Manual
19. Maximum Baggage/ Cargo Loads		the cabin floor (from +2,48 m to +7,63m) is provided with the structural strength required for a load of 800kg/m^2 evenly distributed in cargo configuration

20. Rotor Blade control movement	For rigging information, refer to AMM
21. Auxiliary Power Unit (APU)	Optional; to be used on ground only see relevant approved Flight Manual Supplement

IV. Operating and Service Instructions

1. Flight Manual

AS 332 L2 Flight Manual, DGAC-F (*) approved on 02 April1992 or subsequent DGAC-F or EASA approved revisions.

(*) there are other Flight Manuals, which resulted from various European type certifications, e.g. Flight Manual with identification code E (CAA-UK).

2. Maintenance Manual

Airworthiness Limitations: AS 332L2 Maintenance Servicing Recommendations, Chapter 05.99 approved by DGAC-F or EASA or Master Servicing Manual Chapter 04 approved by EASA

Maintenance Programme:

- AS 332 L2 Maintenance Servicing Recommendations (PRE),
- AS 332 L2 Aircraft Maintenance Manual (AMM)
- others: AS 332 L2 Overhaul Manual, Repair Manual, IPC

3. Service Letters and Service Bulletins

As published by Aérospatiale or Eurocopter or Airbus helicopters and approved by DGAC-F or Eurocopter DOA or Airbus helicopters DOA

4. Required Equipment

- As per compliance with applicable FAR 29 requirements and in accordance with the original Type Design standard;
- Refer to approved Flight Manual, MMEL and Note 6 below.

5. Master Minimum Equipment List AS 332 L2 approved MMEL

V. Notes

1. Eligible serial numbers: 2338 and subsequent of AS 332 L2 model.

2. The certified “optional” installations are each approved independently of the basic helicopter and an approved Flight Manual Supplement is associated to each optional installation if necessary

3. Cabin Interior and Seating Configurations must be approved.

4. Commercial designation : SUPER PUMA Mk II corresponds to AS 332 L2 version.

5. Flight in “icing conditions of limited severity”:
   - permitted with relevant Flight Manual Supplement, formerly approved under code E (CAA-UK) at normal revision RN0, or subsequent EASA approved issues;
   - such code E (CAA-UK) Flight Manual Supplement does not constitute operational approval and operations must be conducted in accordance with applicable operational regulation.

6. The AS 332 L2 helicopters without MGB fire detection system are those modified by AMS 07-25208, design change resulting from CAA-UK’s original type certification.

SECTION 4: EC 225 LP

I. General

1. Type/ Variant or Model	EC 225 LP
2. Airworthiness Category	Large Rotorcraft, Category A and B (see Note 6)
3. Manufacturer	before January 7, 2014: Eurocopter after January 7, 2014: Airbus Helicopters Aeroport International Marseille-Provence 13725 MARIGNANE cedex - France
4. EASA Certification Application Date	7 November 2000 (to DGAC-F)
5. National Certifying Authority	EASA
6. National Authority TC Date	27 July 2004

II. Certification Basis

1. Reference Date for determining the applicable requirements	See Application Date
2. Airworthiness Requirements	JAR 29, Change 1 effective December 1st, 1999, except for the following:

3. Special Conditions

- Minimum in flight experience (Reference CRI B-01)
- SAR (Search and Rescue) system (Reference CRI B-02)
- Water Bombing System (Reference CRI B-05)
- External loads, JAR 29.865 amdt. 2 (Reference CRI D-06)
- Protection from the effects of High Intensity Radiated Field (Reference CRI F-02)
- Helicopter limited icing approval (Reference CRI O-01)

4. Exemptions

- JAR 29.562 Emergency dynamic landing conditions (Reference CRI C-02)
- JAR 29.952(a)(c)(d)(e)(f)(g) Fuel system crash resistance (Reference CRI E-01)
- JAR 29.955(b) Fuel transfer (Reference CRI E-05)

- partial exemption: JAR 29.963(b) Fuel tanks: general; Puncture resistance (Reference CRI E-02)

5. Deviations

5.1 reversion to FAR 29, Amendment 24 as follows:

- FAR 29.561(b)(3) Emergency landing conditions-general (Reference CRI C-01)

5.2 partial reversions to FAR 29, Amendment 24 as follows:

- FAR 29.571 Fatigue evaluation of structure (Reference CRI C-03)
- FAR 29.785 Seat, berth, safety belts, and harnesses (Reference CRI D-01)

5.3 - JAR 29.785(a) ,Installation of side- facing seats (Reference CRI D-09)

5.4 - JAR 29.562 (a),Installation of side- facing seats (Reference CRI D-09)

6. Equivalent Safety Findings

- JAR 29.173, 175 Static longitudinal Stability (Reference CRI B-03)
- JAR 29 App B §IV IFR Static longitudinal Stability – Airspeed stability (Reference CRI B 04)
- JAR 29.571 Fatigue evaluation of structure for changed metallic PSE (Reference CRI C-04)
- JAR 29.807(c)(1) Passenger emergency exits other than side-of-fuselage (Reference CRI D-02)
- JAR 29.813(a), 29.815 Emergency exit access - Main aisle width (Reference CRI D-03)
- JAR 29. 807(d)(2) Ditching emergency exits for passengers (Reference CRI D-07)
- JAR 29.923(a)(2) Rotor drive system and control mechanism tests (Reference CRI E-03)
- JAR 29.1303(j) VNE aural warning (Reference CRI F-01)
- JAR 29.1545(b)(4) Airspeed indicators markings (Reference CRI G-01)
- JAR 29.1549(b) Powerplant instruments markings (Reference CRI G-02)

7. Requirements elected to comply

- CS29.1465 Amdt.3 - Vibration Health Monitoring for Airworthiness Credit (Reference CRI F-09) – See Note 7.

8. Environmental Protection

Requirements

8.1 Noise	Compliant with ICAO Annex 16, Volume 1, Part II, Chapter 8 and Appendix 4 (Reference CRI A-03) – see Flight Manual for measured noise levels
8.2 Emission	Compliant with ICAO Annex 16 Volume 2 - Fuel Discharge (Reference CRI A-04)

III. Technical Characteristics and Operational Limitations

1. Type Design Definition

1.1 EC 225 LP Standard:	document ref. 332 A 89 2120
1.2 EC 225 LP MPAI (*) equipped:	when standard definition is completed with design change ref. AMS OP 23554

(*) MPAI means Multi-Purpose Air Intakes

2. Description	Large twin-engine helicopter; designed as a derivative product of the former type certified AS 332 L2 Standard configuration consists of grip-type engine air intakes installation, while MPAI configuration is optional and consists of Multi-Purpose Air Intakes
3. Equipment	As required by JAR 29 and referenced within approved Flight Manual

4. Dimensions

4.1 Fuselage	Width 3,96m Height 4,97m		
4.2 Main Rotor	5 blades	Diameter	16,20m
4.3 Tail Rotor	4 blades	Diameter	3,15m

5. Engine

5.1 Model	2 Turboméca Makila 2A, or 2 Turboméca Makila 2A1
5.2 Type Certificate	EASA engine TCDS No: E.006
5.3 Limitations	
5.3.1 Installed Engine Limits	Refer to approved Flight Manual

5.3.2 Transmission Torque Limits Refer to approved Flight Manual

6. Fluids (Fuel/ Oil/ Additives)

6.1 Fuel Refer to approved Flight Manual

6.2 Oil Refer to approved Flight Manual

6.3 Additives Refer to approved Flight Manual

7. Fluid capacities

7.1 Fuel

standard configuration: 2.588 l (682 US gals)
with optional internal 6th tank: 320 l (84 US gals)
Total available: 2.908 l (766 US gals)

see Flight Manual for other approved optional fuel tanks configurations and for unusable fuel quantities.

7.2 Oil

Engines	2 x 4.92 l
MGB	27 l
IGB	0.62 l
TGB	1.50 l

8. Air Speeds Limits

Vne Power On: 175kt up to 5000 ft density altitude and 175kt – 3kt / 1000ft above 5000 ft
Vne Power Off: Vne Power On limited to 150kt
see flight manual for other approved airspeed limits.

9. Rotor Speed Limits

Power On:	Maximum	275 rpm
	Minimum	246 rpm
	Min Transient	220 rpm
Power Off:	Max Transient	310 rpm (20 sec)
	Maximum	290 rpm
	Minimum	246 rpm (IAS > 100kt)
		220 rpm (IAS < 100kt)

10. Maximum Operating Altitude and Temperature

10.1 Altitude Take-off and landing

EC 225 LP Standard: OAT from -45°C to -12°C:
– 6.000ft density altitude

	+ 7.400ft density altitude OAT from -12°C to ISA +40°C (without exceeding +50°C): – 2.000ft pressure altitude + 7.400ft density altitude
EC 225 LP MPAI equipped:	OAT from -45°C to -12°C: – 6.000ft density altitude + 11.000ft density altitude OAT from -12°C to ISA +40°C (without exceeding +50°C): – 2.000ft pressure altitude + 11.000ft density altitude
EC 225 LP Standard / MPAI equipped:	En route OAT from -45°C to -12°C: – 6.000ft density altitude + 20.000ft pressure altitude OAT from -12°C to ISA +40°C (without exceeding +50°C): – 2.000ft pressure altitude + 20.000ft pressure altitude

10.2 Temperature

EC 225 LP Standard / MPAI equipped:	- 30°C to ISA + 40°C limited to 50°C. See Flight Manual Supplement SUPP 2 for lower temperature operation down to -45°C.

11. Operating Limitations

VFR day and night
IFR day and night
Non-icing conditions

Flight in full icing conditions is permitted only when other equipment items as listed in relevant approved Flight Manual supplement are installed.

Flight in limited icing conditions is permitted only when equipment items listed in relevant approved Flight Manual supplements are installed (see Note 5).

12. Maximum Masses — Take-off and landing: 11.000kg (24.251lb)

13. Centre of Gravity Range — Refer to approved Rotorcraft Flight Manual

14. Datum — Longitudinal: 4,67m (183.85in) forward of main rotor centreline; Lateral: aircraft symmetry plane

15. Levelling Means — Levelling plate on right side of the

	fuselage and graduated plate for plumb line on left side
16. Minimum Flight Crew	VFR: 1 pilot IFR: 2 pilots; Pilot and suitably trained crew member in day VFR for water bombing operations.
17. Maximum Passenger Seating Capacity	25
18. Passenger Emergency Exit	one (1) door whose dimensions exceed those of Type II exit + two (2) Type IV exits on each side
19. Maximum Baggage/ Cargo Loads	the cabin floor (from + 2,48 m to + 7,63 m) is provided with the structural strength required for a load of 800kg/m^2 evenly distributed in cargo configuration
20. Rotor Blade control movement	For rigging information, refer to AMM
21. Auxiliary Power Unit (APU)	Optional; to be used on ground only - see relevant approved Flight Manual Supplement
22. Wheels and Tyres	
Tyres:	nose: 466 x 173-10 main: 615 x 225-10
Wheels:	nose: Messier Bugatti C 20525 000 main: Messier Bugatti C 20147 200

IV. Operating and Service Instructions

1. Flight Manual	
EC 225 LP Standard:	EC 225LP Flight Manual, normal revision RN0 (04-20), EASA approved on 27 July 2004 or subsequent approved revisions
EC 225 LP MPAI equipped:	EC 225LP MPAI Flight Manual, normal revision RN2 (04-44), EASA approved on 21 December 2004 or subsequent approved revisions

2. Maintenance Manual

Airworthiness Limitations:	EC 225 LP Maintenance Servicing Recommendations, Chapter 05.99 (or newly chapter 04 approved by EASA), edition 2004.05.31, Rev. 000, EASA approved on 27 July 2004 or subsequent approved revisions
Maintenance Programme:	- EC 225 LP Maintenance Servicing Recommendations (PRE), - EC 225 LP Aircraft Maintenance Manual (AMM)

3. Service Letters and Service Bulletins	As published by Eurocopter or Airbus Helicopters and approved by Eurocopter DOA or Airbus Helicopters DOA

4. Required Equipment

- As per compliance with applicable JAR 29 requirements and in accordance with the original Type Design standard;
- Refer to approved Flight Manual and MMEL.

5. Master Minimum Equipment List	EC225LP approved MMEL

V. Notes

1. Eligible serial numbers: 2600 and subsequent of EC 225 LP model.

2. The certified “optional” installations are each approved independently of the basic helicopter and an approved Flight Manual Supplement is associated to each optional installation if necessary (some optional installations are specific to the EC 225 LP equipped with MPAI and the relevant Flight Manual Supplements are approved for that particular EC 225 LP type design definition only).

3. Cabin Interior and Seating Configurations must be approved; passenger transport is not permitted in both operational and non-operational configurations of the Water Bombing System; except while performing Water Bombing operations, the EC 225 LP is not approved for the carriage of cargo only in the cabin.

4. Commercial designation: SUPER PUMA Mk II+ or LP corresponds to EC 225 LP model.

5. Flight in limited icing conditions and water bombing operations: the relevant approved Flight Manual Supplements do not constitute operational clearance approvals and operations must be conducted in accordance with applicable operational regulation.

6. The EC 225 LP is certified as Category A rotorcraft with operating limitations as defined in the relevant approved Flight Manual Supplements.

7. For EC 225 LP helicopters equipped with M'ARMS (optional Vibration Health Monitoring system), the associated mandatory design change MOD 0726978 / 0726994 (defined as "M'ARMS MOD45 monitoring") is certified in compliance with CS29.1465 of CS29 Amdt.3 – see above Section II. Certification Basis, Paragraph 7. Requirement elected to comply.

SECTION ADMINISTRATIVE

I. Acronyms and Abbreviations

AMM	Aircraft Maintenance Manual
APU	Auxiliary Power Unit
DOA	Design Organisation Approval
EASA	European Aviation Safety Agency
FAA	Federal Aviation Administration
HIRF	High Intensity Radiated Field
ICAO	International Civil Aviation Organisation
IPC	Illustrated Parts Catalogue
JAA	Joint Aviation Authorities
JAR	Joint Airworthiness Requirements
kg	Kilogram
KIAS	Knots Indicated Air Speed
lb.	Pounds
M'ARMS	EC225's Vibration Health Monitoring system
MMEL	Master Minimum Equipment List
RFM	Rotorcraft Flight Manual
RIPS	Rotorcraft Icing Protection System
TSO	Technical Standards Order

II. Type Certificate Holder Record

Airbus Helicopters
Aeroport International Marseille-Provence
13725 MARIGNANE cedex - France

III. TCDS Change Record

Issue	Date	Changes
Issue 01	27 July 2004	Initial Issue; EC225LP model type certification
Issue 02	21 April 2006	Legacy Models added (SA330 and AS332)
Issue 03	06 October 2009	EC225LP: Makila 2A1 engines added; update of altitude and temperature limitations
Issue 04	13 December 2009	TC surrendering for SA330 models F and G; EC 225 LP certification basis update for Water Bombing kit approval
Issue 05	25 February 2010	Clarification of S/N applicability for former SA330F and G models converted into SA330J
Issue 06	09 May 2010	Extended EC 225 LP take-off and landing altitude flight envelope
Issue 07	04 January 2011	Extended EC225LP temperature envelope (very cold weather); errors correction on AS332 L2 hydraulic fluid capacity; new EC225LP icing envelope approval
Issue 08	20 January 2011	Update on EASA engine TCDS E.072 reference
Issue 09	14 June 2012	Updated to add AS332L1 with AHCAS commercial designation AS332L1e
Issue 10	29 June 2012	TCDS format update; minor corrections
Issue 11	10 July 2013	EC225LP certification basis update for "M'ARMS MOD45 monitoring" approval
Issue 12	07 January 2014	TC Holder's name changed as "Airbus Helicopters"
Issue 13		Updated to add AS332C1 with AHCAS commercial designation AS332C1e, new EC225 CRI D-09 and new MSM Chapter 04 (previously 05.99).

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