TYPE CERTIFICATE DATA SHEET

No. EASA.AS.001

for

LZ N07

Type Certificate Holder

Zeppelin Luftschifftechnik GmbH & Co KG
Messestraße 132
88046 Friedrichshafen
Germany

For Models: LZ N07-100
LZ N07-101

TABLE OF CONTENTS

SECTION 1: LZ N07-100

I. General

1.	Type, Model	Type: LZ N07, Model: LZ N07-100
2.	Airworthiness Category	Normal and Commuter Airship
3.	Manufacturer	See Section 'Administrative', III.
4.	Type Certification Application Date	to LBA: 15 March 1994
5.	State of Design Authority	EASA
6.	Type Certificate Date	LBA: 26 April 2001
7.	Type Certificate n° by	LBA: 9004
8.	Type Certificate Data Sheet n°	LBA: 9004
9.	EASA Type Certification Date	28 September 2003, in accordance with CR (EU) 1702/2003, Article 2, 3., (a), (i), 2nd bullet, 1st indented bullet.

II. Certification Basis

1.	Reference Date for determining the applicable requirements	15 March 1994
2.	Airworthiness Requirements	Defined by 'Type Certification Basis LBA, Document 07 TD 01 004 Issue A-03'. Airworthiness Requirements for Normal and Commuter Category Airships (LFLS), issue September 1995.

Additional Requirements: (see explanatory Note V.3)

A-1/Noise	External noise certification LuftVG §2
A-3/CVFR	Minimum equipment LuftBO/FSAV/CVFR/Cabin Safety
A-4/VFR/CVFR-Night Operation	Minimum equipment VFR/CVFR-Night Operation
C-1/Load	Reliable Load Validation acc. FAR 25.301(b)
D-1/Flam	Flammability of passenger seat cushions
D-13/Ditching	Floating Analysis
D-15/Heating	Installation of Fuel Burning Heater Equipment (Option)
E-1/Prop	Remote driven thrust vector propulsion system
F-1 HIRF	High intensity radiated fields (HIRF)
F-1/SWAB	SW Qualification: Transition to RTCA DO-178B/ED-12B
F-3/ASIC	Electronic Hardware Design Assurance (ASIC)
F-4/LCD	Liquid Crystal Displays (LCD)
F-5/COTS	Use of Commercial-Off-The-Shelf Software Avionics

		EICAS	Certification Basis Cockpit Display System EICAS
		Interpretative Material: (see explanatory Note V.3)	
		D-2/Belt	Two point shoulder harness for passenger seat
		D-4/Composite	Composite Aircraft Structure
		D-5/Flight Controls	Interpretation of dual redundant
		D-12/C39b	Seats shall be comply with TSO C39b approved by ZLT
		D-14/Evacuation	Emergency Evacuation Demonstration and Procedure
		D-16/Toilet	Toilet installation in Cabin
3.	Special Conditions	B-3/Limiter AIU	Speed Control/ AIU/ Limiter
		B-4/Longitude	Longitudinal Control ±30°
		D-6/Controls Location	Controls Location with Respect to Propeller Hub
		D-7/Controls Arrangement	Cockpit Controls Arrangement
		D-8/Exit	Additional exit for commuter equivalent safety
		D-10/Env. Defl.	Rapid Deflation Provisions
		F-6/LED	LED Colour for EPI-PU
4.	Exemptions	n/a	
5.	Deviations	none	
6.	Equivalent Safety Findings	B-1/Single Engine fail	Single Engine Failure
		B-2/All Engine out	All Engine Failure
		D-9/Envelope Design	Envelope Design
		D-11/Pressure System	Pressure System
		E-2/Auxiliary Vectoring	Auxiliary Thrust Vectoring
		F-7/Light	Bow Light Dihedral Angle
7.	Environmental Protection Requirements		
	7.1 Noise Requirements	n/a see Note V.2.	
	7.2 Emission Requirements	n/a	
8.	Operational Suitability Data (OSD)	Not required for aircraft that are no longer in production. CR (EU) 748/2012, as amended by CR (EU) 69/2014 does not require OSD elements for this model (see Article 7a, 1.).	

III. Technical Characteristics and Operational Limitations

1.	Type Design Definition	Airship Configuration List / Type Certification Definition, Document 07 TD 01 003 in the latest approved revision
2.	Description	Airship with pressurised envelope and rigid framework inside the envelope made of triangular carbon-fibre frames and three aluminium longerons braced by aramide cables, three engines with vectored thrust propellers and one lateral propeller, three carbon-fibre stabilizers in an inverted Y-configuration, 2-channel Fly-by-Wire flight control system for the aerodynamic surfaces and vectored thrust units, carbon-fibre cabin with two doors, forward and aft ballonet with automatically and manually operated air valves, two automatically and manually operated helium valves at the right side and one emergency helium valve at the top of the envelope. All the main components of the airship such as cabin, empennage and engines are mounted to the internal rigid structure.
3.	Equipment	Minimum equipment as defined by document 07 EQ 34 002 and 07 BF 25 602 in the latest approved revision
4.	Dimensions	
4.1	Envelope/Ballonet Volume	Envelope: 8 450 m³ Ballonet, fwd.: 600 m³, or, 410 m³ (Option B10/20/30) Ballonet, aft.: 1 600 m³, or 1 065 m³ (Option B20) 1 340 m³ (Option B30) For pressure limits see III.12.3.
4.2	External (approx.)	Length: 75.1 m Diameter: 14.2 m Height: 19.4 m Max. Width: 19.5 m (horizontal)
5.	Powerplant	
5.1	Engine	Textron-Lycoming 3 x Model IO-360-C1G6 FAA TC/TCDS n°: 1E10 LBA TC/TCDS n°: 4596 EASA TC/TCDS n°: EASA.IM.E.032 Limitations: Max. permissible RPM: 2 700 min^{-1} Max. continuous RPM: 2 700 min^{-1}
5.2	Auxiliary Power Unit (APU)	none
5.3	Propellers	
5.3.1	Vectored Thrust	3 x Hoffmann HO-V373()-D LBA TC/TCDS: 32.130/96 2.7 m three-bladed, pitched, wood/composite with lightning protection
5.3.2	Lateral Thrust	1 x Hoffmann HO-V123F-0GV LBA TC/TCDS: 32.130/17 2.2 m three-bladed, pitched, wood/composite with lightning protection

6.	Fluids		
	6.1	Fuel	AVGAS 100LL
	6.2	Oil	Engines: see Airship Maintenance Manual Gear boxes: see Airship Maintenance Manual
	6.3	Additives	n/a
7.	Fluid capacities		
	7.1	Fuel	2 x 420 litres LH/RH engine tank capacity 1 x 320 litres AFT engine tank capacity
	7.2	Oil	see Airship Maintenance Manual
	7.3	Coolant System Capacity	n/a
8.	Lifting gas		Helium (He)
9.	Air Speed Limitations		V_A: 83 km/h V_{NE}: 130 km/h Further limitations see Airship Flight Manual
10.	Mass/Weight		Max. weight on GND/Landing gear: 400 kg Max. gondola mass, full FWD fuel: 2 690 kg 15 Pax gondola (see Note V.6.) with 190 kg FWD fuel and linear interpolation in between 3 100 kg Theoretical design EQ mass: 7 650 kg Max. static heaviness (TO/LDG): 400 kg Max. static heaviness (inflight): 500 kg Max. static lightness: -200 kg
11.	Operating Altitude, Temperature and Envelope Pressure		
	11.1	Altitude	Max. (standard configuration): 10 000 ft (3 048 m) Optional ballonet configuration: see AFM Section 6, W&B
	11.2	Temperature	Max. temperature: +38°C Min. temperature: -20°C
	11.3	Envelope Pressure Limitations	Maximum pressure: 600 Pa Minimum pressure: 300 Pa
12.	Kind of Operation Limitations		VFR day/night
13.	Deflection Angle of Control Surface		± 20° (all control surfaces)
14.	Centre of Buoyancy		34.15 m aft of bow
15.	Datum		Airship nose
16.	Levelling Means		Both landing gears on the ground
17.	Minimum Flight Crew		One (1) pilot
18.	Occupants Seating Capacity		Maximum seats: 15 17 (see Note V.1.) Pilot seats: 2 Passenger seats: 13 15 (see Note V.1.)
19.	Passenger Emergency Exit		2
20.	Maximum Payload		reserved
21.	Life-limited Parts		See Airship Maintenance Manual (ALS)

IV. Operating and Service Instructions

1. Operating instructions

1.1 Flight Manual:
Airship Flight Manual and Pilot`s Operating Handbook, Document 07 ML 01 200, LBA-approved, and later approved revisions

1.2 Ground Handling Manual:
reserved

2. Service Instructions

2.1 Airship Maintenance Manual:
Airship Maintenance Manual Document 07 ML 05 200, and later accepted revisions

2.2 Engine Manual:
Lycoming Overhaul Manual No. 60294-7(), latest approved revision

2.3 Propeller Manual:
- Propeller HO-V373 Overhaul Manual No. E710, latest accepted revision
- Blade Overhaul Manual No. E573, latest accepted revision

2.4 Service Letters and Service Bulletins:
As published by Zeppelin Luftschifftechnik, Lycoming and Hoffmann-Propeller

2.5 Engine Manual:
Lycoming Operator`s Manual No. 60297-12(), or later approved revision

2.6 Propeller Manual:
- Operating and Maintenance Manual No. E709, latest approved revision
- Betriebs- und Wartungshandbuch Nr. 287, latest approved revision

V. Notes

1. Manufacturer's eligible serial numbers: s/n 002 through s/n 004.

   An airship model LZ N07-100 can be converted into an LZ N07-101 model. This conversion is based on Service Bulletins 07 SB 01 004 (for MSN002) and 07 SB 01 005 (for MSN004) issued by ZLT Design Organisation EASA.21J.273.

2. ICAO Annex 16 does not require noise data for Airships.

3. In II.2 ‘Certification Basis’ the text refers to ‘Additional Requirements’ and ‘Interpretative Material’. This denomination is historically based on an administrative language used in Germany in the late years of the 1990’0’s and it differs from today’s EASA administrative language standards.
   For reasons of consistency with the LZ N07 Certification Documents EASA felt it would be more helpful to not adapt the language retroactively.

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SECTION 2: LZ N07-101

I. General

1.	Type, Model	Type: LZ N07, Model: LZ N07-101
2.	Airworthiness Category	Normal and Commuter Airship
3.	Manufacturer	See Section 'Administrative', III.
4.	Type Certification Application Date	8 March 2014
5.	State of Design Authority	EASA
6.	Type Certificate Date	5 August 2014

II. Certification Basis

1.	Reference Date for determining the applicable requirements	15 March 1994
2.	Airworthiness Requirements	Defined by 'Type Certification Basis LBA, Document 07 TD 01 004 Issue A-03'. Airworthiness Requirements for Normal and Commuter Category Airships (LFLS), issue September 1995.

Additional Requirements: (see explanatory Note V.5)

A-1/Noise	External noise certification LuftVG §2
A-3/CVFR	Minimum equipment LuftBO/FSAV/CVFR/Cabin Safety
A-4/VFR /CVFR-Night Operation	Minimum equipment VFR/CVFR-Night Operation
C-1/Load	Reliable Load Validation acc. FAR 25.301(b)
D-1/Flam	Flammability of passenger seat cushions
D-13/Ditching	Floating Analysis
D-15/Heating	Installation of Fuel Burning Heater Equipment (Option)
E-1/Prop	Remote driven thrust vector propulsion system
F-1 HIRF	High intensity radiated fields (HIRF)
F-1/SWAB	SW Qualification: Transition to RTCA DO-178B/ED-12B
F-3/ASIC	Electronic Hardware Design Assurance (ASIC)
F-4/LCD	Liquid Crystal Displays (LCD)
F-5/COTS	Use of Commercial-Off-The-Shelf Software Avionics
EICAS	Certification Basis Cockpit Display System EICAS

Interpretative Material: (see explanatory Note V.5)

D-2/Belt	Two point shoulder harness for passenger seat
D-4/Composite	Composite Aircraft Structure

		D-5/Flight Controls	Interpretation of dual redundant
		D-12/C39b	Seats shall be comply with TSO C39b approved by ZLT
		D-14/Evacuation	Emergency Evacuation Demonstration and Procedure
		D-16/Toilet	Toilet installation in Cabin
3.	Special Conditions	B-3/Limiter AIU	Speed Control/ AIU/ Limiter
		B-4/Longitude	Longitudinal Control ±30°
		D-6/Controls Location	Controls Location with Respect to Propeller Hub
		D-7/Controls Arrangement	Cockpit Controls Arrangement
		D-8/Exit	Additional exit for commuter equivalent safety
		D-10/Env. Defl.	Rapid Deflation Provisions
		F-6/LED	LED Colour for EPI-PU
4.	Exemptions	n/a	
5.	Deviations	none	
6.	Equivalent Safety Findings	B-1/Single Engine fail	Single Engine Failure
		B-2/All Engine out	All Engine Failure
		D-9/Envelope Design	Envelope Design
		D-11/Pressure System	Pressure System
		E-2/Auxiliary Vectoring	Auxiliary Thrust Vectoring
		F-7/Light	Bow Light Dihedral Angle
7.	Environmental Protection Requirements		
	7.1 Noise Requirements	n/a see Note V.2.	
	7.2 Emission Requirements	n/a	
8.	Operational Suitability Data (OSD)	(For OSD elements see IV.1.3 and IV.1.4.)	
	8.1 Master Minimum Equipment List (MMEL)	M-TS-0000363 Issue 2, MMEL for airships	
	8.2 Flight Crew Data (FCD)	CS-FCD Issue 2	

III. Technical Characteristics and Operational Limitations

1.	Type Design Definition	Airship Configuration List / Type Certification Definition, Document 07 TD 01 003 in the latest approved revision
2.	Description	Airship with pressurised envelope and rigid framework inside the envelope made of triangular carbon-fibre frames and three aluminium longerons braced by aramide cables, three engines with vectored thrust propellers and one lateral propeller, three carbon-fibre stabilizers in an inverted Y-configuration, 2-channel Fly-by-Wire flight control system for the aerodynamic

surfaces and vectored thrust units, carbon-fibre cabin with two doors, forward and aft ballonet with automatically and manually operated air valves, two automatically and manually operated helium valves at the right side and one emergency helium valve at the top of the envelope.
All the main components of the airship such as cabin, empennage and engines are mounted to the internal rigid structure.

3. Equipment

Minimum equipment as defined by document 07 EQ 34 002 and 07 BF 25 602 in the latest approved revision

4. Dimensions

4.1 Envelope/Ballonet volume

Envelope: 8 450 m³
Ballonet, fwd.: 600 m³, or,
410 m³ (Option B10/20/30/50)
Ballonet, aft.: 1 600 m³, or
1 065 m³ (Option B20)
1 340 m³ (Option B30)
815 m³ (Option B50)
For pressure limits see III.12.3.

4.2 External

Length: 75.1 m
Diameter: 14.2 m
Height: 19.4 m
Max. Width: 19.5 m (horizontal)

5. Powerplant

5.1 Engine

Textron-Lycoming
3 x Model IO-360-C1G6

FAA TC/TCDS n°: 1E10
EASA TC/TCDS n°: EASA.IM.E.032

Limitations:
Max. permissible RPM: 2 700 min^{-1}
Max. continuous RPM: 2 700 min^{-1}

5.2 Auxiliary Power Unit (APU)

none

5.3 Propellers

5.3.1 Vectored thrust propeller

3 x Hoffmann HO-V373()-D

LBA TC/TCDS: 32.130/96

2.7 m three-bladed, pitched,
wood/composite with lightning protection

5.3.2 Lateral thrust propeller

1 x Hoffmann HO-V123F-0GV

LBA TC/TCDS: 32.130/17

2.2 m three-bladed, pitched,
wood/composite with lightning protection

6. Fluids

6.1 Fuel

AVGAS 100LL

6.2 Oil

Engines: see Airship Maintenance Manual

Gear boxes: see Airship Maintenance Manual

6.3 Additives

n/a

7. Fluid capacities

7.1 Fuel

2 x 420 litres LH/RH engine tank capacity
1 x 320 litres Aft engine tank capacity

	7.2	Oil	see Airship Maintenance Manual
	7.3	Coolant System Capacity	n/a
8.	Lifting gas		Helium (He)
9.	Air Speed Limitations		V_A: 83 km/h V_{NE}: 130 km/h Limitations see Airship Flight Manual
10.	Mass/Weight		Max. weight on GND/Landing gear: 400 daN Max. gondola mass, full FWD fuel: 2 690 kg 15 Pax gondola (see Note V.6.) with 190 kg FWD fuel and linear interpolation in between 3 100 kg Theoretical design EQ mass: 7 650 kg Max. static heaviness (TO/LDG): 400 kg Max. static heaviness (inflight): 500 kg Max. static lightness: -200 kg
11.	Maximum Operating Altitude and Temperature		
	11.1	Altitude	Standard configuration: 10 000 ft (3 048 m) Optional ballonet configuration: see AFM Section 6, W&B
	11.2	Temperature	Max. temperature: +38°C Min. temperature: -20°C
	11.3	Envelope Pressure Limitations	Maximum pressure: 600 Pa Minimum pressure: 300 Pa
12.	Kind of Operation, Limitations		VFR day/night, IFR
13.	Deflection angle of control surface		± 20° (all control surfaces)
14.	Centre of Buoyancy		34.15 m aft of bow
15.	Datum		Airship nose
16.	Levelling Means		Both landing gears on the ground
17.	Minimum Flight Crew		One (1) pilot
18.	Occupants Seating Capacity		Maximum seats: 15 17 (see Note V.1.) Pilot seats: 2 Passenger seats: 13 15 (see Note V.1.)
19.	Passenger Emergency Exit		2
20.	Maximum Payload		reserved
21.	Life-limited Parts		See Airship Maintenance Manual (ALS)

IV. Operating and Service Instructions

1. Operating instructions (approved)

1.1 Flight Manual:
Airship Flight Manual and Pilot`s Operating Handbook, Document 07 ML 01 201, EASA-approved, and later approved revisions

1.2 Ground Handling Manual:
07 ML 01 424

1.3 MMEL (OSD):
07 ML 05 502

1.4 FCD (OSD):
07 ML OS 001

2. Service Instructions (accepted)

2.1 Airship Maintenance Manual:
Airship Maintenance Manual Document 07 ML 05 260, and later accepted revisions

2.3 Service Letters and Service Bulletins
As published by Zeppelin Luftschifftechnik, Lycoming and Hoffmann-Propeller

2.4 Miscellaneous Manuals
Illustrated Parts Catalogue:
reserved

V. Notes

1. Manufacturer's eligible serial numbers: s/n 005 and up.

   An airship model LZ N07-100 can be converted into an LZ N07-101 model. This conversion is based on Service Bulletins 07 SB 01 004 (for MSN002) and 07 SB 01 005 (for MSN004) issued by ZLT Design Organisation EASA.21J.273.

2. ICAO Annex 16 does not require noise data for Airships.

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SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

AFM	Airship Flight Manual	LuftBO	Betriebsordnung für Luftfahrtgerät German federal order about operation of aircraft
ALS	Airworthiness Limitations Section	Max.	Maximum
CVFR	Controlled VFR	OSD	Operational Suitability Data
FSAV	Verordnung über die Flugsicherungsausrüstung der Luftfahrzeuge German federal order about air traffic safety equipment	Pax	Passenger(s)
FWD	forward	SB	Service Bulletin
GND	Ground	s/n	Serial Number
IFR	Instrument Flight Rules	TO	Take-Off
LBA	Luftfahrt-Bundesamt German Federal Aviation Office	V_A	Maximum Manoeuvring Speed
LDG	Landing	VFR	Visual Flight Rules
LH/RH	Left Hand/Right Hand (side)	V_{NE}	Never Exceed Speed
MSN	ZLT Serial Number		

II. Type Certificate Holder Record

II.1 Type Certificate Holder	**Period**
Zeppelin Luftschifftechnik GmbH & Co KG Allmannsweilerstraße 132 88046 Friedrichshafen Germany	From October 2013
Zeppelin Luftschifftechnik GmbH & Co KG Messestraße 132 88046 Friedrichshafen Germany	From 26 April 2001 until October 2013

III. Production Approval Holder Record

II.1 Type Certificate Holder	**Period**
Zeppelin Luftschifftechnik GmbH & Co KG Allmannsweilerstraße 132 88046 Friedrichshafen Germany	From October 2013
Zeppelin Luftschifftechnik GmbH & Co KG Messestraße 132 88046 Friedrichshafen Germany	From 26 April 2001 until October 2013

IV. Change Record

Issue	Date	Changes	TC issue
Issue 1	10 May 2005	Initial issue of TC and TCDS in EASA format.	10 May 2005
Issue 2	26 Jul 2007	Section 1, III.8: increase of gondola mass	
Issue 3	17 Jun 2008	Section 1, III.4, II.15: ballonet options added	
Issue 4	30 Jun 2014	Change of TC holder address Section 1: II.1: Certification Basis Cockpit Display System EICAS added III.4, III.15: ballonet option added III.8, V.6: gondola capacity increased by two seats	
Issue 5	5 Aug 2014	Section 2: Model LZ N07-101 added	5 August 2014
Issue 6	12 May 2015	Major Change 'Ballonet Configuration B 50'	
Issue 7	13 Mar 2020	Service Bulletins 07 SB 01 004 and 07 SB 01 005 added	
Issue 8	12 Jan 2021	IFR Operations approved for LZ N07-101	
Issue 9	25 Mar 2024	All pages: update to latest EASA TCDS format	

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