TYPE-CERTIFICATE

DATA SHEET

NO. EASA.AS.001

for
ZEPPELIN LZ N07

Type Certificate Holder
ZLT Zeppelin Luftschifftechnik GmbH & Co KG
Messestraße 132
88046 Friedrichshafen
Germany

Manufacturer
ZLT Zeppelin Luftschifftechnik GmbH & Co KG
Messestraße 132
88046 Friedrichshafen
Germany

For variants:
LZ N07-100
LZ N07-101

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SECTION 1: LZ N07-100

SECTION 2: LZ N07-101

SECTION 1: LZ N07-100

I. General

1. Data Sheet No. EASA.AS.001	Issue Date: 30 June 2014
2. Type/Variant or Model	LZ N07-100
3. Airworthiness Category	Normal and Commuter Category
4. Type Certificate Holder	Zeppelin Luftschifftechnik GmbH & Co KG Messestr. 132 88046 Friedrichshafen Germany Until October 2013: Zeppelin Luftschifftechnik GmbH & Co KG Allmannsweilerstraße 132 88046 Friedrichshafen Germany
5. Manufacturer	Zeppelin Luftschifftechnik GmbH & Co KG Messestr. 132 88046 Friedrichshafen Germany Until October 2013: Zeppelin Luftschifftechnik GmbH & Co KG Allmannsweilerstraße 132 88046 Friedrichshafen Germany
6. LBA Type Certification Date	26 April 2001, LBA TC No. 9004
7. LBA Application Date	15 March 1994
8. LBA Recommendation Date	n/a
9. EASA Type Certification Date	28 April 2005
10. TCDS History	This EASA TCDS replaces the German TCDS Nr. 9004 Issue 3 dated 21 September 2003 issued by the LBA

II. Certification Basis

1. Reference Date for Determining the Applicable Requirements	15 March 1994
Certification Basis	Defined by “Type Certification Basis LBA, Document 07 TD 01 004 issue A-03” or later valid versions
Airworthiness Requirements	Airworthiness Requirements for Normal and Commuter Category Airships (LFLS), issue September 1995

	Additional Requirements:	
	CRI C-1/Load	Reliable Load Validation acc. FAR 25.301(b)
	CRI D-1/Flam	Flammability of passenger seat cushions
	CRI D-13/Ditching	Floating Analysis
	CRI D-15/Heating	Installation of Fuel Burning Heater Equipment (Option)
	CRI E-1/Prop	Remote driven thrust vector propulsion system
	CRI F-1 HIRF	High intensity radiated fields (HIRF)
	CRI F-1/SWAB	SW Qualification: Transition to RTCA DO-178B/ED-12B
	CRI F-3/ASIC	Electronic Hardware Design Assurance (ASIC)
	CRI F-4/LCD	Liquid Crystal Displays (LCD)
	CRI F-5/COTS	Use of Commercial Off-The Shelf Software Avionics
	Interpretative Material	
	CRI D-2/Belt	Two point shoulder harness for passenger seat
	CRI D-4/ Composite	Composite Aircraft Structure
	CRI D-5/Flight Controls	Interpretation of dual redundant
	CRI D-12/C39b	Seats shall be comply with TSO C39b approved by ZLT
	CRI D-14/ Evacuation	Emergency Evacuation Demonstration and Procedure
	CRI D-16/Toilet	Toilet installation in Cabin
Elected to Comply Requirements	CRI A-1/Noise	External noise certification LuftVG §2
	CRI A-3/CVFR	Minimum equipment LuftBO/FSAV/CVFR/Cabin Safety
	CRI A-4/VFR /CVFR-Night Operation	Minimum equipment VFR/CVFR-Night Operation
Special Conditions	CRI B-3/ Limiter AIU	Speed Control/ AIU/ Limiter
	CRI B-4/Longitude	Longitudinal Control ±30°

	CRI D-6/ Controls Location	Controls Location with Respect to Propeller Hub
	CRI D-7/ Controls Arrangement	Cockpit Controls Arrangement
	CRI D-8/Exit	Additional exit for commuter equivalent safety
	CRI D-10/ Env. Defl.	Rapid Deflation Provisions
	CRI F-6/LED	LED Colour for EPI-PU
Exemptions	none	
Equivalent Level of Safety Findings	CRI B-1/Single Engine fail	Single Engine Failure
	CRI B-2/All Engine out	All Engine Failure
	CRI D-9/Envelope Design	Envelope Design
	CRI D-11/ Pressure System	Pressure System
	CRI E-2/Auxiliary Vectoring	Auxiliary Thrust Vectoring
	CRI F-7/Light	Bow Light Dihedral Angle
Additional Requirements EICAS	Certification Basis Cockpit Display System EICAS	
Environmental Standards	German noise requirements LVL for Aircraft, dated 1 July 2003, part IV, second section *Lärmvorschrift für Luftfahrzeuge (LVL) vom 1. Juli 2003, Teil IV, zweiter Abschnitt*	

III. Technical Characteristics and Operational Limitations

1.	Type Design Definition	Airship Configuration List / Type Certification Definition, Document 07 TD 01 003 in the latest valid version
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 on the rigid structure.
3.	Equipment	Minimum equipment as defined by document 07 EQ 34 002 and 07 BF 25 602 in the latest valid version
4.	Dimensions	Volume envelope : 8 450 m³ ballonet fwd : 600 m³, or,

	ballonet aft	: 410 m³ (Option B10/20/30/50) 1 600 m³, or 1 065 m³ (Option B20) 1 340 m³ (Option B30) 815 m³ (Option B50)
	Length	: 75.1 m
	Diameter	: 14.2 m
	Maximum width	: 19.5 m
	Height	: 19.4 m

5. Powerplant

5.1 Engine

Type designation	: Textron-Lycoming IO-360-C1G6
LBA-TCDS number	: 4596
Number	: 3
Maximum permissible RPM	: 2 700 min^{-1}
Maximum permissible continuous RPM	: 2 700 min^{-1}

5.2 Vectored Thrust Propeller

Type designation	: Hoffmann HO-V373()-D
LBA-TCDS number	: 32.130/96
Number	: 3
Propeller data	: 2.7 m three-bladed, pitched, wood composite with lightning protection

5.3 Lateral Thrust Propeller

Type designation	: Hoffmann HO-V123F-0GV
LBA-TCDS number	: 32.130/17
Number	: 1
Propeller data	: 2.2 m three-bladed, pitched, wood composite with lightning protection

6. Fluids

6.1 Fuels

Propulsion Engine	:	Right/Left engine tank	: each 420 L
		Aft engine tank	: 320 L
Fuel	:	AVGAS 100LL	

6.2 Lubricants

Propulsion engine : see Airship Maintenance Manual

7. Air Speeds	Manoeuvring Speed V_A		: 83 km/h
	Never Exceed Speed V_{NE}		: 130 km/h
	Limitations see Airship Flight Manual		
	Deflection angle of control surface		
	All control surfaces		: $\pm$ 20°
8. Maximum Mass	Maximum gondola mass with full FWD fuel		: 2 690 kg
	15 Passengers Gondola with 190 kg FWD fuel and linear interpolation in between		: 3 100 kg
	Maximum static heaviness		
	Take-off and landing		: 400 kg
	Inflight		: 500 kg
	Maximum static lightness		: -200 kg
9. Minimum Flight Crew	1 Pilot		
10. Occupants	Maximum	: 15 Occupants	
		: 17 Occupants (see V.6.)	
	Pilot seats	: 2 Pilots	
	Passenger seats max.	: 13 Passengers	
		: 15 Passengers (see V.6.)	
11. Life Limit Parts	See Airship Maintenance Manual		
12. Lifting gas	Helium Maximum permissible lifting gas pressure : 600 Pa Minimum lifting gas pressure : 300 Pa		
13. Buoyancy Centre	34.15 m aft of bow		
14. Maximum Operating Altitude	Standard configuration : 3 048 m Optional ballonet configuration : see AFM Section 6 Weight & Balance		

IV. Operating and Service Instructions

1. Operating Instructions
   - Airship Flight Manual and Pilot`s Operating Handbook, Document 07 ML 01 200, LBA-approved, as well as all subsequent approved supplements and changes.

2. Service Instructions
   - Airship Maintenance Manual Document 07 ML 05 200 as well as all supplements and changes

V. Notes

1. Manufacturing is confined to industrial production
2. Certified for day / night-VFR flights
3. Certified for commercial passenger transport
4. For registration the Noise Requirements as valid on the day of the application are to be applied
5. The Certification is eligible from serial-no. 002 onwards

SECTION 2: LZ N07-101

I. General

1. Data Sheet No. EASA.AS.001	Issue Date:
2. Type/Variant or Model	LZ N07-101
3. Airworthiness Category	Normal and Commuter Category
4. Type Certificate Holder	Zeppelin Luftschifftechnik GmbH & Co KG Messestr. 132 88046 Friedrichshafen Germany
5. Manufacturer	Zeppelin Luftschifftechnik GmbH & Co KG Messestr. 132 88046 Friedrichshafen Germany
6. Application Date	Type LZ N07 and Variant LZ N07-100: 15 March 1994 Variant LZ N07-101: 08 March 2014
7. LBA Recommendation Date	n/a
8. EASA Type Certification Date	
9. TCDS History	First Issue Variant LZ N07-101

II. Certification Basis

1. Reference Date for Determining the Applicable Requirements	15 March 1994
Certification Basis	Defined by "Type Certification Basis LBA, Document 07 TD 01 004 issue A-03" or later valid versions
Airworthiness Requirements	Airworthiness Requirements for Normal and Commuter Category Airships (LFLS), issue September 1995

Additional Requirements:

CRI C-1/Load	Reliable Load Validation acc. FAR 25.301(b)
CRI D-1/Flam	Flammability of passenger seat cushions
CRI D-13/Ditching	Floating Analysis
CRI D-15/Heating	Installation of Fuel Burning Heater Equipment (Option)
CRI E-1/Prop	Remote driven thrust vector propulsion system

	CRI F-1 HIRF	High intensity radiated fields (HIRF)
	CRI F-1/SWAB	SW Qualification: Transition to RTCA DO-178B/ED-12B
	CRI F-3/ASIC	Electronic Hardware Design Assurance (ASIC)
	CRI F-4/LCD	Liquid Crystal Displays (LCD)
	CRI F-5/COTS	Use of Commercial Off-The Shelf Software Avionics
	Interpretative Material	
	CRI D-2/Belt	Two point shoulder harness for passenger seat
	CRI D-4/ Composite	Composite Aircraft Structure
	CRI D-5/Flight Controls	Interpretation of dual redundant
	CRI D-12/C39b	Seats shall be comply with TSO C39b approved by ZLT
	CRI D-14/ Evacuation	Emergency Evacuation Demonstration and Procedure
	CRI D-16/Toilet	Toilet installation in Cabin
Elected to Comply Requirements	CRI A-1/Noise	External noise certification LuftVG §2
	CRI A-3/CVFR	Minimum equipment LuftBO/FSAV/CVFR/Cabin Safety
	CRI A-4/VFR /CVFR-Night Operation	Minimum equipment VFR/CVFR-Night Operation
Special Conditions	CRI B-3/ Limiter AIU	Speed Control/ AIU/ Limiter
	CRI B-4/Longitude	Longitudinal Control $\pm$30°
	CRI D-6/ Controls Location	Controls Location with Respect to Propeller Hub
	CRI D-7/ Controls Arrangement	Cockpit Controls Arrangement
	CRI D-8/Exit	Additional exit for commuter equivalent safety
	CRI D-10/ Env. Defl.	Rapid Deflation Provisions
	CRI F-6/LED	LED Colour for EPI-PU
Exemptions	none	
Equivalent Level of Safety Findings	CRI B-1/Single Engine fail	Single Engine Failure
	CRI B-2/All Engine out	All Engine Failure
	CRI D-9/Envelope Design	Envelope Design

	CRI D-11/ Pressure System	Pressure System
	CRI E-2/Auxiliary Vectoring	Auxiliary Thrust Vectoring
	CRI F-7/Light	Bow Light Dihedral Angle
Additional Requirements EICAS	Certification Basis Cockpit Display System EICAS	
Environmental Standards	German noise requirements LVL for Aircraft, dated 1 July 2003, part IV, second section *Lärmvorschrift für Luftfahrzeuge (LVL) vom 1. Juli 2003, Teil IV, zweiter Abschnitt*	

III. Technical Characteristics and Operational Limitations

1. Type Design Definition: Airship Configuration List / Type Certification Definition, Document 07 TD 01 060 in the latest valid version

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 on the rigid structure.

3. Equipment: Minimum equipment as defined by document 07 EQ 34 002 and 07 BF 25 602 in the latest valid version

4. Dimensions:

Volume	envelope	: 8425 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)
Length		: 75.1 m
Diameter		: 14.2 m
Maximum width		: 19.5 m
Height		: 19.4 m

5. Powerplant

5.1 Engine

Type designation : Textron-Lycoming IO-360-C1G6

LBA-TCDS number	: 4596
Number	: 3
Maximum permissible RPM	: 2 700 min^{-1}
Maximum permissible continuous RPM	: 2 700 min^{-1}

5.2 Vectored Thrust Propeller

Type designation	: Hoffmann HO-V373()-D
LBA-TCDS number	: 32.130/96
Number	: 3
Propeller data	: 2.7 m three-bladed, pitched, wood composite with lightning protection

5.3 Lateral Thrust Propeller

Type designation	: Hoffmann HO-V123F-0GV
LBA-TCDS number	: 32.130/17
Number	: 1
Propeller data	: 2.2 m three-bladed, pitched, wood composite with lightning protection

6. Fluids

6.1 Fuels

Propulsion Engine	: Right/Left engine tank	: each 420 L
	Aft engine tank	: 320 L
Fuel	: AVGAS 100LL	

6.2 Lubricants

Propulsion engine : see Airship Maintenance Manual

7. Air Speeds

Manoeuvring Speed V_A	: 83 km/h
Never Exceed Speed V_{NE}	: 130 km/h
Limitations see Airship Flight Manual	
Deflection angle of control surface	
All control surfaces	: $\pm$ 20°

8. Maximum Mass

Maximum gondola mass with full FWD fuel : 2 690 kg

	15 Passengers Gondola with 190 kg FWD fuel and linear interpolation in between	: 3 100 kg
	Maximum static heaviness	
	Take-off and landing	: 400 kg
	Inflight	: 500 kg
	Maximum static lightness	: -200 kg
9. Minimum Flight Crew	1 Pilot	
10. Occupants	Maximum	: 17 Occupants
	Pilot seats	: 2 Pilots
	Passenger seats max.	: 15 Passengers
11. Life Limit Parts	See Airship Maintenance Manual	
12. Lifting gas	Helium Maximum permissible lifting gas pressure Minimum lifting gas pressure	 : 600 Pa : 300 Pa
13. Buoyancy Centre	34.15 m aft of bow	
14. Maximum Operating Altitude	Standard configuration Optional ballonet configuration	: 3 048 m : see AFM Section 6 Weight & Balance

IV. Operating and Service Instructions

1. Operating Instructions
   - Airship Flight Manual and Pilot`s Operating Handbook, Document 07 ML 01 201, LBA-approved, as well as all subsequent approved supplements and changes.

2. Service Instructions
   - Airship Maintenance Manual Document 07 ML 05 260 as well as all supplements and changes

V. Notes

1. Manufacturing is confined to industrial production
2. Certified for day / night-VFR flights
3. Certified for commercial passenger transport
4. For registration the Noise Requirements as valid on the day of the application are to be applied
5. The Certification is eligible from serial-no. 005 onwards
6. An airship derivative LZ N07-100 can be converted into a LZ N07-101 derivative. This conversion can only be done by ZLT Maintenance Organisation DE.145.0367 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.

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SECTION A: ADMINISTRATIVE SECTION

A.I Change Record

Issue	Date	Changes	TC Issue No. & Date
Issue 01	28 April 2005	Initial Issue EASA TCDS	Initial Issue 10.05.2005
Issue 02	6 July 2007	Major Change “Maximum Gondola Mass: 2690 kg“	
Issue 03	17 June 2008	Major Change “Airship No 004”	
Issue 04	30 June 2014	Major Change “EICAS Cockpit Display System”	
Issue 05	5 August 2014	New Type LZ N07-101	05.08.2014
Issue 06	12 May 2015	Major Change “Ballonet Configuration B 50”	
Issue 07	13 March 2020	Service Bulletins 07 SB 01 004 and 07 SB 01 005	

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