

#### **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**

#### 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 0 004 issue A-03" or later valid versions	
Airv	vorthiness Requirements	Airworthiness Requirements for Normal and Commuter Category Airships (LFLS), issue September 1995	



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### 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 $\pm 30^\circ$



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	CRI D-6/ Controls Location	Contr Prope	ols Location with Respect to Iler Hub		
	CRI D-7/ Controls Arrangement	Cockp	it Controls Arrangement		
	CRI D-8/Exit	Additional exit for commute equivalent safety			
	CRI D-10/ Env. Defl.	Rapid	Deflation Provisions		
	CRI F-6/LED	LED C	olour for EPI-PU		
Exemptions	none				
Equivalent Level of Safety Findings	CRI B-1/Single Engine fail		il Single Engine Failure		
	CRI B-2/All Engine out		All Engine Failure		
	CRI D-9/Envelope Desig	gn	Envelope Design		
	CRI D-11/ Pressure Syst	em	Pressure System		
	CRI E-2/Auxiliary Vecto	ring	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 Luftfahrze Teil IV, zweiter Abschnitt		ıge (LVL) vom 1. Juli 2003,		

# **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 m <sup>3</sup> ballonet fwd : 600 m <sup>3</sup> , or,				



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5. Powerplant

Len	ballonet a	ft	:	410 m <sup>3</sup> (Option 1 600 m <sup>3</sup> , or 1 065 m <sup>3</sup> (Opti 1 340 m <sup>3</sup> (Option 815 m <sup>3</sup> (Option 75.1 m	n B10/20/30/50) on B20) on B30) n B50)
Diar	neter		:	14.2 m	
Max	kimum width		:	19.5 m	
Heig	2ht			19.4 m	
	5			201111	
5.1	<u>Engine</u>				
	Type designation	n	:	Textron-Lycom	ing IO-360-C1G6
	LBA-TCDS numb	er	r :	4596	
	Number		:	3	
	Maximum permissible RPM		:	2 700 min <sup>-1</sup>	
	Maximum permissible continuous RPM		:	2 700 min <sup>-1</sup>	
5.2	Vectored Thrust	P	ropel	<u>ler</u>	
	Type designation	n	:	Hoffmann HO-	V373()-D
	LBA-TCDS numb	er	:	32.130/96	
	Number		:	3	
	Propeller data		:	2.7 m three-bla wood composi protection	aded, pitched, te with lightning
5.3	Lateral Thrust Pi	í0	pellei	-	
	Type designation	n	:	Hoffmann HO-	/123F-0GV
	LBA-TCDS numb	er	:	32.130/17	
	Number		:	1	
	Propeller data		:	2.2 m three-bla wood composit protection	ided, pitched, te with lightning
6.1	<u>Fuels</u>				
	Propulsion Engine	:	Right <u></u> tank	/Left engine	: each 420 L
			Aft ei	ngine tank	: 320 L
	Fuel	:	AVGA	S 100LL	

6. Fluids

#### \*\*\*\* \* \*\*\*\*

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			6.2	<u>Lubricants</u> Propulsion : engine	se	e Airship Mainten	ar	nce Manual
7	. /	Air Speeds	Man	noeuvring Speed V	Ą		:	83 km/h
			Nev	er Exceed Speed V	NE		:	130 km/h
			Limi	tations see Airship	Fl	ight Manual		
			Defl	ection angle of cor	ntr	ol surface		
			All c	ontrol surfaces			:	± 20°
8	. ſ	Maximum Mass	Max fuel	imum gondola ma	SS	with full FWD	:	2 690 kg
			15 P fuel	assengers Gondola and linear interpo	a v lat	vith 190 kg FWD ion in between	:	3 100 kg
			Max	imum static heavii	ne	SS		
			Т	ake-off and landin	g		:	400 kg
			I	nflight			:	500 kg
			Max	imum static lightn	es	S	:	-200 kg
9	. ſ	Minimum Flight Crew	1 Pil	ot				
1	0. 0	Dccupants	Max	timum	:	15 Occupants		
					:	17 Occupants (se	ee	V.6.)
			Pilot	t seats	:	2 Pilots		
			Pass	enger seats max.	:	13 Passengers		
					:	15 Passengers (s	ee	e V.6.)
1	1. l	ife Limit Parts	See	Airship Maintenan	ice	Manual		
1	2. L	ifting gas	Heli	um				
			Max Mini	imum permissible imum lifting gas pr	lif es	ting gas pressure sure    :3	00	: 600 Pa ) Pa
1	3. E	Buoyancy Centre	34.1	5 m aft of bow				
1	4. 1	Maximum Operating Altitude	Stan Opti conf	dard configuratior onal ballonet figuration	ו: :	3 048 m see AFM Section Weight & Balanc	6 e	
<u>IV. O</u> p	pera	ating and Service Instructions						
1	. (	Operating Instructions	-	Airship Flight Man Document 07 ML ( subsequent appro	ua 01 ve	l and Pilot`s Oper 200, LBA-approve d supplements ar	at edj nd	ing Handbook, , as well as all changes.
2		Service Instructions	- /	Airship Maintenan	ce	Manual Documer	nt	07 ML 05 200 as



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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



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# **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
<u>II. Cer</u>	tification Basis	
1.	Reference Date for Determining the Applicable Requirements	15 March 1994
C	ertification Basis	Defined by "Type Certification Basis LBA, Document 07 TD 004 issue A-03" or later valid versions
A	irworthiness 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



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	CRI F-1 HIRF	High i	ntensity radiated fields (HIRF)		
	CRI F-1/SWAB	SW Q DO-17	ualification: Transition to RTCA 78B/ED-12B		
	CRI F-3/ASIC	Electr Assura	onic Hardware Design ance (ASIC)		
	CRI F-4/LCD	Liquid	Crystal Displays (LCD)		
	CRI F-5/COTS	Use of Softw	f Commercial Off-The Shelf are Avionics		
	Interpretative Material				
	CRI D-2/Belt	Two p passe	ooint shoulder harness for nger seat		
	CRI D-4/ Composite	Comp	osite Aircraft Structure		
	CRI D-5/Flight Controls	Interp	retation of dual redundant		
	CRI D-12/C39b	Seats appro	shall be comply with TSO C39b ved by ZLT		
	CRI D-14/ Evacuation	Emerg Demo	gency Evacuation Instration and Procedure		
	CRI D-16/Toilet	Toilet	installation in Cabin		
Elected to Comply Requirements	CRI A-1/Noise	Exterr	nal noise certification LuftVG §2		
	CRI A-3/CVFR	Minim LuftB(	num equipment D/FSAV/CVFR/Cabin Safety		
	CRI A-4/VFR /CVFR- Night Operation	Minim Opera	num equipment VFR/CVFR-Night ation		
Special Conditions	CRI B-3/ Limiter AIU	Speed	l Control/ AIU/ Limiter		
	CRI B-4/Longitude	Longit	tudinal Control ±30°		
	CRI D-6/ Controls Location	Contro Prope	ols Location with Respect to ller Hub		
	CRI D-7/ Controls Arrangement	Cockp	it Controls Arrangement		
	CRI D-8/Exit	Additi equiva	onal exit for commuter alent safety		
	CRI D-10/ Env. Defl.	Rapid	Deflation Provisions		
	CRI F-6/LED	LED C	olour for EPI-PU		
Exemptions	none				
Equivalent Level of Safety Findings	CRI B-1/Single Engine f	ail Single Engine Failure			
	CRI B-2/All Engine out		All Engine Failure		
	CRI D-9/Envelope Desig	gn	Envelope Design		



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	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 L 1 July 2003, part IV, second se	LVL for Aircraft, dated ection		
	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 ballonet fwd ballonet aft	<ul> <li>8425 m<sup>3</sup></li> <li>600 m<sup>3</sup>, or, 410 m<sup>3</sup> (Option B10/20/30/50)</li> <li>1 600 m<sup>3</sup>, or 1 065 m<sup>3</sup> (Option B20)</li> <li>1 340 m<sup>3</sup> (Option B30)</li> <li>815 m<sup>3</sup> (Option B50)</li> <li>75.1 m</li> </ul>
		Diameter		: 14.2 m
		Maximun	n width	: 19.5 m
		Height		: 19.4 m
5.	Powerplant	5.1 <u>Engir</u> Type	<u>ne</u> designation	: Textron-Lycoming IO-360-C1G6



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			LBA-TCDS number	:	4596	
			Number	:	3	
			Maximum permissible RPM	:	2 700 min <sup>-1</sup>	
			Maximum permissible continuous RPM	:	2 700 min <sup>-1</sup>	
		5.2	Vectored Thrust Pro	pel	ller	
			Type designation	:	Hoffmann HO	-V373()-D
			LBA-TCDS number	:	32.130/96	
			Number	:	3	
			Propeller data	:	2.7 m three-b wood compos protection	laded, pitched, ite with lightning
		5.3	Lateral Thrust Prope	lle	<u>r</u>	
		Type designation	:	Hoffmann HO-	V123F-0GV	
		LBA-TCDS number	:	32.130/17		
			Number	:	1	
			Propeller data	:	2.2 m three-bl wood compos protection	aded, pitched, ite with lightning
6.	Fluids	6.1	<u>Fuels</u>			
			Propulsion : Rig Engine tai	ght nk	/Left engine	: each 420 L
			Af	t e	ngine tank	: 320 L
			Fuel : AV	/G/	AS 100LL	
		6.2	Lubricants Propulsion : see engine	e A	irship Mainten	ance Manual
7.	Air Speeds	Ma	noeuvring Speed V <sub>A</sub>			:83 km/h
		Nev	er Exceed Speed $V_{\text{NE}}$			: 130 km/h
		Lim	itations see Airship Fl	igh	nt Manual	
		Def	lection angle of contr	ol	surface	
		All o	control surfaces			: ±20°
8.	Maximum Mass	Ma: fuel	kimum gondola mass	wi	th full FWD	: 2 690 kg



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	15 Passengers Gondola fuel and linear interpol	: 3 100 kg	
	Maximum static heavir	iess	
	Take-off and landing	B	: 400 kg
	Inflight		: 500 kg
	Maximum static lightne	ess	: -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 Maintenan	ce Manual	
<ol> <li>12. Lifting gas</li> <li>13. Buovancy Centre</li> </ol>	Helium Maximum permissible Minimum lifting gas pr 34.15 m aft of bow	lifting gas pressure essure	: 600 Pa : 300 Pa
14. Maximum Operating Altitude	Standard configuration Optional ballonet configuration	<ul> <li>3 048 m</li> <li>see AFM Section</li> <li>Weight &amp; Balanc</li> </ul>	6 e

### **IV. Operating and Service Instructions**

1.	Operating Instructions	<ul> <li>Airship Flight Manual and Pilot's Operating Handbook, Document 07 ML 01 201, LBA-approved, as well as all subsequent approved supplements and changes.</li> </ul>
2.	Service Instructions	<ul> <li>Airship Maintenance Manual Document 07 ML 05 260 as well as all supplements and changes</li> </ul>

# 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
- 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: <u>ADMINISTRATIVE SECTION</u>

# A.I Change Record

	Date	Changes	TC Issue No.
		Changes	& 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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