## FTR - Flight Test Report Dieser Prüfbericht darf ohne schriftliche Zustimmung der EAPR nicht, auch nicht a

Manufacturer	MAGRARA	Type testing No.	EAPR-GS-0183/14
	MAC PARA TECHNOLOGY Telev Izni 2615 CH-756 Roznov pod Radhostem	serial number	3128-4011
Model	Elan 28	Logation	Achensee
		Location	Achensee



Rev. 2.1 - 06.03.2014 EAPR GmbH - Marktstr. 11 D-87730 Bad Grönenbach - Germany

Date of testing	03.04.2014	Minimum take off v 90 kg	weight	Maximum take off weight 112 kg			
Testpilot		Mario Eder	0	Anselm Rauh			
Harness		EAPR Testgurtzeug		WV Voyager plus			
Pilot's take off weight	t	92 kg		111 kg	1		

Classification C



Test-criteria		Minimum take	e off weight	Evaluation	Maximum tak	e off weight	Evaluation	
1. Inflation / take-off - 4.1.1								
Rising behavior		Smooth, easy a	and constant rising	Α	Smooth, easy a	and constant rising	А	
Special take off technique required		No		А	No		А	
2. Landing - 4.1.2								
Special landing technique required		No		Α	No		Α	
3. Speeds in straight flight - 4.1.3								
Trim speed more than 30km/h		Yes		Α	Yes		Α	
Speed range using the controls larger than 10km/h		Yes		А	Yes	А		
Minimum speed		25 km/h to 30 k	m/h	В	25 km/h to 30 k	km/h	В	
4. Control movement - 4.1.4								
Max. weight in flight up to 80kg				-			-	
Max. weight in flight 80 to 100kg		Increasing	45cm - 60cm	С			-	
Max. weight in flight greater than 100kg				-	Increasing	50cm - 65cm	С	
5. Pitch stability exiting accelerated flight - 4.1	.5							
Dive forward angle on exit		Dive forward less than 30°		Α	Dive forward le	ss than 30°	Α	
Collapse occurs		No		Α	No		Α	
6. Pitch stability operating controls during acc	elerated f	light - 4.1.6						
Collapse occurs		No		А	No		А	
7. Roll stability and damping - 4.1.7								
Oscillations		Reducing		А	Reducing		А	
8. Stability in gentle spirals - 4.1.8								
Tendency to return to straight flight		Spontaneous e	xit	Α	Spontaneous e	exit	A	
9. Behaviour in a steeply banked turn - 4.1.9								
Sink rate after two turns		More than 14m	/s	В	More than 14m	ı/s	В	
10. Symmetric front collapse - 4.1.10			<u>-                                      </u>	D		, -		
Entry		Rocking back le	ess than 45°	A	Rocking back le	ess than 45°	l A	
Recovery	trim speed	Spontaneous in		В		n less than 3 sec	A	
Dive forward angle on exit	. <u>E</u>	30° - 60°	Keeping course	В	30° - 60°	Keeping course	В	
Cascade occurs	=	No	1 3	A	No		A	
Entry	7.	Rocking back less than 45°		A	Rocking back less than 45°		A	
Recovery	accelerated	Spontaneous in	1 3 to 5 sec	В	Spontaneous in	n 3 to 5 sec	В	
Dive forward angle on exit	ccel	30° - 60°	Keeping course	В	30° - 60°	Keeping course	В	
Cascade occurs	Ď	No		Α	No		Α	
11. Exiting deep stall (parachutal stall) - 4.1.11								

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Recovery  Dive forward angle on exit  Change of course Cascade occurs  12. High angle of attack recovery - 4.1.12  Recovery  Cascade occurs  13. Recovery from a developed full stall - 4.1.13  Dive forward angle on exit  Collapse Cascade occurs (other than collapse) Rocking backward Line tension  14. Asymmetric collapse (trim speed) - 4.1.14  Change of course until re-inflation		Spontaneous in less than 3 sec  30° - 60° Changing course less than 45° No  Spontaneous in less than 3 sec No  30° - 60°		A B A A A A A	Spontaneous in 30° - 60° Changing course No Spontaneous in	e less than 45°		A B A A	
Change of course Cascade occurs  12. High angle of attack recovery - 4.1.12 Recovery Cascade occurs  13. Recovery from a developed full stall - 4.1.13 Dive forward angle on exit Collapse Cascade occurs (other than collapse) Rocking backward Line tension  14. Asymmetric collapse (trim speed) - 4.1.14		Changing course less than 45° No  Spontaneous in less than 3 sec No  30° - 60°		A A	Changing course No  Spontaneous in			Α	
Cascade occurs  12. High angle of attack recovery - 4.1.12  Recovery  Cascade occurs  13. Recovery from a developed full stall - 4.1.13  Dive forward angle on exit  Collapse  Cascade occurs (other than collapse)  Rocking backward  Line tension  14. Asymmetric collapse (trim speed) - 4.1.14		No Spontaneous in less than 3 sec No 30° - 60°		A	No Spontaneous in				
12. High angle of attack recovery - 4.1.12  Recovery  Cascade occurs  13. Recovery from a developed full stall - 4.1.13  Dive forward angle on exit  Collapse  Cascade occurs (other than collapse)  Rocking backward  Line tension  14. Asymmetric collapse (trim speed) - 4.1.14		Spontaneous in less than 3 sec No 30° - 60°		А	Spontaneous in	less than 3 sec		A	
Recovery Cascade occurs  13. Recovery from a developed full stall - 4.1.13 Dive forward angle on exit Collapse Cascade occurs (other than collapse) Rocking backward Line tension  14. Asymmetric collapse (trim speed) - 4.1.14		No 30° - 60°			· ·	less than 3 sec			
Cascade occurs  13. Recovery from a developed full stall - 4.1.13 Dive forward angle on exit Collapse Cascade occurs (other than collapse) Rocking backward Line tension  14. Asymmetric collapse (trim speed) - 4.1.14		No 30° - 60°			· ·	less than 3 sec			
13. Recovery from a developed full stall - 4.1.13 Dive forward angle on exit Collapse Cascade occurs (other than collapse) Rocking backward Line tension 14. Asymmetric collapse (trim speed) - 4.1.14		30° - 60°		Α	No			Α	
Dive forward angle on exit  Collapse  Cascade occurs (other than collapse)  Rocking backward  Line tension  14. Asymmetric collapse (trim speed) - 4.1.14						No			
Collapse Cascade occurs (other than collapse) Rocking backward Line tension 14. Asymmetric collapse (trim speed) - 4.1.14					L 000 000				
Cascade occurs (other than collapse) Rocking backward Line tension  14. Asymmetric collapse (trim speed) - 4.1.14		No collapse		B A	30° - 60° No collapse			B A	
Line tension  14. Asymmetric collapse (trim speed) - 4.1.14		No		A	No			A	
14. Asymmetric collapse (trim speed) - 4.1.14	· ·			A	Less than 45° Most lines tight			A	
		Wost lines tight		Α	Wost lines tight			Α	
Change of course until re-inflation		000	450 450		000		450 450		
	trim speed, max 50% collapse	< 90° Dive or roll angle	15° - 45°	A	< 90°	Dive or roll angle	15° - 45°	A .	
Re-inflation behavior	beec coll	Spontaneous re-inflation		Α	Spontaneous re-	inflation		Α	
Total change of course  Collapse on the opposite side occurs	rin 8 50%	Less than 360°	A	Less than 360° No No			A		
Twist occurs	max t	No					A	A	
Cascade occurs		No		A	No			A	
Change of course until re-inflation	Ф	90° - 180° Dive or roll angle	15° - 45°	В	90° - 180°	Dive or roll angle	15° - 45°	В	
Re-inflation behavior	trim speed, max 75% collapse	Spontaneous re-inflation		A	Spontaneous re-	inflation		A	
Total change of course	3% c	Less than 360°		A	Less than 360°			A	
Collapse on the opposite side occurs	trim ax 75	No		Α	No			A	
Twist occurs	ma	No		Α	No			Α	
Cascade occurs		No		Α	No			A	
Change of course until re-inflation	se	< 90° Dive or roll angle	15° - 45°	А	< 90°	Dive or roll angle	15° - 45°	Α	
Re-inflation behavior	accelerated, max 50% collapse	Spontaneous re-inflation		А	Spontaneous re-	inflation		Α	
Total change of course	cele 50%	Less than 360°		Α	Less than 360°			Α	
Collapse on the opposite side occurs Twist occurs	ac Jax	No No		A	No No			A A	
Cascade occurs	⊏	No		A	No			A	
Change of course until re-inflation	e,	90° - 180° Dive or roll angle	45° - 60°	С	90° - 180°	Dive or roll angle	45° - 60°	С	
Re-inflation behavior	accelerated, max 75% collapse	Spontaneous re-inflation		Α	Spontaneous re-	inflation		Α	
Total change of course	elera 5% c	Greater than 360°	С	Less than 360° No			A		
Collapse on the opposite side occurs	acc ax 73	No	Α				Α		
Twist occurs  Cascade occurs	Ĕ	No No		A A	No No			A A	
15. Directional control with a maintained asymmetry	etric col			A	INO			A	
Able to keep course straight		Yes		Α	Yes			Α	
180° turn away from the collapsed side possible in 1	10 sec	Yes		А	Yes			Α	
Amount of control range between turn and stall or sp	pin	More than 50% of the symmetric co	ontrol travel	Α	More than 50% of	of the symmetric co	ontrol travel	А	
16. Trim speed spin tendency - 4.1.16									
Spin occurs		No		Α	No			Α	
17. Low speed spin tendency - 4.1.17 Spin occurs		l No		_	No			٨	
18. Recovery from a developed spin - 4.1.18		140		Α	INU			A	
Spin rotation angle after release		Stops spinning in 90° to 180°		С	Stops spinning in	n 90° to 180°		С	
Cascade occurs		No		Α	No			Α	
19. B-line-stall - 4.1.19									
Change of course before release		Changing course less than 45°	Α	Changing course less than 45°			Α		
Behaviour before release		Remains stable with straight span	Α	Remains stable with straight span			A		
Recovery		Spontaneous in less than 3 sec	Α	Spontaneous in less than 3 sec			Α		
Dive forward angle on exit Cascade occurs		30° - 60° No	A	0° - 30° No	A A				
Cascado Occurs		<u> </u>							
20. Big ears - 4.1.20		Special device required		Α	Special device re	equired		Α	
		Stable flight	Α	Stable flight			A		
20. Big ears - 4.1.20		Otable liight	Recovery through pilot action in less than a further		Recovery through pilot action in less than a further			В	
20. Big ears - 4.1.20 Entry procedure		Recovery through pilot action in les		В	3 sec			A	
20. Big ears - 4.1.20 Entry procedure Behaviour during big ears Recovery				Α	0° bis 30°				
20. Big ears - 4.1.20 Entry procedure Behaviour during big ears		Recovery through pilot action in les 3 sec		A	0° bis 30°				
20. Big ears - 4.1.20  Entry procedure  Behaviour during big ears  Recovery  Dive forward angle on exit		Recovery through pilot action in les 3 sec		A	0° bis 30°  Special device re	equired		A	
20. Big ears - 4.1.20 Entry procedure Behaviour during big ears Recovery Dive forward angle on exit 21. Big Ears in accelerated flight - 4.1.21		Recovery through pilot action in les 3 sec 0° - 30°  Special device required  Stable flight		A A	Special device re				
20. Big ears - 4.1.20  Entry procedure  Behaviour during big ears  Recovery  Dive forward angle on exit  21. Big Ears in accelerated flight - 4.1.21  Entry procedure		Recovery through pilot action in les 3 sec 0° - 30°  Special device required  Stable flight Recovery through pilot action in les		A A	Special device re Stable flight Recovery throug	equired	ss than a further	А	
20. Big ears - 4.1.20  Entry procedure  Behaviour during big ears  Recovery  Dive forward angle on exit  21. Big Ears in accelerated flight - 4.1.21  Entry procedure  Behaviour during big ears		Recovery through pilot action in les 3 sec 0° - 30°  Special device required  Stable flight		A A	Special device re		ss than a further	A A	
20. Big ears - 4.1.20  Entry procedure  Behaviour during big ears  Recovery  Dive forward angle on exit  21. Big Ears in accelerated flight - 4.1.21  Entry procedure  Behaviour during big ears  Recovery	or while	Recovery through pilot action in les 3 sec 0° - 30°  Special device required  Stable flight  Recovery through pilot action in les 3 sec		A A B	Special device re Stable flight Recovery throug 3 sec		ss than a further	A A B	

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Tendency to return to straight flight	Spontaneous exit	А	Spontaneous exit	Α
Turn angle to recover normal flight	720° to 1080°, spontaneous recovery	С	720° to 1080°, spontaneous recovery	С
23. Alternative means of directional control - 4	1.1.23			
180° turn achievable in 20 sec	Yes	А	Yes	А
Stall or spin occurs	No	Α	No	Α
24. Any other flight procedure and/or configur	ation described in the user's manual - 4.1.24			
Procedure works as descibed		NA		NA
Procedure suitable for novice pilots		NA		NA
Cascade occurs		NA		NA
25. Remarks of testpilot:				
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