

Air Turquoise SA Rte du Pré-au-Comte 8 | CH-1844 Villeneuve tel. +41 21 965 65 65 | mobile +41 79 202 52 30 info@para-test.com

## Flight test report: EN



Manufacturer **Dudek Paragliders S.J.** Certification number PG\_0268.2009
Address ul. Centralna 2U Date of flight test 31. 08. 2009

86-031 Osielsko

Poland

Representative None Place of test Villeneuve

Glider model Nucleon 25 Classification C

Trimmer yes: closed

Test pilot Dupont Philippe Thurnheer Claude

Harness Sup' Air - Access S Niviuk Gliders - Hamak M

Total weight in flight (kg)	75		95	
1. Inflation/Take-off	A			
Rising behaviour	Smooth, easy and constant rising	Α	Smooth, easy and constant rising	Α
Special take off technique required	No	Α	No	Α
2. Landing	A			
Special landing technique required	No	Α	No	Α
3. Speed in straight flight	В			
Trim speed more than 30 km/h	Yes	Α	Yes	Α
Speed range using the controls larger than 10 km/h	Yes	Α	Yes	Α
Minimum speed	Less than 25 km/h	Α	25 km/h to 30 km/h	В
4. Control movement	A			
Max. weight in flight up to 80 kg				
Symmetric control pressure / travel	Increasing / greater than 55 cm	Α	not available	0
Max. weight in flight 80 kg to 100 kg				
Symmetric control pressure / travel	not available	0	Increasing / greater than 60 cm	Α
Max. weight in flight greater than 100 kg				
Symmetric control pressure / travel	not available	0	not available	0
5. Pitch stability exiting accelerated flight	A			
Dive forward angle on exit	Dive forward less than 30°	Α	Dive forward less than 30°	Α
Collapse occurs	No	Α	No	Α
6. Pitch stability operating controls during accelerated flight	Α			
Collapse occurs	No	Α	No	Α
7. Roll stability and damping	A			
Oscillations	Reducing	Α	Reducing	Α
8. Stability in gentle spirals	A			
Tendency to return to straight flight	Spontaneous exit	Α	Spontaneous exit	Α
9. Behaviour in a steeply banked turn	В			
Sink rate after two turns	12 m/s to 14 m/s	Α	More than 14 m/s	В
10. Symmetric front collapse	A			
Entry	Rocking back less than 45°	Α	Rocking back less than 45°	Α
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit / Change of course	Dive forward 0° to 30° / Keeping course	Α	Dive forward 0° to 30° / Keeping course	Α
Cascade occurs	No	Α	No	Α
With accelerator				
Entry	Rocking back less than 45°	Α	Rocking back less than 45°	Α
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α

	Dive forward angle on exit / Change of course	Dive forward 0° to 30° / Keeping course	Α	Dive forward 0° to 30° / Keeping course	Α
Peep 1stal achieved	Cascade occurs	No	Α	No	Α
Recovery   Dive forward 0" to 30"	11. Exiting deep stall (parachutal stall)	A			
Dive forward of 19 a001	Deep stall achieved	Yes	Α	Yes	Α
Dive forward of 19 a001	Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Changing course less than 45" A Cascade occurs         A Cascade occurs         A No         A Name         A Name           12. High angle of attack recovery         A Recovery         A Spontaneous in less than 3 s A No         A Spontaneous in less than 3 s A No         A	Dive forward angle on exit		Α		Α
Casende occurs         No         A         No         No         A           12. High angle of attack recovery         A         A         A         No         No         A         No         No         A         No         No         No         No         No         No         No         No         No <td></td> <td>Changing course less than 45°</td> <td>Α</td> <td>Changing course less than 45°</td> <td>Α</td>		Changing course less than 45°	Α	Changing course less than 45°	Α
Name					
Recovery         Spontaneous in less than 3 s         A         Spontaneous in less than 3 s         A           Cascade occurs         No         A         No         A           13. Recovery from a developed full stall         B           Dive forward angle on exit         Dive forward 0° to 30°         A         No collapse         B           Cascade occurs (other than collapses)         No         No         A         No         No         A           Recoking back         Less than 45°         A         No         A         No         A           Line tension         C         C         With 50% collapse         C         With 50% collapse         A         No         A         No           14. Asymmetric collapse         C         C         With 50% collapse         A         No         Institution of the stall o					
Cascade occurs         No         A         No         A           13. Recovery from a developed full stall         B           15. Recovery from a developed full stall         Dive forward 0° to 30°         A         Dive forward 30° to 60°         A           Collapse         No collapse         A         No collapse         A           Collapse         No collapse         A         No collapse         A           Recking back         Less than 45°         A         Less than 45°         A         Less than 45°         A           Line tension         Most lines tight         A         No lost lines tight         A           Line tension         Collapse         C         C         With 50% collapse         C         With 50% collapse         C         With 50% collapse         With 50% collapse         C         Sopontaneous re-inflation         A         Sopontaneous re-inflation         A         No         A           Collapse on the opposite side occurs         No         A         No			Α	Spontaneous in less than 3 s	Α
13.   Recovery from a developed full stall   Dive forward 0° to 30°   A   Dive forward 30° to 60°   B   Dive forward angle on exit   Dive forward 0° to 30°   A   Dive forward 30° to 60°   B   A   Cascade occurs (other than collapses)   No   No   A   No   No   No   A   No   No	•	·		•	
Dive forward angle on exit			•		- ' '
Collapse			Δ	Dive forward 30° to 60°	В
Cascade occurs (other than collapses)   No   Less than 45°   A					
Rocking back   Less than 45°   A   Most lines tight   A   Asymmetric collapse   C   With 50% collapse or course until re-inflation / Maximum dive forward or langle 15° to 45°					
Line tension         Most lines tight         A         Most lines tight         A         Most lines tight         A           14. Asymmetric collapse         C         V					
14. Asymmetric collapse         C           With 50% collapse         0° to 180° / Dive or roll angle 15° to 45°         B         90° to 180° / Dive or roll angle 15° to 45°         B           Re-inflation behaviour         Spontaneous re-inflation         A         Spontaneous re-inflation         A           Collapse on the opposite side occurs         No         A         No         A           Cissacade occurs         No         A         No         A           Cascade occurs         No         A         No         A           Change of course until re-inflation / Maximum dive forward or langle 15° to 45°         B         180° to 380° / Dive or roll angle 15° to 45°         C           Re-inflation behaviour         Spontaneous re-inflation         A         No         A         No <td></td> <td></td> <td></td> <td></td> <td></td>					
With 50% collapse         Or 180° / Dive or roll angle         B         90° to 180° / Dive or roll angle 15° to 45°         B           Re-inflation behaviour         Spontaneous re-inflation         A         Spontaneous re-inflation         A           Total change of course         Less than 360°         A         Less than 360°         A           Collapse on the opposite side occurs         No         A         No         A           Twist occurs         No         A         No         A           Cascade occurs         No         A         No         A           Change of course until re-inflation / Maximum dive forward or roll angle         Total change of course until re-inflation / Maximum dive forward or roll angle         B         180° to 360° / Dive or roll angle 15° roll angle         C           Re-inflation behaviour         Spontaneous re-inflation         A         Spontaneous re-inflation         A           Twist occurs         Less than 360°         A         Less than 360°         A           Collapse on the opposite side occurs         No         A         No         A           Twist occurs         No         A         No         A           Cascade occurs         No         A         No         A           Change of course until re-i		•	А	Most lines tight	А
Change of course until re-inflation / Maximum dive forward or roll angle (15° to 45°	•	C			
Re-inflation behaviour	•		_		
Total change of course		•	В		В
Collapse on the opposite side occurs	Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Twist occurs         No         A         No         A         No         A           Cascade occurs         No         A         No         A         No         A           With 75% collapse         With 75% collapse         Change of course until re-inflation / Maximum dive forward or roll angle 15° to 45°         0         Description of the outs of to 45°         Description of the outs of to 45°         A         No         A         Spontaneous re-inflation         A         Spontaneous re-inflation         A         A         No         A         Collapse of course until re-inflation         A         No         A	Total change of course	Less than 360°	Α	Less than 360°	Α
Cascade occurs         No         A         No         A           With 75% collapse         With 75% collapse         Change of course until re-inflation / Maximum dive forward or langle of 15° to 45°         B         180° to 360° / Dive or roll angle 15° to 45°         Change of course until re-inflation / Maximum dive forward or langle 15° to 45°         Change of course         A         Spontaneous re-inflation         A         Spontaneous re-inflation         A         Spontaneous re-inflation         A         Spontaneous re-inflation         A         No         A           Collapse on the opposite side occurs         No         A         No         A         No         A           Cuscade occurs         No         A         No         A         No         A           Cascade occurs         No         A         No         A         No         A           Change of course until re-inflation / Maximum dive forward or langle of course until re-inflation / Maximum dive forward or langle of course         Spontaneous re-inflation         A         No         No         A         <	Collapse on the opposite side occurs	No	Α	No	Α
With 75% collapse         With 75% collapse         B         180° to 360° / Dive or roll angle 15° to 45° to 45° to 45° to 45° to 45° to 45° to 45°.         Collangle of course until re-inflation / Maximum dive forward or 15° to 45° to 45°.         Collapse or roll angle 15° to 45°.         Collapse or roll angle 15° to 45°.         Collapse or the opposite side occurs         A         Less than 360°         A         Less than 360°         A           Collapse on the opposite side occurs         No         A         No         A           Ciscaced occurs         No         A         No         A           Ciscaced occurs         No         A         No         A           With 50% collapse and accelerator         No         A         No         A           Change of course until re-inflation / Maximum dive forward or roll angle 45° to 60°         90° to 180° / Dive or roll angle 15° to 45°         B           Re-inflation behaviour         Spontaneous re-inflation         A         Spontaneous re-inflation         A           Collapse on the opposite side occurs         No         A         No         A           Ciscade occurs         No         A         No         A           Change of course until re-inflation / Maximum dive forward or roll angle 45° to 60°         C         180° to 360° / Dive or roll angle 45° to 60°         C	Twist occurs	No	Α	No	Α
Change of course until re-inflation / Maximum dive forward or roll angle in 15° to 45°       90° to 180° / Dive or roll angle in 15° to 45°       B to 45° a 50° / Dive or roll angle in 15° to 45°       Change of course or 15° to 45°       B to 45° a 50° / Dive or roll angle in 15° to 45°       Change of course or 15° to 45°       B to 45° a 50° / Dive or roll angle in 15° to 45°       Change of course or 15° to 45°       A less than 360°       A less than 360° to 45°       A less than 360°       A less	Cascade occurs	No	Α	No	Α
roll angle         15" to 45"         to 45"           Re-inflation behaviour         Spontaneous re-inflation         A Spontaneous re-inflation         A Spontaneous re-inflation           7 total change of course         Less than 360"         A No         A Collapse on the opposite side occurs         No         A No         A No         A Twist occurs         No         A No         A No         A No         A With 50% collapse and accelerator         A No         A No         A With 50% collapse and accelerator         Total change of course until re-inflation / Maximum dive forward or loaning lead for the opposite side occurs         90° to 180° / Dive or roll angle for 00 to 45°         Total change of course until re-inflation / Maximum dive forward or langle for ocurse         A No         A Spontaneous re-inflation         A Spontaneous re-inflation         A No         A Spontaneo	With 75% collapse				
Total change of course  Less than 360° A Less than 360° A No		90° to 180° / Dive or roll angle 15° to 45°	В		С
Collapse on the opposite side occurs  No	Re-inflation behaviour	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Twist occurs No No A No No A No No A No No A No A With 50% collapse and accelerator  Change of course until re-inflation / Maximum dive forward or roll angle A5° to 60° to 180° / Dive or roll angle A5° to 60° to 60° to 45° to 45° to 45° to 45° to 45° to 60° A Less than 360° A Less than 360° A Less than 360° A Less than 360° A No A N	Total change of course	Less than 360°	Α	Less than 360°	Α
Twist occurs No No A No No A No No A No No A No A With 50% collapse and accelerator  Change of course until re-inflation / Maximum dive forward or roll angle A5° to 60° to 180° / Dive or roll angle A5° to 60° to 60° to 45° to 45° to 45° to 45° to 45° to 60° A Less than 360° A Less than 360° A Less than 360° A Less than 360° A No A N	Collapse on the opposite side occurs	No	Α	No	Α
With 50% collapse and accelerator         Change of course until re-inflation / Maximum dive forward or roll angle       90° to 180° / Dive or roll angle 45° to 60°       C 90° to 180° / Dive or roll angle 15° to 45°       B         Re-inflation behaviour       Spontaneous re-inflation       A Spontaneous re-inflation       A Spontaneous re-inflation       A         Total change of course       Less than 360°       A No       A No       A         Collapse on the opposite side occurs       No       A No       A         Twist occurs       No       A No       A         Cascade occurs       No       A No       A         With 75% collapse and accelerator       Change of course until re-inflation / Maximum dive forward or roll angle 45° to 60°       Total change of course until re-inflation / Maximum dive forward or roll angle 45° to 60°       C 180° to 360° / Dive or roll angle 45° to 60°       C         Re-inflation behaviour       Spontaneous re-inflation       A Spontaneous re-inflation       A         Total change of course       Less than 360°       A Less than 360°       A         Collapse on the opposite side occurs       No       A No       A         Twist occurs       No       A No       No       A         Cascade occurs       No       A No       No       A         15. Di		No	Α	No	Α
With 50% collapse and accelerator         Change of course until re-inflation / Maximum dive forward or roll angle       90° to 180° / Dive or roll angle 45° to 60°       C 90° to 180° / Dive or roll angle 15° to 45°       B         Re-inflation behaviour       Spontaneous re-inflation       A Spontaneous re-inflation       A Spontaneous re-inflation       A         Total change of course       Less than 360°       A No       A No       A         Collapse on the opposite side occurs       No       A No       A         Twist occurs       No       A No       A         Cascade occurs       No       A No       A         With 75% collapse and accelerator       Change of course until re-inflation / Maximum dive forward or roll angle 45° to 60°       Total change of course until re-inflation / Maximum dive forward or roll angle 45° to 60°       C 180° to 360° / Dive or roll angle 45° to 60°       C         Re-inflation behaviour       Spontaneous re-inflation       A Spontaneous re-inflation       A         Total change of course       Less than 360°       A Less than 360°       A         Collapse on the opposite side occurs       No       A No       A         Twist occurs       No       A No       No       A         Cascade occurs       No       A No       No       A         15. Di	Cascade occurs	No	Α	No	Α
Change of course until re-inflation / Maximum dive forward or roll angle 45° to 60° 20° to 180° / Dive or roll angle 15° de 45° to 60° 30° to 180° / Dive or roll angle 15° de 45° to 45° 30° de 180° / Dive or roll angle 15° de 45° to 45° 30° de 180° / Dive or roll angle 15° de 45° to 45° 30° de 180° / Dive or roll angle 15° de 5°					
Re-inflation behaviour  Total change of course  Less than 360°  No  No  A  Less than 360°  A  Less than 360°  A  Less than 360°  A  Less than 360°  A  No  A  Twist occurs  No  No  A  No  A  No  Cascade occurs  No  No  A  With 75% collapse and accelerator  Change of course until re-inflation / Maximum dive forward or roll angle  Re-inflation behaviour  Spontaneous re-inflation  A  Spontaneous re-inflation  A  Spontaneous re-inflation  A  With 75% collapse and accelerator  Change of course until re-inflation / Maximum dive forward or roll angle  Re-inflation behaviour  Spontaneous re-inflation  A  No  Less than 360°  A  No  B  No  A  No  A  No  A  No  A  No  A  No  No	Change of course until re-inflation / Maximum dive forward or		С	•	В
Total change of course  Less than 360° A Less than 360° A No Collapse on the opposite side occurs No No A Mith 75% collapse and accelerator  Change of course until re-inflation / Maximum dive forward or roll angle Re-inflation behaviour Spontaneous re-inflation A Spontaneous re-inflation A Spontaneous re-inflation A Less than 360° A Less than 360° A Spontaneous re-inflation A Collapse on the opposite side occurs No A	•	Spontaneous re-inflation	Α	Spontaneous re-inflation	Α
Collapse on the opposite side occurs  No No A No A No A No A No A Cascade occurs No No A		•		·	
Twist occurs  No  No  A  No  No  A  No  Cascade occurs  No  No  No  No  No  A  No  No	-				
Cascade occurs  With 75% collapse and accelerator  Change of course until re-inflation / Maximum dive forward or roll angle 45° to 60°  Re-inflation behaviour  Spontaneous re-inflation  A Spontaneous re-inflation  A Spontaneous re-inflation  A Collapse on the opposite side occurs  No  No  A No  Cascade occurs  No  No  A No  A No  15. Directional control with a maintained asymmetric collapse  Able to keep course  Yes  A Yes  A More than 50 % of the symmetric  A					
With 75% collapse and accelerator  Change of course until re-inflation / Maximum dive forward or roll angle 45° to 60°  Re-inflation behaviour  Spontaneous re-inflation  A Spontaneous re-inflation  A Collapse on the opposite side occurs  No  No  A No  Cascade occurs  No  A No					
Change of course until re-inflation / Maximum dive forward or roll angle afs to 60° / Dive or roll angle course until re-inflation / Maximum dive forward or roll angle afs to 60° / Dive afs to		110	,,	110	,,
Re-inflation behaviour  Spontaneous re-inflation A Spontaneous re-inflation A Less than 360° A Less than 360° A Less than 360° A Collapse on the opposite side occurs No A	Change of course until re-inflation / Maximum dive forward or		С		С
Total change of course  Less than 360°  A Less than 360°  A No  A No  A No  A No  A No  Cascade occurs  No  No  A No  A No  A No  A  Cascade occurs  No  A No  A No  A  15. Directional control with a maintained asymmetric collapse  Able to keep course  Yes  A Yes  A Yes  A More than 50 % of the symmetric A  More than 50 % of the symmetric A	-				
Collapse on the opposite side occurs  No A No A No A No A No A No A Cascade occurs No A No A No A No A  15. Directional control with a maintained asymmetric collapse A A No A  A No A No A No A No A No A N		•	Α	•	Α
Twist occurs  No A No	Total change of course	Less than 360°	Α	Less than 360°	Α
Cascade occurs  No A No A No A No A No A No A  15. Directional control with a maintained asymmetric collapse  Able to keep course Yes A 180° turn away from the collapsed side possible in 10 s Amount of control range between turn and stall or spin More than 50 % of the A More than 50 % of the symmetric A			Α		Α
15. Directional control with a maintained asymmetric collapse  Able to keep course  Able to keep course  Yes  A  Yes  A  Yes  A  Yes  A  A  Amount of control range between turn and stall or spin  More than 50 % of the  A  More than 50 % of the symmetric  A	Twist occurs	No	Α	No	Α
collapse  Able to keep course  Able to keep course  Yes  A  Yes  A  Yes  A  Yes  A  A  Amount of control range between turn and stall or spin  More than 50 % of the  A  More than 50 % of the symmetric  A	Cascade occurs	No	Α	No	Α
180° turn away from the collapsed side possible in 10 s  Yes  A Yes  A More than 50 % of the symmetric  A More than 50 % of the symmetric		Α			
Amount of control range between turn and stall or spin More than 50 % of the A More than 50 % of the symmetric A	Able to keep course	Yes	Α	Yes	Α
	180° turn away from the collapsed side possible in 10 s	Yes	Α	Yes	Α
symmetric control travel control travel	Amount of control range between turn and stall or spin		Α		Α
		symmetric control travel		control travel	

16. Trim speed spin tendency	Α			
Spin occurs	No	Α	No	Α
17. Low speed spin tendency	A			
Spin occurs	No	Α	No	Α
18. Recovery from a developed spin	Α			
Spin rotation angle after release	Stops spinning in less than 90°	Α	Stops spinning in less than 90°	Α
Cascade occurs	No	Α	No	Α
19. B-line stall	A			
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	Α
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Cascade occurs	No	Α	No	Α
20. Big ears	В			
Entry procedure	Dedicated controls	Α	Dedicated controls	Α
Behaviour during big ears	Stable flight	Α	Stable flight	Α
Recovery	Spontaneous in less than 3 s	Α	Spontaneous in 3 s to 5 s	В
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
21. Big ears in accelerated flight	В			
Entry procedure	Dedicated controls	Α	Dedicated controls	Α
Behaviour during big ears	Stable flight	Α	Stable flight	Α
Recovery	Recovery through pilot action in less than a further 3 s	В	Spontaneous in 3 s to 5 s	Α
Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Behaviour immediately after releasing the accelerator while maintaining big ears	Stable flight	Α	Stable flight	Α
22. Behaviour exiting a steep spiral	Α			
Tendency to return to straight flight	Spontaneous exit	Α	Spontaneous exit	Α
Turn angle to recover normal flight	Less than 720°, spontaneous recovery	Α	Less than 720°, spontaneous recovery	Α
Sink rate when evaluating spiral stability [m/s]	17		19	
23. Alternative means of directional control	Α			
180° turn achievable in 20 s	Yes	Α	Yes	Α
Stall or spin occurs	No	Α	No	Α
24. Any other flight procedure and/or configuration described in the user's manual	0			
Procedure works as described	not available	0	not available	0
Procedure suitable for novice pilots	not available	0	not available	0
Cascade occurs	not available	0	not available	0
25. Comments of test pilot				
Comments				