## FTR - Flight Test Report

| Manufacturer |  | Type testing No. | EAPR-GS-0568/16 |  |
|--------------|--|------------------|-----------------|--|
|              | Hochriess traße 1<br>D-83126 Flints bach | serial number    |                 |  |
| Model        | Gravis XS                                | Location         | Monte Baldo     |  |
| Comment      |  | Location         | Mt. Baldo       |  |



Rev. 2.3 - 26.11.2014 EAPR GmbH - Marktstr. 11 D-87730 Bad Grönenbach - Germany

| Minimum take off to Date of testing 29.11.2016 60 kg |    | veight Maximum take off<br>75 kg |  | weight             |  |
|--|----|----------------------------------|--|--------------------|--|
| Testpilot  |    |                                  |  | Mike Küng          |  |
| Harness  |    | EAPR Lightequipment              |  | EAPR-Testequipment |  |
| Pilot's take off weig                                | ht | 60 kg                            |  | 75 kg              |  |





| Test-criteria                                       |                    | Minimum take off weight                                  | Evaluation                 | Maximum take off weight                    | Evaluation |  |
|---|--------------------|--|----------------------------|--|------------|--|
| 1. Inflation / take-off - 4.4.1                     |                    |  |                            |  |            |  |
| Rising behavior                                     |                    | no pilot correction required                             | А                          | no pilot correction required               | Α          |  |
| Special take off technique required                 |                    | No   | A                          | No   | A          |  |
|   |                    | INO  | A                          | INO  | А          |  |
| 2. Landing - 4.4.2                                  |                    | LNI  |                            | N.   |            |  |
| Special landing technique required                  |                    | No   | Α                          | No   | A          |  |
| 3. Speeds in straight flight - 4.4.3                |                    |  |                            |  |            |  |
| Trim speed more than 30km/h                         |                    | Yes  | Α                          | Yes  | A          |  |
| Speed range using the controls larger than 10km/h   |                    | Yes  | Α                          | Yes  | Α          |  |
| Minimum speed                                       |                    | Less than 25 km/h  | A Less than 25 km/h        |  |            |  |
| 4. Control movement - 4.4.4                         |                    |  |                            |  |            |  |
| Max. weight in flight up to 80kg                    |                    | Increasing > 55cm  | > 55cm A Increasing > 55cm |  |            |  |
| Max. weight in flight 80 to 100kg                   |                    |  | -                          |  | -          |  |
| Max. weight in flight greater than 100kg            |                    |  | -                          |  | -          |  |
| 5. Pitch stability exiting accelerated flight - 4.4 | .5                 | <b>'</b>   |                            |  |            |  |
| 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 acc    | elerated           | flight - 4.4.6   |                            |  |            |  |
| Collapse occurs                                     |                    | No   | A No                       |  | Α          |  |
| 7. Roll stability and damping - 4.4.7               |                    |  | ,                          |  |            |  |
| Oscillations  |                    | Reducing   | Α                          | Reducing                                   | Α          |  |
| 8. Stability in gentle spirals - 4.4.8              |                    |  | 7, 1,555,19                |  |            |  |
| Tendency to return to straight flight               |                    | Spontaneous exit   | А                          | Spontaneous exit                           | А          |  |
|   |                    |  | A                          | Sportaneous exit                           | А          |  |
| 9. Behaviour exiting a fully developed spiral di    | ve - 4.4.          |  |                            |  |            |  |
| nitial response of glider (first 180°)              |                    | No immediate reaction                                    | В                          | No immediate reaction E                    |            |  |
| Tendency to return to straight flight               |                    | Spontaneous exit   | A                          |  | A          |  |
| Turn angle to recover normal flight                 |                    | Less than 720°, spontaneous recovery                     | Α                          | Less than 720°, spontaneous recovery       | Α          |  |
| 10. Symmetric front collapse - 4.4.10               |                    |  |                            |  |            |  |
| Folding lines used                                  |                    | No   |                            | No   |            |  |
| Entry   | 30%                | Rocking back less than 45°  A Rocking back less than 45° |                            | Rocking back less than 45°                 | Α          |  |
| Recovery  |                    | Spontaneous in less than 3 sec                           | Α                          | Spontaneous in less than 3 sec             | Α          |  |
| Dive forward angle on exit                          | trim speed         | 0° - 30° Keeping course                                  | Α                          | 0° - 30° Entering a turn of less than 90°  | Α          |  |
| Cascade occurs                                      |                    | No   | Α                          | No   | Α          |  |
| Entry   | %09×               | Rocking back less than 45°                               | Α                          | Rocking back less than 45°                 | Α          |  |
| Recovery  | < paeds            | Spontaneous in less than 3 sec                           | Α                          | Spontaneous in less than 3 sec             | Α          |  |
| Dive forward angle on exit                          | - St               | 30° - 60° Keeping course                                 | В                          | 30° - 60° Entering a turn of less than 90° | В          |  |
| Cascade occurs                                      | Σ                  | No   | Α                          | No   | A          |  |
| Entry   | 20%                | Rocking back less than 45°                               | Α                          | Rocking back less than 45°                 | Α          |  |
| Recovery  | accelerated > 50 % | Spontaneous in less than 3 sec                           | Α                          | Spontaneous in less than 3 sec             | Α          |  |
| Dive forward angle on exit                          | ocele              | 30° - 60° Entering a turn of less than 90°               |                            | 30° - 60° Entering a turn of less than 90° | В          |  |
| Cascade occurs                                      |                    | No   | Α                          | No   | Α          |  |
| 11. Exiting deep stall (parachutal stall) - 4.4.11  |                    |  |                            |  |            |  |
| Deep stall achieved                                 |                    | Yes  |                            | Yes  |            |  |
| Recovery  |                    | Spontaneous in less than 3 sec                           | Α                          | Spontaneous in less than 3 sec A           |            |  |
| Dive forward angle on exit                          |                    | 30° - 60°  | В                          | 30° - 60°                                  |            |  |
| Change of course                                    |                    | Changing course less than 45°                            | Α                          | Changing course less than 45°              |            |  |
| Cascade occurs                                      |                    | No   | Α                          | Changing course less than 45° No           |            |  |

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| Recovery  |                                  | Spontaneous in less than 3 sec                |                                |           | Α                                 | Spontaneous in less than 3 sec  |                    |           | А             |
|---|----------------------------------|---|--------------------------------|-----------|-----------------------------------|---------------------------------|--------------------|-----------|---------------|
| Cascade occurs  |                                  | No  |                                | Α         | No                                |                                 |                    | Α         |               |
| 13. Recovery from a developed full stall - 4.4.13   |                                  | ,   |                                |           |                                   |                                 |                    |           |               |
| Dive forward angle on exit  |                                  | 30° - 60°                                     |                                |           | В                                 | 30° - 60°                       |                    |           | В             |
| Cascade occurs (other than collapse)  |                                  | No collapse<br>No                             |                                |           | A                                 | No collapse<br>No               |                    |           | A             |
| Rocking backward  |                                  | Less than 45°                                 |                                |           | Α                                 | Less than 45°                   |                    |           | A             |
| Line tension  |                                  | Most lines tight                              |                                |           | Α                                 | Most lines tight                |                    |           | Α             |
| 14. Asymmetric collapse (trim speed) - 4.4.14   |                                  | No  |                                |           |                                   | No                              |                    |           |               |
| Folding lines used  |                                  | < 90°   | Dive or roll angle             | 150 450   | ^                                 | < 90°                           | Dive or roll angle | 150 450   | ^             |
| Change of course until re-inflation   | apse                             | < 90°   | Dive or roll angle             | 15° - 45° | Α                                 | < 90°                           | Dive or roll angle | 15° - 45° | Α             |
| Re-inflation behavior   | trim speed,<br>max 50% collapse  | Spontaneous re-in                             | Spontaneous re-inflation       |           |                                   | Spontaneous re                  | Α                  |           |               |
| Total change of course  | trim speed<br>x 50% colla        | Less than 360°                                |                                |           | Α                                 | Less than 360°                  |                    |           | Α             |
| Collapse on the opposite side occurs Twist occurs   | nax ;                            | No<br>No                                      | No<br>No                       |           | A                                 | No<br>No                        |                    |           | A             |
| Cascade occurs  | _                                | No  |                                |           | A                                 | No                              |                    |           | A             |
| Change of course until re-inflation   | Φ.                               | 90° - 180°                                    | Dive or roll angle             | 15° - 45° | В                                 | 90° - 180°                      | Dive or roll angle | 15° - 45° | В             |
| De lafferten haber la   | trim speed,<br>max 75% collapse  | 0   | 0-2                            |           |                                   | 0                               | 1-0-0-             |           |               |
| Re-inflation behavior   | eeds<br>ocol                     | Spontaneous re-in                             | ifiation                       |           | Α                                 | Spontaneous re                  | -inflation         |           | Α             |
| Total change of course  Collapse on the opposite side occurs  | trim speed                       | Less than 360°                                |                                | A         | Less than 360°<br>No              |                                 |                    | A         |               |
| Twist occurs  | nag .                            | No<br>No                                      |                                | Α         | No                                |                                 |                    | Α         |               |
| Cascade occurs  |                                  |   |                                | Α         | No                                |                                 |                    | Α         |               |
| Change of course until re-inflation   | 0                                | 90° - 180°                                    | Dive or roll angle             | 15° - 45° | В                                 | 90° - 180°                      | Dive or roll angle | 15° - 45° | В             |
|   | d,                               |   |                                | L         |                                   |                                 |                    | L         |               |
| Re-inflation behavior   | erate                            | Spontaneous re-in                             | itlation                       |           | Α                                 | Spontaneous re                  | -ınflation         |           | Α             |
| Total change of course  | accelerated,<br>max 50% collapse | Less than 360°                                |                                |           | A                                 | Less than 360°                  |                    |           | A             |
| Collapse on the opposite side occurs Twist occurs   | max                              | No<br>No                                      |                                |           | A                                 | No<br>No                        |                    |           | A             |
| Cascade occurs  |                                  | No  |                                |           | Α                                 | No                              |                    |           | Α             |
| Change of course until re-inflation   | Φ.                               | 90° - 180°                                    | Dive or roll angle             | 15° - 45° | В                                 | 90° - 180°                      | Dive or roll angle | 15° - 45° | В             |
| Re-inflation behavior   | accelerated,<br>max 75% collapse | Spontaneous re-in                             | oflation                       | l         | Α                                 | Spontaneous re                  | -inflation         | l         | Α             |
|   | % cc                             |   |                                |           |                                   | Less than 360°                  | mation             |           |               |
| Total change of course  Collapse on the opposite side occurs  | ассе<br>× 75                     | Less than 360° No No                          |                                |           | A                                 | No                              | A                  |           |               |
| Twist occurs  | ma                               |   |                                |           | Α                                 | No                              | Α                  |           |               |
| Cascade occurs  |                                  | No A 4 1 5                                    |                                |           | Α                                 | No                              |                    |           | Α             |
| 15. Directional control with a maintained asymptotic to keep course straight  | intetric co                      | Yes   |                                |           | Α                                 | Yes                             |                    |           | А             |
| 180° turn away from the collapsed side possible i   | n 10 sec                         |   |                                |           | A                                 | Yes                             |                    |           | A             |
| Too turn away norm the collapsed side possible in To sec  |                                  |   |                                |           | ^                                 | 103                             |                    |           |               |
| Amount of control range between turn and stall or spin  |                                  | More than 50% of the symmetric control travel |                                |           | Α                                 | More than 50%                   | Α                  |           |               |
| 16. Trim speed spin tendency - 4.4.16   |                                  |   |                                |           |                                   |                                 |                    |           |               |
| Spin occurs   |                                  | No  |                                |           | Α                                 | No                              | Α                  |           |               |
| 17. Low speed spin tendency - 4.4.17  |                                  | I No  |                                |           |                                   | T No.                           |                    |           |               |
| Spin occurs  18. Recovery from a developed spin - 4.4.18  |                                  | No  |                                |           | Α                                 | No                              |                    |           | А             |
|   |                                  |   |                                |           |                                   | la                              |                    |           |               |
| 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 - 4.4.19  Change of course before release  |                                  | Changing course less than 45°                 |                                |           | Α                                 | Changing course                 | Α                  |           |               |
| Behaviour before release  |                                  |   |                                | A         | Remains stable with straight span |                                 |                    | A         |               |
| Solicition boloid foldado   |                                  | 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  |                                  | 0° - 30°                                      |                                | A         | 30° - 60°                         |                                 |                    | A         |               |
| Cascade occurs  20. Big ears - 4.4.20   |                                  | No  |                                |           | Α                                 | No                              |                    |           | Α             |
| <del>-</del>  |                                  | Orandari III                                  |                                |           |                                   | On the second                   |                    |           |               |
| Entry procedure   |                                  | Standard technique                            |                                | A         | Standard technique                |                                 |                    | A         |               |
| Behaviour during big ears   |                                  | Stable flight                                 |                                |           | A                                 | Stable flight                   |                    |           | A             |
| Recovery  |                                  | Spontaneous in less than 3 sec                |                                |           | Α                                 | Spontaneous in less than 3 sec  |                    |           | Α             |
| Dive forward angle on exit  |                                  | 0° - 30°                                      |                                |           | Α                                 | 0° bis 30°                      |                    |           | Α             |
| 21. Big Ears in accelerated flight - 4.4.21   |                                  | 1   |                                |           |                                   |                                 |                    |           |               |
| Entry procedure   |                                  | Standard technique                            |                                | Α         | Standard technique                |                                 |                    | Α         |               |
| Behaviour during big ears   |                                  | Stable flight                                 |                                | Α         | Stable flight                     |                                 |                    | Α         |               |
|   | Recovery                         |   | Spontaneous in less than 3 sec |           | Α                                 | Spontaneous in less than 3 sec  |                    |           | Α             |
|   | Dive forward angle on exit       |   | 0° - 30°                       |           | Α                                 | 0° bis 30°                      |                    |           | Α             |
| Recovery Dive forward angle on exit   |                                  |   |                                |           | Α                                 | Stable flight                   |                    |           | Α             |
| Recovery Dive forward angle on exit Behaviour immediately after releasing the accelar   | rator while                      | Stable flight                                 |                                |           | A                                 | - tale in girt                  |                    |           |               |
| Recovery Dive forward angle on exit   |                                  |   |                                |           | A                                 | 1                               |                    |           |               |
| Recovery Dive forward angle on exit Behaviour immediately after releasing the accelar maintaining big ears  23. Alternative means of directional control -  |                                  | Stable flight                                 |                                |           |                                   |                                 |                    |           |               |
| Recovery Dive forward angle on exit Behaviour immediately after releasing the accelar maintaining big ears 23. Alternative means of directional control - 180° turn achievable in 20 sec  |                                  | Stable flight Yes                             |                                |           | A                                 | Yes                             |                    |           | A             |
| Recovery Dive forward angle on exit Behaviour immediately after releasing the accelar maintaining big ears  23. Alternative means of directional control - 180° turn achievable in 20 sec Stall or spin occurs  | 4.4.22                           | Stable flight Yes No                          | manual - 4 4 4                 | 23        |                                   |                                 |                    |           | A<br>A        |
| Recovery Dive forward angle on exit Behaviour immediately after releasing the accelar maintaining big ears 23. Alternative means of directional control - 180° turn achievable in 20 sec  | 4.4.22                           | Stable flight Yes No                          | manual - 4.4.                  | 23        | A                                 | Yes                             |                    |           |               |
| Recovery  Dive forward angle on exit  Behaviour immediately after releasing the accelar maintaining big ears  23. Afternative means of directional control -  180° turn achievable in 20 sec  Stall or spin occurs  23. Any other flight procedure and/or configur  Procedure works as descibed  Procedure suitable for novice pilots | 4.4.22                           | Stable flight Yes No                          | manual - 4.4.                  | 23        | A A NA NA                         | Yes                             |                    |           | A<br>NA<br>NA |
| Recovery  Dive forward angle on exit  Behaviour immediately after releasing the accelar maintaining big ears  23. Alternative means of directional control -  180° turn achievable in 20 sec  Stall or spin occurs  23. Any other flight procedure and/or configure  Procedure works as descibed                                      | 4.4.22                           | Stable flight Yes No                          | manual - 4.4.                  | 23        | A A                               | Yes                             |                    |           | A             |

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