

|  |                            |   |
|--|----------------------------|---|
| <b>BOAT</b><br>Name <b>Mareus</b><br>Sail Nr <b>CRO 13464</b>  | <b>GPH</b><br><b>601.3</b> | <b>HULL</b><br>Length Overall <b>11.924m</b><br>Maximum Beam <b>3.770m</b><br>Displacement <b>6,544kg</b><br>Draft <b>2.116m</b><br>IMS Reg. Division <b>Cruiser/Racer</b><br>Dynamic Allowance <b>0.106%</b><br>Fwd Accommodation <b>Yes</b><br>Hull Construction <b>Solid</b><br>Carbon Rudder <b>Yes</b><br>Crew Arm Extension |
| <b>GENERAL</b><br>Class <b>First 40.7</b><br>Designer <b>Farr</b><br>Builder <b>Beneteau</b><br>Series <b>12/1997</b><br>Age <b>06/1999</b><br>Age Allowance <b>0.487%</b><br>Offset File <b>mareusnknr.off - 26/06/2017 10:50:38</b><br>Measurement by <b>Kustic - 16/04/2013</b> |                            | IMSL <b>10.492m</b> VCGD <b>-0.180m</b> Sink <b>21.63kg/mm</b><br>RL <b>8.718m</b> VCGM <b>0.091m</b> WS <b>28.99m<sup>2</sup></b><br>LSMO <b>10.261m</b> Displacement/Length ratio <b>6.0572</b>   |



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**2017**  
ORC International  
Certificate

**Rating Office**

Offshore  
Racing  
Congress



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| SCORING OPTIONS  | COASTAL / LONG DISTANCE |               |               | WINDWARD / LEEWARD |               |               |
|------------------|-------------------------|---------------|---------------|--------------------|---------------|---------------|
|                  | Time On Distance        | <b>587.3</b>  |               |                    | <b>661.8</b>  |               |
| Time On Time     | <b>1.0217</b>           |               |               | <b>1.0200</b>      |               |               |
| Triple Number    | Low                     | Medium        | High          | Low                | Medium        | High          |
| Time on Distance | <b>690.8</b>            | <b>532.5</b>  | <b>472.5</b>  | <b>909.3</b>       | <b>665.7</b>  | <b>573.9</b>  |
| Time on Time     | <b>0.9771</b>           | <b>1.2676</b> | <b>1.4287</b> | <b>0.7423</b>      | <b>1.0140</b> | <b>1.1762</b> |

| TIME ALLOWANCES | 6 kt          | 8 kt         | 10 kt        | 12 kt        | 14 kt        | 16 kt        | 20 kt        |
|-----------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Wind Velocity   | 6 kt          | 8 kt         | 10 kt        | 12 kt        | 14 kt        | 16 kt        | 20 kt        |
| Beat VMG        | <b>1049.7</b> | <b>869.5</b> | <b>766.2</b> | <b>715.1</b> | <b>694.1</b> | <b>683.8</b> | <b>669.6</b> |
| 52°             | <b>679.4</b>  | <b>568.4</b> | <b>508.1</b> | <b>485.0</b> | <b>476.9</b> | <b>472.9</b> | <b>466.1</b> |
| 60°             | <b>627.2</b>  | <b>522.3</b> | <b>485.9</b> | <b>469.6</b> | <b>461.6</b> | <b>457.2</b> | <b>451.2</b> |
| 75°             | <b>566.2</b>  | <b>489.4</b> | <b>462.4</b> | <b>451.8</b> | <b>440.5</b> | <b>431.7</b> | <b>424.7</b> |
| 90°             | <b>549.6</b>  | <b>482.1</b> | <b>456.1</b> | <b>435.2</b> | <b>420.4</b> | <b>412.3</b> | <b>395.7</b> |
| 110°            | <b>598.5</b>  | <b>505.3</b> | <b>463.8</b> | <b>437.7</b> | <b>420.4</b> | <b>398.0</b> | <b>371.8</b> |
| 120°            | <b>631.2</b>  | <b>517.1</b> | <b>470.0</b> | <b>443.2</b> | <b>416.7</b> | <b>394.6</b> | <b>363.6</b> |
| 135°            | <b>698.7</b>  | <b>564.8</b> | <b>492.9</b> | <b>460.9</b> | <b>436.3</b> | <b>411.5</b> | <b>363.8</b> |
| 150°            | <b>830.0</b>  | <b>657.9</b> | <b>554.1</b> | <b>492.1</b> | <b>462.3</b> | <b>439.3</b> | <b>394.4</b> |
| Run VMG         | <b>958.4</b>  | <b>759.7</b> | <b>639.8</b> | <b>561.9</b> | <b>511.2</b> | <b>474.7</b> | <b>429.2</b> |

| Selected Courses   | 6 kt          | 8 kt         | 10 kt        | 12 kt        | 14 kt        | 16 kt        | 20 kt        |
|--------------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Windward / Leeward | <b>1004.1</b> | <b>814.6</b> | <b>703.0</b> | <b>638.5</b> | <b>602.6</b> | <b>579.2</b> | <b>549.4</b> |
| Circular Random    | <b>828.9</b>  | <b>669.2</b> | <b>583.4</b> | <b>533.5</b> | <b>502.5</b> | <b>481.7</b> | <b>454.3</b> |
| Ocean for PCS      | <b>1028.3</b> | <b>792.0</b> | <b>658.5</b> | <b>576.7</b> | <b>523.3</b> | <b>485.7</b> | <b>432.4</b> |
| Non Spinnaker      | <b>892.9</b>  | <b>714.1</b> | <b>616.5</b> | <b>558.8</b> | <b>522.7</b> | <b>498.8</b> | <b>467.7</b> |

| Velocity Prediction in Knots for True Wind Speeds | 6 kt          | 8 kt          | 10 kt         | 12 kt         | 14 kt         | 16 kt         | 20 kt         |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Wind Velocity                                     | 6 kt          | 8 kt          | 10 kt         | 12 kt         | 14 kt         | 16 kt         | 20 kt         |
| Beat Angles                                       | <b>44.0°</b>  | <b>42.8°</b>  | <b>42.8°</b>  | <b>41.4°</b>  | <b>41.1°</b>  | <b>40.8°</b>  | <b>40.6°</b>  |
| Beat VMG  | <b>3.43</b>   | <b>4.14</b>   | <b>4.70</b>   | <b>5.03</b>   | <b>5.19</b>   | <b>5.26</b>   | <b>5.38</b>   |
| 52°   | <b>5.30</b>   | <b>6.33</b>   | <b>7.08</b>   | <b>7.42</b>   | <b>7.55</b>   | <b>7.61</b>   | <b>7.72</b>   |
| 60°   | <b>5.74</b>   | <b>6.89</b>   | <b>7.41</b>   | <b>7.67</b>   | <b>7.80</b>   | <b>7.87</b>   | <b>7.98</b>   |
| 75°   | <b>6.36</b>   | <b>7.36</b>   | <b>7.79</b>   | <b>7.97</b>   | <b>8.17</b>   | <b>8.34</b>   | <b>8.48</b>   |
| 90°   | <b>6.55</b>   | <b>7.47</b>   | <b>7.89</b>   | <b>8.27</b>   | <b>8.56</b>   | <b>8.73</b>   | <b>9.10</b>   |
| 110°  | <b>6.01</b>   | <b>7.12</b>   | <b>7.76</b>   | <b>8.22</b>   | <b>8.56</b>   | <b>9.05</b>   | <b>9.68</b>   |
| 120°  | <b>5.70</b>   | <b>6.96</b>   | <b>7.66</b>   | <b>8.12</b>   | <b>8.64</b>   | <b>9.12</b>   | <b>9.90</b>   |
| 135°  | <b>5.15</b>   | <b>6.37</b>   | <b>7.30</b>   | <b>7.81</b>   | <b>8.25</b>   | <b>8.75</b>   | <b>9.90</b>   |
| 150°  | <b>4.34</b>   | <b>5.47</b>   | <b>6.50</b>   | <b>7.32</b>   | <b>7.79</b>   | <b>8.19</b>   | <b>9.13</b>   |
| Run VMG   | <b>3.76</b>   | <b>4.74</b>   | <b>5.63</b>   | <b>6.41</b>   | <b>7.04</b>   | <b>7.58</b>   | <b>8.39</b>   |
| Gybe Angles                                       | <b>144.5°</b> | <b>148.6°</b> | <b>149.9°</b> | <b>155.9°</b> | <b>170.7°</b> | <b>180.0°</b> | <b>180.0°</b> |

**Certificate**

Number **048/17**  
ORC Ref **CRO00077940**  
Issued On **30/10/2017**  
VPP Ver. **2017 1.00**  
Valid until **31/12/2017**

**Crew Weight**

Declared **810kg**  
Default\* **714kg**  
Non Manual Pwr **No**

**Special Scoring**

|              |              |               |
|--------------|--------------|---------------|
|              | ToD          | ToT           |
| Non Spin GPH | <b>636.4</b> | <b>0.9428</b> |
| Non Spin OSN | <b>618.9</b> | <b>0.9694</b> |

**Sails Limitations**

|           |            |
|-----------|------------|
| Headsails | Spinnakers |
| <b>5</b>  | <b>3</b>   |

**Class Division Length**

CDL = **9.606**

**Storm Sails Areas**


Heavy Weather Jib **33.72**  
Storm Jib (JL=10.27) **12.49**  
Storm Trysail **13.65**

**Owner**

|                      |                                 |
|----------------------|---------------------------------|
| <b>BOAT</b>          |                                 |
| Name <b>Mareus</b>   | Sail Nr <b>CRO 13464</b>        |
| File <b>CRO13464</b> | Data in <b>meters/kilograms</b> |

|  |                  |                       |  |
|--|------------------|-----------------------|--|
| <b>INCLINING TEST AND FREEBOARDS</b>     |                  |                       |  |
| Inclining Test <b>Current Inclining</b>  |                  |                       |  |
| Flotation date <b>03/04/2017</b>         |                  | SG <b>1.0253</b>      |  |
| FFM <b>1.395</b>                         | FF <b>1.394</b>  | SFFP <b>0.292</b>     |  |
| FAM <b>1.140</b>                         | FA <b>1.142</b>  | SAFP <b>11.313</b>    |  |
| W1 <b>100.0</b>                          | PD1 <b>624.3</b> | WD <b>12.400</b>      |  |
| W2 <b>100.0</b>                          | PD2 <b>618.9</b> | GSA <b>1.0</b>        |  |
| W3 <b>100.0</b>                          | PD3 <b>621.9</b> | RSA <b>1.0</b>        |  |
| W4 <b>100.0</b>                          | PD4 <b>627.3</b> | PLM <b>9000.0</b>     |  |
| LCF from stem on CL / on sheer           |                  | <b>6.480 / 6.719</b>  |  |
| Maximum beam station from stem           |                  | <b>7.502</b>          |  |
| RM Measured                              |                  | <b>156.7kg·m</b>      |  |
| RM Default                               |                  | <b>168.2kg·m</b>      |  |
| Limit of positive stability / Stab.Index |                  | <b>116.7° / 118.0</b> |  |
| Freeboard at mast at 4.420               |                  | <b>1.249</b>          |  |

|                                |                            |                   |                   |
|--------------------------------|----------------------------|-------------------|-------------------|
| <b>RIG</b>                     |                            |                   |                   |
| Forestay Tension <b>Aft</b>    | Spreaders <b>3</b>         |                   |                   |
| Inner Stay <b>None Fitted</b>  | Runners <b>0</b>           |                   |                   |
| Carbon Mast <b>No</b>          | Jumper Struts <b>None</b>  |                   |                   |
| Taper Hollows <b>No</b>        | Jib Furler <b>No</b>       |                   |                   |
| Fiber Rigging <b>No</b>        | Main Furler <b>No</b>      |                   |                   |
| Lenticular Rigging <b>No</b>   | Without Backstay <b>No</b> |                   |                   |
| Articulated Bowsprit <b>No</b> |                            |                   |                   |
| P <b>14.547</b>                | E <b>5.360</b>             | MDT1 <b>0.118</b> | MW <b>0.215</b>   |
| IG <b>15.700</b>               | J <b>4.420</b>             | MDL1 <b>0.215</b> | GO <b>0.244</b>   |
| ISP <b>15.790</b>              | SFJ                        | MDT2 <b>0.118</b> | BD <b>0.190</b>   |
| BAS <b>1.720</b>               | SPL <b>4.430</b>           | MDL2 <b>0.180</b> | MWT <b>202.00</b> |
| FSP <b>0.066</b>               | TPS <b>4.460</b>           | TL <b>0.700</b>   | MCG <b>5.680</b>  |




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**2017**

**IMS Measurement Certificate**

**Certificate**

Number **048/17**  
 ORC Ref **CRO00077940**  
 Issued On **30/10/2017**  
 VPP Ver. **2017 1.00**  
 Valid until **31/12/2017**



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|                             |  |
|-----------------------------|--|
| <b>MIZZEN RIG AND SAILS</b> |  |
| N/A                         |  |

|                              |                    |                  |  |
|------------------------------|--------------------|------------------|--|
| <b>PROPELLER</b>             |                    |                  |  |
| Installation <b>Strut</b>    | PRD <b>0.410</b>   |                  |  |
| Type <b>Folding 2 blades</b> | PBW <b>0.110</b>   |                  |  |
| Twin Screw <b>No</b>         | PIPA <b>0.0031</b> |                  |  |
| ST1 <b>0.048</b>             | ST3 <b>0.170</b>   | ST5 <b>0.275</b> |  |
| ST2 <b>0.170</b>             | ST4 <b>0.098</b>   | EDL <b>2.230</b> |  |

|                 |  |
|-----------------|--|
| <b>COMMENTS</b> |  |
|                 |  |

|                         |  |
|-------------------------|--|
| <b>MOVEABLE BALLAST</b> |  |
| N/A                     |  |

|                    |  |
|--------------------|--|
| <b>CENTERBOARD</b> |  |
| N/A                |  |

|                              |       |       |       |      |      |        |          |  |  |
|------------------------------|-------|-------|-------|------|------|--------|----------|--|--|
| <b>SAILS (Maximum Areas)</b> |       |       |       |      |      |        |          |  |  |
| Mainsail                     | MHB   | MUW   | MTW   | MHW  | MQW  | Area   | Area (r) | Formula  |  |
|                              | 0.630 | 1.38  | 2.19  | 3.51 | 4.51 | 47.97  | 49.17    | P/8 · (E + 2·MQW+ 2·MHW + 1.5·MTW + MUW + 0.5·MHB) |  |
| Symmetric                    | SLU   | SLE   | SL    | SHW  | SFL  | 112.53 |          | SL · (SFL + 4·SHW) / 6                             |  |
|                              | 15.68 | 15.68 | 15.68 | 8.75 | 8.06 |        |          |  |  |
| Asymmetric<br>Not Available  |       |       |       |      |      |        |          |  |  |

|   |      |      |      |      |      |       |       |     |     |            |          |         |
|---|------|------|------|------|------|-------|-------|-----|-----|------------|----------|---------|
| <b>HEADSAILS</b>  |      |      |      |      |      |       |       |     |     |            |          |         |
| Area = 0.1125·HLU · (1.445·HLP + 2·HQW + 2·HHW + 1.5·HTW + HUW + 0.5·HHB) |      |      |      |      |      |       |       |     |     |            |          |         |
| HHB   | HUW  | HTW  | HHW  | HQW  | HLP  | HLU   | Area  | Btn | Fly | Meas.Date  | Material | Comment |
| 0.02  | 1.29 | 2.49 | 4.59 | 6.09 | 7.17 | 15.30 | 63.27 |     | Y   | 26/06/2017 | Unknow   | Code 0  |
| 0.12  | 0.68 | 1.28 | 2.38 | 3.48 | 4.53 | 15.58 | 36.68 | Y   |     | 21/06/2017 | Carbon   | Genoa 1 |
| 0.12  | 0.63 | 1.21 | 2.34 | 3.44 | 4.48 | 15.34 | 35.44 | Y   |     | 21/06/2017 | Carbon   | Genoa 2 |
| 0.09  | 0.58 | 1.12 | 2.20 | 3.36 | 4.53 | 15.49 | 34.80 | N   |     | 21/06/2017 | Spectra  | Heavy   |

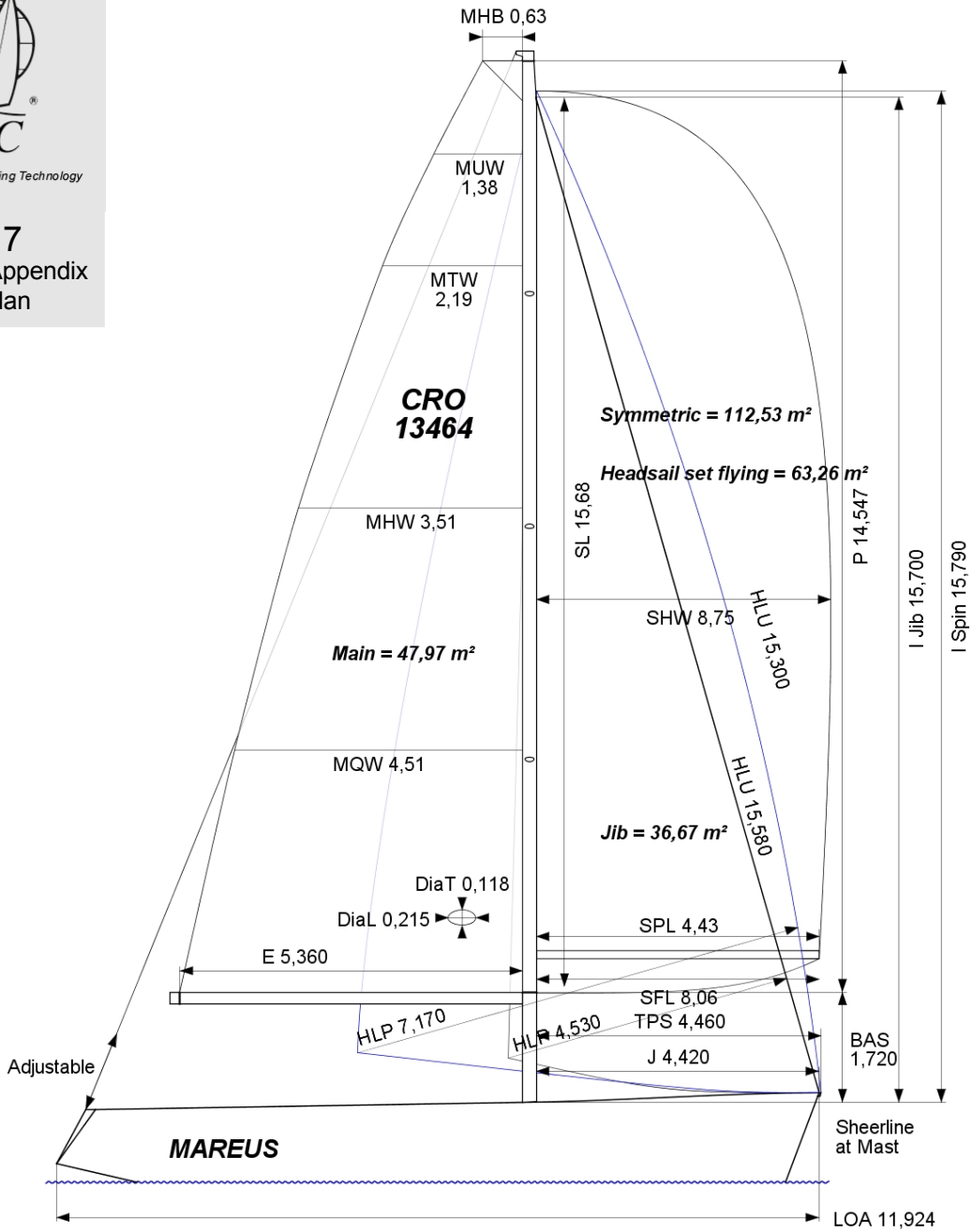
|                               |             |                           |                 |                        |
|-------------------------------|-------------|---------------------------|-----------------|------------------------|
| <b>MEASUREMENT INVENTORY</b>  |             |                           |                 |                        |
| Measurer <b>Kustic CROAK6</b> |             |                           |                 |                        |
| Date <b>23/05/2017</b>        |             |                           |                 |                        |
| Comment                       |             |                           |                 |                        |
| <i>Id</i>                     | <i>Item</i> | <i>Weight</i>             | <i>Distance</i> | <i>VCG Description</i> |
| <i>Id</i>                     | <i>Item</i> | <i>Maker</i>              | <i>Model</i>    |                        |
| 1                             | Engine      | Volvo                     | MD20/40         |                        |
| <i>Id</i>                     | <i>Item</i> | <i>Weight Description</i> |                 |                        |

|                              |             |                 |                  |                          |              |                               |
|------------------------------|-------------|-----------------|------------------|--------------------------|--------------|-------------------------------|
| <b>MEASUREMENT INVENTORY</b> |             |                 |                  |                          |              |                               |
| <i>Id</i>                    | <i>Item</i> | <i>Tank Use</i> | <i>Tank Type</i> | <i>Capcty</i>            | <i>Dist.</i> | <i>VCG Condtn Description</i> |
| 1                            | Tank        | Diesel          | Solid            | 135.0                    | 9.60         | 40.0 CL                       |
| 2                            | Tank        | Water           | Solid            | 180.0                    | 5.70         | 0.0 P                         |
| 3                            | Tank        | Water           | Solid            | 180.0                    | 5.70         | 0.0 S                         |
| <i>Id</i>                    | <i>Item</i> | <i>Weight</i>   | <i>Distance</i>  | <i>VCG Description</i>   |              |                               |
| 1                            | Ballast     | 187.5           | 6.74             | 5 pieces in CL each 37.5 |              |                               |
| 2                            | Ballast     | 80.0            | 6.87             | 2 pieces P/S             |              |                               |
| 3                            | Ballast     | 75.0            | 6.92             | 2 pieces P/S             |              |                               |
| 4                            | Ballast     | 37.5            | 6.92             | 2 pieceS CL              |              |                               |
| 5                            | Ballast     | 18.3            | 6.63             | 1 piece CL               |              |                               |
| 1                            | Battery     | 18.5            | 2.80             | Starter EB740            |              |                               |
| 2                            | Battery     | 29.0            | 3.00             | Service ER 550           |              |                               |



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Certificate Appendix  
Sail Plan



**SAILS INVENTORY**

| MAINSAIL (1)              |       |       |       |      |      |        |          |            |             |             |          |          |            |             |          |               |
|---------------------------|-------|-------|-------|------|------|--------|----------|------------|-------------|-------------|----------|----------|------------|-------------|----------|---------------|
| Id                        | MHB   | MUW   | MTW   | MHW  | MQW  | Area   | Measurer | Meas.Date  | Manufacture | Material    | Comment  |          |            |             |          |               |
| 1                         | 0.630 | 1.38  | 2.19  | 3.51 | 4.51 | 47.97  | Marinov  | 04/10/2016 | North sails | Carbon      |          |          |            |             |          |               |
| HEADSAILS (4)             |       |       |       |      |      |        |          |            |             |             |          |          |            |             |          |               |
| Id                        | HHB   | HUW   | HTW   | HHW  | HQW  | HLP    | HLU      | Ovrlp      | Area        | Btn         | Fly      | Measurer | Meas.Date  | Manufacture | Material | Comment       |
| 4                         | 0.02  | 1.29  | 2.49  | 4.59 | 6.09 | 7.17   | 15.30    | 162%       | 63.27       |             | Y        | Marinov  | 26/06/2017 | North sails | Nylon    | Unknow Code 0 |
| 1                         | 0.12  | 0.68  | 1.28  | 2.38 | 3.48 | 4.53   | 15.58    | 102%       | 36.68       | Y           |          | Kustic   | 21/06/2017 | North sails | Carbon   | Genoa 1       |
| 2                         | 0.12  | 0.63  | 1.21  | 2.34 | 3.44 | 4.48   | 15.34    | 101%       | 35.44       | Y           |          | Kustic   | 21/06/2017 | North sails | Carbon   | Genoa 2       |
| 3                         | 0.09  | 0.58  | 1.12  | 2.20 | 3.36 | 4.53   | 15.49    | 102%       | 34.80       | N           |          | Kustic   | 21/06/2017 | North sails | Nylon    | Spectra Heavy |
| SYMMETRIC SPINNAKERS (5)  |       |       |       |      |      |        |          |            |             |             |          |          |            |             |          |               |
| Id                        | SLU   | SLE   | SL    | SHW  | SFL  | Area   | Measurer | Meas.Date  | Manufacture | Material    | Comment  |          |            |             |          |               |
| 5                         | 15.68 | 15.68 | 15.68 | 8.75 | 8.06 | 112.53 | Marinov  | 26/06/2017 | North sails | Nylon       |          |          |            |             |          |               |
| 2                         | 15.54 | 15.54 | 15.54 | 8.08 | 8.04 | 104.53 | Kustic   | 31/10/2013 | North sails | Nylon       |          |          |            |             |          |               |
| 3                         | 15.49 | 15.49 | 15.49 | 8.10 | 8.00 | 104.30 | Kustic   | 04/06/2010 | North sails | Nylon       |          |          |            |             |          |               |
| 4                         | 15.37 | 15.37 | 15.37 | 8.20 | 7.80 | 104.00 | Kustic   | 16/10/2007 | North sails | Nylon       |          |          |            |             |          |               |
| 1                         | 15.44 | 15.44 | 15.44 | 8.11 | 7.90 | 103.81 | Marinov  | 09/06/2009 | North sails | Nylon       | 0,5      |          |            |             |          |               |
| ASYMMETRIC SPINNAKERS (0) |       |       |       |      |      |        |          |            |             |             |          |          |            |             |          |               |
| Id                        | SLU   | SLE   | SL    | SHW  | SFL  | Area   | Kind     | Measurer   | Meas.Date   | Manufacture | Material | Comment  |            |             |          |               |