

## Model Test Specification

|                    |                      |
|--------------------|----------------------|
| <b>Hull</b>        | <b>KVLCC2</b>        |
| <b>Test type</b>   | <b>Captive (PMM)</b> |
| <b>Water depth</b> | <b>Shallow</b>       |
| <b>Appendages</b>  | <b>Appended</b>      |

### TEST PROGRAM

The basic scope of tests for each water depth is given in the following table:

|                      | Speed $U/U_0$<br>(non-dim.) | Prop. Revs.<br>(non-dim.)<br>at self prop. | Rudder Angle $\delta$<br>(deg) | Drift Angle $\beta$ (deg) | Sway Vel. $v'$<br>(non-dim) | Yaw Vel. $r'$<br>(non-dim) |
|----------------------|-----------------------------|--|--------------------------------|---------------------------|-----------------------------|----------------------------|
| <b>STATIC TESTS</b>  |                             |  |                                |                           |                             |                            |
| static rudder        | 1.00                        | 1.00                                       | $\pm 0, [10], 20, 30, 35$      | 0                         | -                           | -                          |
|                      | 0.80                        | 1.00                                       | $\pm 0, 10, 20, 30, 35$        | 0                         | -                           | -                          |
|                      | 0.50                        | 1.00                                       | $\pm 0, 10, 20, 30, 35$        | 0                         | -                           | -                          |
| static drift         | 1.00                        | 1.00                                       | 0                              | $\pm 0, 0.5, 1, 2, [4]$   | -                           | -                          |
|                      | 0.80                        | 1.00                                       | 0                              | $\pm 0, 4, 8$             | -                           | -                          |
|                      | 0.50                        | 1.00                                       | 0                              | $\pm 0, 8, 12$            | -                           | -                          |
| drift & rudder       | 0.80                        | 1.00                                       | $\pm 0, 10, 20, 30, 35$        | $\pm 4$                   | -                           | -                          |
|                      | 0.50                        | 1.00                                       | $\pm 0, 10, 20, 30, 35$        | $\pm 8$                   | -                           | -                          |
| <b>DYNAMIC TESTS</b> |                             |  |                                |                           |                             |                            |
| pure sway            | 1.00                        | 1.00                                       | -                              | -                         | 0.04, 0.08                  | -                          |
| pure yaw             | 1.00                        | 1.00                                       | -                              | -                         | -                           | 0.05, 0.10, 0.15, [0.20]   |
|                      | 0.80                        | 1.00                                       | -                              | -                         | -                           | 0.30                       |
|                      | 0.50                        | 1.00                                       | -                              | -                         | -                           | 0.60                       |
| yaw & drift          | 0.80                        | 1.00                                       | -                              | $\pm 4$                   | -                           | 0.30                       |
|                      | 0.50                        | 1.00                                       | -                              | $\pm 8$                   | -                           | 0.60                       |
| yaw & rudder         | 0.80                        | 1.00                                       | $\pm 20$                       | -                         | -                           | 0.30                       |
|                      | 0.50                        | 1.00                                       | $\pm 30$                       | -                         | -                           | 0.60                       |

[value]: These tests shall be repeated N times to provide data for uncertainty analysis. N should be at least 3, but preferably 10.

Additional tests for harbour manoeuvring data (if possible):

|                 | Speed $U/U_0$<br>(non-dim.) | Prop. Revs.<br>(non-dim.) | Rudder Angle $\delta$ (deg) | Drift Angle $\beta$ (deg) | Sway Vel. $v'$<br>(non-dim) | Yaw Vel. $r'$<br>(non-dim) |
|-----------------|-----------------------------|---------------------------|-----------------------------|---------------------------|-----------------------------|----------------------------|
| pure cross-flow | 0.30                        | 1.00                      | 0                           | 90                        | -                           | -                          |
| pure rotation   | 0.00                        | 0.00                      | 0                           | 0                         | -                           | $\infty$                   |

Note: Amplitudes and frequencies of PMM motion should be selected based on facility experience.

