

Submission: **TUR 2**

Reporting committee: **ITC**

LONGITUDINAL CREW POSITION

PROPOSAL

To add an optimization of speed using a longitudinal movement of a crew. For this purpose, the center of gravity of the crew shall be calculated as follows:

- 1) Maximum crew trimming moment (MT_{crew}) is calculated considering maximum forward crew position aft of the mast and area $0.5 \times 0.5 \text{ m}^2$ for each crew member:

$$X_{crew} = (J + SFJ) + (0.5 \cdot 0.5 \cdot CrewNumber) / (2 \cdot MB)$$

- 2) For any given wind condition (TWS, TWA) the sailing trim and boat speed (V_s default) in sailing trim is calculated, as usual.
- 3) If transom height is less than zero ($Y < 0$) then longitudinal trimming moment (MT) needed to get $Y=0$ is calculated using Moment Unit Trim (MUT).
- 4) If $MT > MT_{crew}$ then sailing trim and corresponding speed (V_s trimmed) with maximum forward crew position is calculated.
- 5) If $MT < MT_{crew}$ then sailing trim and corresponding speed (V_s trimmed) with $Y=0$ is calculated.
- 6) Maximum of (V_s default; V_s trimmed) is used for further calculations

RATIONALE

For light boats with flat bottom in the aft part the optimization of trim has great importance. Currently, VPP does not consider such possibility.