

## 20' Sportboat Class

### Key West 2010 HANDICAPPING CRITERIA

The handicapping procedures and appeals process for the 20' Sportboat class can be found in the class Rules & Regulations on the event web site ([premiere-racing.com](http://premiere-racing.com)).

The purpose of this document is to spell out the specific handicapping criteria. One design models will be assigned a handicap using systematic procedures applied by the Chief Handicapper and the Sportboat Consortium, based on the speed potential of the model. This will be determined with a combination of an empirical formula (below) and subjective factors which will include observations of previous racing performance using actual race data.

#### Objective Criteria / Numerical Formula:

The numerical formula is based on the Schell regression formula converted to time on time. This formula serves as the basis for rating calculation with modifications to the SA/D calculation to account for the larger spinnakers carried by sportboats. The rough word description for the formula is:

TCN (Time correction number) =  $A / (SBF + 550)$  where A is a constant selected to make a Laser SB3 equal approximately 1.000 and SBF is the Sportboat Factor. The 550 plus the SBF is the approximate time it will take the boats to sail a nautical mile (.5 NM upwind and .5 NM downwind) and is based on actual race results from the past year. The Sportboat Factor = Constant x (constant - (SA/D factor + waterline factor + rig aspect ratio factor + Draft factor))

The Precise formula for the Sportboat Factor is:

$SBF = \text{Constant} * (610 - (6.86 * (SA/Disp^{.667}) + 0.0000511 * (SA^2) - 55 * (\text{Aspect ratio}) - 30.8 * (LWL^{.5}) - 602 * (Draft^2/SA)))$  using Isp and J plus prod for dimensional equations and considering crew weight in the displacement factor.

#### Subjective Factors:

While the nominal value for the overall constant is 1.045, it can vary between 1.0 and 1.1 based on observed performance where available.

Using this formula and observed results for races to date, the TCN's for the sportboats are as follows:

Open 5.7	0.9461
Ultimate 20	0.9556
Laser SB3	1.0000
Melges 20	1.0030
Viper 640	1.0152
Open 650	1.0587
K-650	1.0672

November 12, 2009