

## 4.2 Setting the course

- a) **Course distance** – Regardless the scoring method used (as explained in Section 3) setting up the course includes gathering basic information of the position of the marks, length and compass bearings of each leg as well as wind over the course. The polar diagram data available on ORC Certificates make it is easy to calculate the distance of the course needed to achieve the target elapsed time for the race. ORC International and ORC Club certificates with an optional second page show time allowances for pre-selected course types as follows:

Time Allowances in secs/NM								
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt	24 kt
Beat VMG	916.7	753.8	679.4	648.6	632.5	622.9	614.6	625.5
52°	597.8	507.0	467.0	450.3	442.3	437.2	431.9	432.3
60°	566.0	487.5	452.5	436.4	429.1	424.0	418.1	418.3
75°	544.6	474.6	442.4	424.5	412.8	405.6	395.8	391.6
90°	554.2	477.9	442.5	421.9	406.0	393.2	376.4	366.8
110°	548.3	462.3	425.9	406.8	393.9	382.8	364.6	350.6
120°	558.4	465.8	426.4	400.9	381.0	367.8	345.3	325.6
135°	626.9	497.1	442.4	412.7	387.6	364.5	318.8	283.8
150°	744.0	588.1	495.0	444.7	420.5	401.8	367.5	306.6
Run VMG	859.1	679.1	571.6	513.0	485.5	463.9	415.9	354.0
Selected Courses								
Windward / Leeward	887.9	716.5	625.5	580.8	559.0	543.4	515.2	489.8
All purpose	682.6	562.5	503.7	474.3	457.3	444.5	424.0	406.6

Time allowances are shown in sec/NM that allows easy calculation of length of the course needed to achieve target time for finishing. For example, if there is a windward/leeward race planned with a target time of 01:15:00 hours, the length of course is calculated as:

$$\text{Target time} = 01:15:00 = 4500 \text{ sec}$$

$$\text{Observed wind speed: 10 kts, Time allowance at TWS of 10 kts} = 625.5 \text{ sec / NM}$$

$$\text{Length of the course: Target time / Time allowance} = 4500 / 625.5 = 7.19 \text{ NM}$$

Using the same calculation method for wind of 12 kts and same target time length of the course would yield a result of 7.75 NM. Using this approach, it is easy to build a table of length of the course as a function of wind strength as shown in the example below for a Target time of 01:15:00.

Wind speed (kts)	6	8	10	12	14	16	20	24
Time Allowance (s/NM)	887.9	716.5	625.5	580.8	559.0	543.4	515.2	489.8
Length of the course (NM)	5.07	6.28	7.19	7.75	8.05	8.28	8.73	9.19
Length of the 1 <sup>st</sup> leg (NM)*	1.32	1.62	1.85	1.99	2.06	2.12	2.23	2.35

\* Assuming 2 laps course with 2 windward and 2 leeward legs and the leeward gate at about 0.1 NM windward for the starting line