

Submission: EST 1

Reporting committee: ITC

MINIMUM AWA

PROPOSAL

Establish a minimum AWA for 24 knots of windspeed for windward/leeward courses in the 2025 VPP. For 35–40-foot boats this minimum AWA could be 130-135° or for high performance planning boats it could be smaller.

RATIONALE

In 2024 ORC introduced 24 knots in the time allowance table. Adding a new time allowance turned many *displacement boats* with asymmetric downwind sails to be *high performance planing boats*.

According to figures from the 2024 Speed Guide, a displacement boat should sail 110 AWA and 15-17 degree heel angles in downwind VMG mode, which is too optimistic. In reality these boats are sailing in 20+ knots of wind (as observed in the 2023 ORC Worlds in Kiel) at deep angles, approximately TWA 155-160, with an AWA 135-140. However, the new 2024 VPP, there should be minimum AWA 130-135 in 24 knots to avoid VPP to assume excessive true wind angles and VMG boat speeds in downwind run.

Table 1 provides an example for 4 boats. According to the 2024 speed guide in TWS of 20 knots of wind, SUGAR 3 (Italia 11.98) has the fastest VMG speed (8,13 Kts). If we look at best performance in 24 knots of wind speed, the Italia 11.98 has the lowest VMG speed on a downwind run, 0,52 slower than the similar sized boat J-112. If we look at the boat's performance in 24 kts at 150 TWA (more realistic in windward/leeward races), the fastest boat is the Italia 11.98, 0,09 knots faster than the J-112.

Boat	Sail	TWS	Condition	TWA	BTV	VMG	AWS	AWA	Heel	Reef	Flat
Sugar 3 EST-792	BestPerf	20	run	175,70	8,16	8,13	11,88	172,75	10,14	1	1
Sugar 3 EST-792	BestPerf	24	run	140,19	12,21	9,38	16,58	112,05	17,10	1	1
Shadow EST-113	BestPerf	20	run	175,48	8,02	7,99	12,02	172,46	7,05	1	1
Shadow EST-113	BestPerf	24	run	140,53	12,82	9,90	16,29	110,50	15,31	1	1
Katariina II EST-646	BestPerf	20	run	175,48	7,84	7,82	12,20	172,57	9,91	1	1
Katariina II EST-646	BestPerf	24	run	139,74	12,76	9,74	16,47	109,69	15,90	1	1
Sugar EST774	BestPerf	20	run	175,70	7,81	7,79	12,23	172,95	13,95	1	1
Sugar EST774	BestPerf	24	run	139,74	12,42	9,47	16,59	110,82	15,43	1	1

1. Speed Guide of best performance with the 2024 VPP

Boat	Sail	TWS	Condition	TWA	BTV	VMG	AWS	AWA	Heel	Reef	Flat
Sugar 3 EST-792	BestPerf	20	run	175,70	8,16	8,13	11,88	172,75	10,14	1	1
Sugar 3 EST-792	BP 150	24	reach	150,00	9,98	8,64	16,15	132,00	4,86	1	1
Shadow EST-113	BestPerf	20	run	175,48	8,02	7,99	12,02	172,46	7,05	1	1
Shadow EST-113	BP 150	24	reach	150,00	9,95	8,61	16,17	132,09	2,36	1	1
Katariina II EST-646	BestPerf	20	run	175,48	7,84	7,82	12,20	172,57	9,91	1	1
Katariina II EST-646	BP 150	24	reach	150,00	9,65	8,36	16,37	132,85	4,56	1	1
Sugar EST774	BestPerf	20	run	175,70	7,81	7,79	12,23	172,95	13,95	1	1
Sugar EST774	BP 150	24	reach	150,00	9,67	8,37	16,36	132,81	1,45	1	1

2. Speed Guide, where in 24 knots the TWA is set 150

Table 2 shows the differences in speed on a VPP run with the 2024 VPP. If we compare data from the 2023 Kiel Worlds Race 4, where the Race Committee measured wind speeds at 22-25 knots over a distance of 5 nm, Sugar 3 won the race when scored with the 2023 VPP.

However, with new 2024 VPP the margin in corrected time would be even larger over the J-112`s, such as in Race 5, where the wind was measured at 20-24 knots over a distance of 5,8 nm. SUGAR 3 also won this race by 55 seconds over two J-112`s, with the 2024 VPP scoring margin even larger.

There are other odd figures, such as when comparing the downwind VMG ratings of the Italia 11.98 SUGAR 3 EST-792 vs those of the Italia 9.98 SUGAR EST-774. In 20 knots TWS the Italia 11.98 is rated be faster than the Italia 9.98 by 19,7 sec/mile, but in 24 knots the results are vice-versa, with the smaller 9.98 faster than the 11.98 by 3.8 s/NM.

Downwind run			
Boat	20 kt	24 kt	Delta
Sugar 3 EST-792	442,6	383,8	-58,8
Shadow EST-113	450,5	363,7	-86,7
Katariina II EST-646	460,5	369,7	-90,8
Sugar EST-774	462,3	380,0	-82,3

3. Downwind run comparison of best performance.