

# **FARR<sup>®</sup>**

## **PERFORMANCE PREDICTION**



**DESIGN #374  
40' One-Design  
For Carroll Marine Ltd.**

Farr Yacht Design, Ltd.  
Copyright  
April 22, 1997

P.O. Box 4964, Annapolis, MD 21403 USA  
Tel: (410) 267-0780 Fax: (410) 268-0553  
E-mail: [info@farrdesign.com](mailto:info@farrdesign.com)

## DESCRIPTION OF SYMBOLS IN VPP OUTPUT

The accompanying document contains a large amount information about the predicted performance of your boat. To allow this document to be used as a valuable racing tool we have prepared the following explanation of the important terms it contains.

### **General Terms:**

Vt or TWS	True Wind Speed
Bt or TWA	True Wind Angle
V or Vs	Boat Speed
VMG	Boat Velocity Made Good
HEEL	Heel Angle
REEF	Measure of Reduction in Sail Area
FLAT	Measure of Reduction in Sail Lift
Va, AWS	Apparent Wind Speed
Ba, AWA	Apparent Wind Angle
Lee	Leeway Angle
Sail	Sail Combination Designator (Upwind or Downwind)
Flot	Flotation Designator (Varies Only For Water Ballasted Boats)

### **VPP Polar diagram**

This is a graphical representation of the boats performance across a range of windspeeds and true wind directions. Optimal upwind and downwind conditions are marked as small rectangles on the boat speed contours for each windspeed.

### **Best Boatspeeds**

The upper portion of this page gives a numerical representation of the polar diagram. Boatspeeds in knots are given for a series of true windspeeds at masthead height, across a range of true wind angles. All boatspeeds and windspeeds are given in knots. The shaded cells lie beyond the upwind and downwind optimum points. The two tables on the lower portion of the page provide a ready reference of useful details about the optimum upwind and downwind sailing conditions as a function of the true windspeeds (Vt's) across the top of the page. In addition to indicating the optimum upwind and downwind boat speeds in knots, they are also expressed in seconds/mile and in seconds/boat length. VMG is also expressed in seconds/mile.

### **Course Times**

This page shows the predicted boat performance over a series of 1.0 nautical mile courses in various windspeeds. Times around the course are expressed as seconds. The courses reflect five different course conditions:- LEEWARD, LINEAR RANDOM (LR), WINDWARD-LEEWARD (WL), WINDWARD and CIRCULAR-RANDOM (CR).

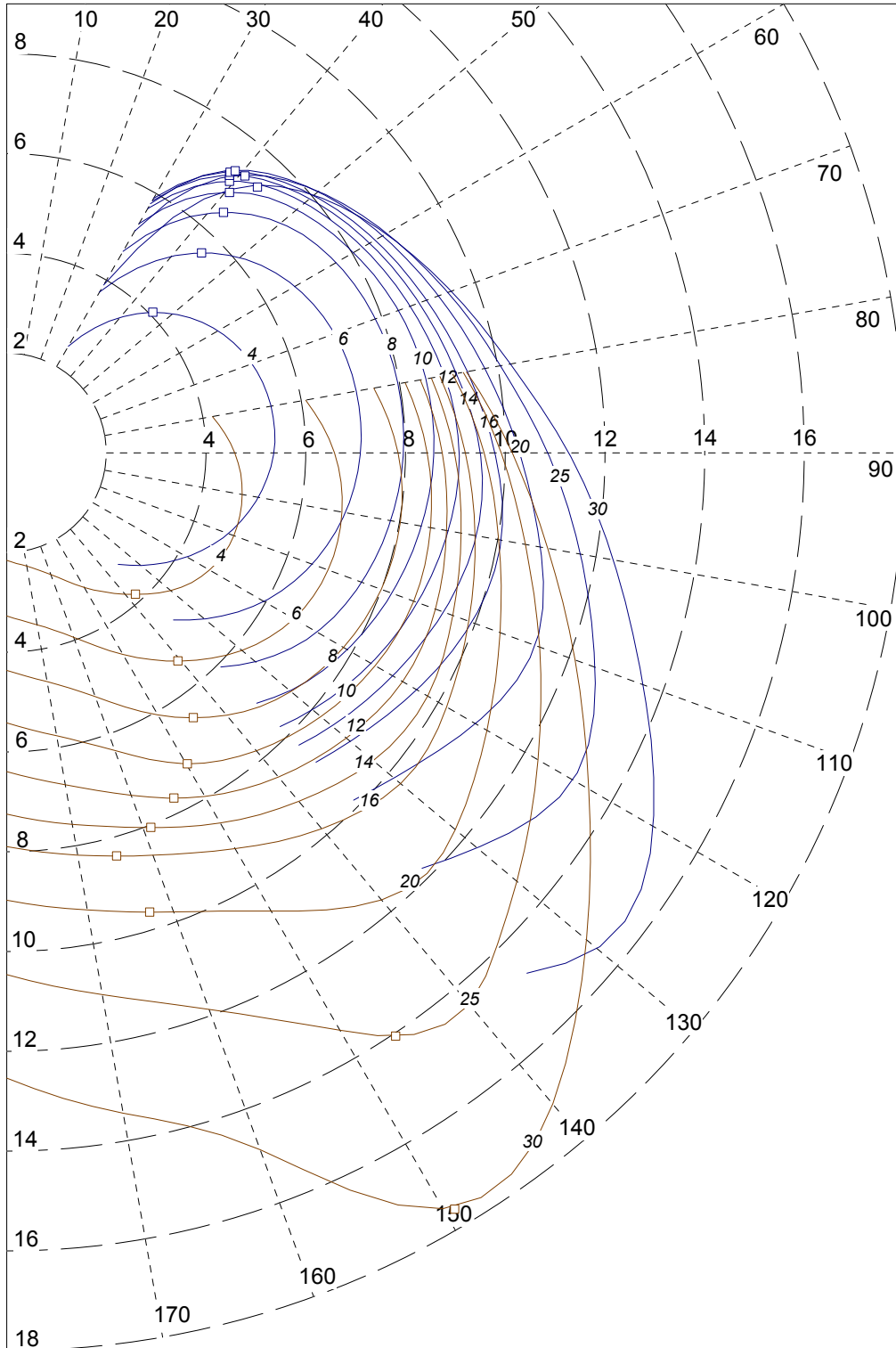
### **Times for 1 nm (secs)**

This page is similar to the Best Boatspeeds page in that it represents the boatspeeds for a series of true windspeeds and true wind angles. Boatspeeds are expressed as seconds/nautical mile. Shaded areas again depict the off optimum conditions. Optimum upwind and downwind values, in terms of VMG, are presented underneath the table.

### **Best Performance**

This page is a detailed representation of the polar diagram showing a list of predicted performance variables for each windspeed over the range of true wind angles. All of those items listed in the "General Terms" section are listed and optimum upwind and downwind settings are included in bold type.

Design 374 - 40 Foot One Design  
For Carroll Marine, Ltd.



Best Boatspeeds (kt)

	4	6	8	10	12	14	16	20	25	30
30.0	2.47	3.72	4.67	5.31	5.66	5.84	5.90	5.77	5.15	3.89
33.0	2.83	4.21	5.25	5.88	6.21	6.38	6.45	6.42	6.04	5.01
36.0	3.16	4.64	5.74	6.33	6.65	6.82	6.90	6.92	6.66	6.00
39.0	3.46	5.02	6.14	6.71	7.01	7.17	7.26	7.30	7.15	6.68
42.0	3.73	5.37	6.49	7.03	7.30	7.43	7.52	7.58	7.50	7.20
45.0	3.98	5.67	6.78	7.28	7.51	7.64	7.73	7.81	7.77	7.57
50.0	4.34	6.09	7.17	7.59	7.80	7.93	8.03	8.14	8.16	8.04
60.0	4.89	6.67	7.63	8.03	8.24	8.41	8.53	8.70	8.80	8.78
70.0	5.23	6.99	7.87	8.36	8.61	8.80	8.96	9.21	9.41	9.48
75.0	5.33	7.08	7.93	8.47	8.77	8.98	9.17	9.48	9.73	9.85
80.0	5.38	7.12	7.97	8.54	8.91	9.16	9.38	9.74	10.06	10.25
90.0	5.36	7.09	7.95	8.56	9.07	9.50	9.79	10.28	10.85	11.27
100.0	5.12	6.89	8.01	8.63	8.99	9.56	10.07	10.86	11.68	12.35
110.0	4.85	6.86	7.99	8.68	9.15	9.52	9.92	11.28	12.55	13.58
120.0	4.69	6.65	7.80	8.53	9.17	9.75	10.19	11.12	13.11	14.97
130.0	4.29	6.16	7.44	8.22	8.89	9.59	10.31	11.74	13.35	15.45
135.0	4.00	5.82	7.19	8.02	8.70	9.37	10.12	11.92	13.92	16.11
140.0	3.69	5.45	6.86	7.79	8.48	9.12	9.83	11.69	14.43	17.03
150.0	3.11	4.66	6.07	7.19	7.95	8.57	9.16	10.60	13.36	17.49
160.0	2.59	3.93	5.20	6.35	7.30	7.99	8.58	9.79	11.87	14.86
170.0	2.30	3.50	4.65	5.76	6.75	7.56	8.18	9.30	11.02	13.44
180.0	2.15	3.27	4.36	5.41	6.38	7.24	7.89	8.96	10.46	12.53
Up.Vs(kts)	4.07	5.60	6.49	6.87	7.04	7.13	7.19	7.28	7.32	7.33
Up.Vs(s/m)	885.2	642.8	554.4	523.7	511.1	504.7	500.6	494.5	491.5	491.1
Up.Vs(s/L)	5.9	4.3	3.7	3.5	3.4	3.4	3.4	3.3	3.3	3.3
Up.Bt	46.2	44.3	42.1	40.6	39.4	38.8	38.5	39.0	40.7	43.4
Up.Vmg(kts)	2.82	4.01	4.82	5.22	5.44	5.56	5.63	5.66	5.55	5.33
Up.Vmg(s/m)	1277.9	898.0	747.0	689.5	661.6	647.5	640.0	636.6	648.5	675.5
Up.Heel	3.6	8.0	14.4	19.0	21.2	22.7	23.0	23.6	24.1	24.6
Up.Reef	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.82	0.71	0.62
Up.Flat	1.00	1.00	1.00	0.87	0.72	0.62	0.63	0.64	0.68	0.75
Up.Va	7.42	10.73	13.47	15.72	17.79	19.78	21.74	25.57	30.20	34.64
Up.Ba	22.8	22.8	22.7	23.0	23.5	24.1	25.0	26.8	29.5	32.7
Up.Leewy	2.39	2.59	3.08	3.34	3.45	3.58	3.76	4.10	4.58	5.11
Dn.Vs(kts)	3.84	5.40	6.50	7.21	7.69	8.04	8.38	9.64	14.06	17.62
Dn.Vs(s/m)	938.2	666.3	554.1	499.5	468.0	447.5	429.8	373.4	256.1	204.3
Dn.Vs(s/L)	6.3	4.5	3.7	3.3	3.1	3.0	2.9	2.5	1.7	1.4
Dn.Bt	137.6	140.5	144.8	149.8	154.1	158.9	164.7	162.7	146.3	149.3
Dn.Vmg(kts)	2.83	4.17	5.31	6.23	6.92	7.51	8.08	9.20	11.69	15.16
Dn.Vmg(s/m)	1269.9	863.2	678.3	577.8	520.2	479.6	445.5	391.1	307.9	237.5
Dn.Heel	0.8	1.5	1.8	1.8	1.6	1.4	1.3	2.5	13.1	16.7
Dn.Reef	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Dn.Flat	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Dn.Va	2.84	3.89	4.61	5.23	6.09	7.11	8.22	11.17	15.11	16.78
Dn.Ba	71.9	78.6	90.5	106.0	120.6	134.9	149.2	147.8	116.5	119.2
Dn.Leewy	0.56	0.49	0.40	0.31	0.24	0.20	0.16	0.21	0.33	0.18

Shaded cells lie outside upwind and downwind optimum sailing angles.

**Course Times**

---

	<u>Leeward</u> <u>1.00 nm.</u>	<u>WL</u> <u>1.00 nm.</u>	<u>LR</u> <u>1.00 nm.</u>	<u>Windward</u> <u>1.00 nm.</u>	<u>CR</u> <u>1.00 nm.</u>
4.0	1269.9	1273.9	892.0	1277.9	943.3
6.0	863.2	880.6	636.9	898.0	665.4
8.0	678.3	712.7	536.4	747.0	553.7
10.0	577.8	633.7	488.9	689.5	502.6
12.0	520.2	590.9	461.1	661.6	474.0
14.0	479.6	563.5	440.0	647.5	453.8
16.0	445.5	542.8	422.6	640.0	438.0
20.0	391.1	513.9	391.3	636.6	412.5
25.0	307.9	478.2	352.1	648.5	386.3
30.0	237.5	456.5	316.6	675.5	370.6

Times for 1 nm (secs)

	4	6	8	10	12	14	16	20	25	30
30.0	1457.2	967.1	771.3	678.1	636.3	616.7	610.5	624.4	699.6	926.6
33.0	1272.9	855.6	686.1	612.6	580.0	564.0	558.0	561.0	596.4	718.5
36.0	1140.6	776.4	627.4	568.6	541.6	528.0	521.5	520.2	540.9	599.5
39.0	1041.6	716.9	585.9	536.7	513.5	502.1	496.2	493.1	503.8	539.3
42.0	965.2	670.8	554.8	512.5	493.5	484.4	478.9	474.8	480.1	499.9
45.0	904.7	634.7	530.9	494.6	479.3	471.2	465.8	460.8	463.2	475.4
50.0	828.9	590.9	502.1	474.5	461.8	454.0	448.3	442.0	441.3	447.8
60.0	735.6	539.5	471.9	448.3	436.7	428.3	422.0	413.6	409.1	410.0
70.0	687.7	514.7	457.5	430.7	418.2	409.1	401.8	390.8	382.5	379.6
75.0	675.2	508.6	453.8	425.2	410.7	400.9	392.7	379.9	369.9	365.3
80.0	668.7	505.7	451.9	421.7	403.9	393.1	383.9	369.6	358.0	351.1
90.0	672.1	507.5	452.6	420.3	396.8	379.0	367.8	350.1	331.8	319.5
100.0	703.2	522.3	449.3	417.2	400.5	376.5	357.6	331.4	308.2	291.5
110.0	742.5	524.9	450.4	414.5	393.4	378.2	362.8	319.2	286.9	265.1
120.0	766.8	541.6	461.7	422.0	392.8	369.4	353.4	323.8	274.6	240.5
130.0	838.7	584.8	483.8	437.7	405.0	375.2	349.0	306.6	269.6	233.0
135.0	900.2	618.8	500.9	448.7	413.9	384.0	355.8	302.0	258.6	223.4
140.0	974.7	660.9	524.7	462.1	424.6	394.9	366.1	307.9	249.4	211.4
150.0	1158.0	771.8	593.6	500.4	452.9	420.2	393.0	339.6	269.4	205.8
160.0	1388.7	916.0	692.8	567.3	493.1	450.7	419.7	367.8	303.3	242.2
170.0	1562.3	1029.6	773.7	625.5	533.3	476.3	440.0	387.0	326.6	267.9
180.0	1673.3	1102.2	826.1	665.6	563.9	497.3	456.3	401.6	344.3	287.3
Up	1277.9	898.0	747.0	689.5	661.6	647.5	640.0	636.6	648.5	675.5
Dn	1269.9	863.2	678.3	577.8	520.2	479.6	445.5	391.1	307.9	237.5

Equivalent ILC Average (using IMS formula): 609.24

Shaded cells lie outside upwind and downwind optimum sailing angles.

**Best Performance**

	TWS	TWA	V	VMG	Heel	Reef	Flat	AWS	AWA	Lee	Sail	Flot
	4.0	30.0	2.470	2.139	2.4	1.000	1.000	6.26	18.6	4.33	Up	37al
	4.0	33.0	2.828	2.372	2.7	1.000	1.000	6.55	19.4	3.68	Up	37al
	4.0	36.0	3.156	2.553	2.9	1.000	1.000	6.81	20.2	3.24	Up	37al
	4.0	39.0	3.456	2.686	3.2	1.000	1.000	7.03	21.0	2.91	Up	37al
	4.0	42.0	3.730	2.772	3.4	1.000	1.000	7.22	21.7	2.66	Up	37al
	4.0	45.0	3.979	2.814	3.6	1.000	1.000	7.37	22.5	2.46	Up	37al
<b>OptUp &gt;</b>	<b>4.0</b>	<b>46.2</b>	<b>4.067</b>	<b>2.817</b>	<b>3.6</b>	<b>1.000</b>	<b>1.000</b>	<b>7.42</b>	<b>22.8</b>	<b>2.39</b>	<b>Up</b>	<b>37al</b>
	4.0	50.0	4.343	2.792	3.8	1.000	1.000	7.56	23.9	2.19	Up	37al
	4.0	60.0	4.894	2.447	4.0	1.000	1.000	7.71	26.6	1.81	Up	37al
	4.0	70.0	5.235	1.790	3.9	1.000	1.000	7.59	29.6	1.53	Up	37al
	4.0	75.0	5.332	1.380	3.8	1.000	1.000	7.44	31.2	1.42	Up	37al
	4.0	80.0	5.384	0.935	3.5	1.000	1.000	7.24	32.9	1.31	Up	37al
	4.0	90.0	5.356	-0.000	3.0	1.000	1.000	6.68	36.7	1.11	Up	37al
	4.0	100.0	5.119	-0.889	2.2	1.000	1.000	5.92	41.7	0.93	Up	37al
	4.0	110.0	4.848	-1.658	2.5	1.000	1.000	5.12	47.2	1.00	Dn	37al
	4.0	120.0	4.695	-2.347	2.0	1.000	1.000	4.39	52.1	0.87	Dn	37al
	4.0	130.0	4.292	-2.759	1.2	1.000	1.000	3.51	60.7	0.71	Dn	37al
<b>OptDn &gt;</b>	<b>4.0</b>	<b>137.6</b>	<b>3.837</b>	<b>2.835</b>	<b>0.8</b>	<b>1.000</b>	<b>1.000</b>	<b>2.84</b>	<b>71.9</b>	<b>0.56</b>	<b>Dn</b>	<b>37al</b>
	4.0	140.0	3.694	-2.829	0.7	1.000	1.000	2.65	76.2	0.51	Dn	37al
	4.0	150.0	3.109	-2.692	0.3	1.000	1.000	2.03	100.1	0.31	Dn	37al
	4.0	160.0	2.592	-2.436	0.1	1.000	1.000	1.80	130.4	0.16	Dn	37al
	4.0	170.0	2.304	-2.269	0.0	1.000	1.000	1.78	157.0	0.08	Dn	37al
	4.0	180.0	2.151	-2.151	-0.0	1.000	1.000	1.85	180.0	-0.00	Dn	37al
	6.0	30.0	3.723	3.224	5.5	1.000	1.000	9.41	18.5	4.28	Up	37al
	6.0	33.0	4.208	3.529	6.2	1.000	1.000	9.79	19.4	3.70	Up	37al
	6.0	36.0	4.637	3.751	6.7	1.000	1.000	10.12	20.3	3.29	Up	37al
	6.0	39.0	5.021	3.902	7.2	1.000	1.000	10.38	21.1	2.98	Up	37al
	6.0	42.0	5.367	3.988	7.7	1.000	1.000	10.60	22.0	2.74	Up	37al
<b>OptUp &gt;</b>	<b>6.0</b>	<b>44.3</b>	<b>5.601</b>	<b>4.009</b>	<b>8.0</b>	<b>1.000</b>	<b>1.000</b>	<b>10.73</b>	<b>22.8</b>	<b>2.59</b>	<b>Up</b>	<b>37al</b>
	6.0	45.0	5.672	4.010	8.1	1.000	1.000	10.77	23.0	2.55	Up	37al
	6.0	50.0	6.092	3.916	8.5	1.000	1.000	10.94	24.6	2.29	Up	37al
	6.0	60.0	6.673	3.336	8.6	1.000	1.000	10.95	28.0	1.90	Up	37al
	6.0	70.0	6.995	2.392	8.0	1.000	1.000	10.63	31.7	1.60	Up	37al
	6.0	75.0	7.078	1.832	7.5	1.000	1.000	10.37	33.7	1.47	Up	37al
	6.0	80.0	7.119	1.236	6.9	1.000	1.000	10.05	35.7	1.35	Up	37al
	6.0	90.0	7.094	-0.000	5.6	1.000	1.000	9.27	40.1	1.13	Up	37al
	6.0	100.0	6.892	-1.197	4.3	1.000	1.000	8.30	45.2	0.93	Up	37al
	6.0	110.0	6.859	-2.346	5.6	1.000	1.000	7.39	49.4	1.05	Dn	37al
	6.0	120.0	6.647	-3.323	4.4	1.000	1.000	6.34	54.9	0.89	Dn	37al
	6.0	130.0	6.156	-3.957	2.9	1.000	1.000	5.13	63.4	0.70	Dn	37al
	6.0	135.0	5.818	-4.114	2.2	1.000	1.000	4.52	69.6	0.60	Dn	37al
	6.0	140.0	5.447	-4.173	1.4	1.000	1.000	3.95	77.6	0.50	Dn	37al
<b>OptDn &gt;</b>	<b>6.0</b>	<b>140.5</b>	<b>5.403</b>	<b>4.170</b>	<b>1.5</b>	<b>1.000</b>	<b>1.000</b>	<b>3.89</b>	<b>78.6</b>	<b>0.49</b>	<b>Dn</b>	<b>37al</b>
	6.0	150.0	4.664	-4.040	0.6	1.000	1.000	3.05	100.1	0.31	Dn	37al
	6.0	160.0	3.930	-3.693	0.2	1.000	1.000	2.67	129.8	0.15	Dn	37al
	6.0	170.0	3.496	-3.443	0.1	1.000	1.000	2.63	156.6	0.08	Dn	37al
	6.0	180.0	3.266	-3.266	-0.0	1.000	1.000	2.73	180.0	-0.00	Dn	37al

**Best Performance (cont)**

	<b>TWS</b>	<b>TWA</b>	<b>V</b>	<b>VMG</b>	<b>Heel</b>	<b>Reef</b>	<b>Flat</b>	<b>AWS</b>	<b>AWA</b>	<b>Lee</b>	<b>Sail</b>	<b>Flot</b>
	8.0	30.0	4.667	4.042	10.1	1.000	1.000	12.25	18.8	4.67	Up	37al
	8.0	33.0	5.247	4.401	11.4	1.000	1.000	12.70	19.7	4.04	Up	37al
	8.0	36.0	5.738	4.642	12.5	1.000	1.000	13.04	20.6	3.62	Up	37al
	8.0	39.0	6.145	4.775	13.6	1.000	1.000	13.30	21.6	3.32	Up	37al
	8.0	42.0	6.489	4.822	14.4	1.000	1.000	13.47	22.6	3.08	Up	37al
<b>OptUp &gt;</b>	<b>8.0</b>	<b>42.1</b>	<b>6.494</b>	<b>4.819</b>	<b>14.4</b>	<b>1.000</b>	<b>1.000</b>	<b>13.47</b>	<b>22.7</b>	<b>3.08</b>	<b>Up</b>	<b>37al</b>
	8.0	45.0	6.781	4.795	15.1	1.000	1.000	13.58	23.7	2.89	Up	37al
	8.0	50.0	7.170	4.608	15.6	1.000	1.000	13.65	25.6	2.61	Up	37al
	8.0	60.0	7.629	3.815	14.7	1.000	1.000	13.42	29.9	2.18	Up	37al
	8.0	70.0	7.868	2.691	12.6	1.000	1.000	12.89	34.7	1.81	Up	37al
	8.0	75.0	7.932	2.053	11.5	1.000	1.000	12.55	37.1	1.65	Up	37al
	8.0	80.0	7.966	1.383	10.3	1.000	1.000	12.15	39.6	1.50	Up	37al
	8.0	90.0	7.954	-0.000	8.1	1.000	1.000	11.22	44.9	1.22	Up	37al
	8.0	100.0	8.013	-1.391	11.7	1.000	1.000	10.17	49.3	1.43	Dn	37al
	8.0	110.0	7.992	-2.734	9.6	1.000	1.000	9.09	54.7	1.22	Dn	37al
	8.0	120.0	7.798	-3.899	7.0	1.000	1.000	7.86	61.1	0.97	Dn	37al
	8.0	130.0	7.441	-4.783	4.6	1.000	1.000	6.53	69.4	0.72	Dn	37al
	8.0	135.0	7.187	-5.082	3.5	1.000	1.000	5.85	74.8	0.61	Dn	37al
<b>OptDn &gt;</b>	<b>8.0</b>	<b>144.8</b>	<b>6.497</b>	<b>5.308</b>	<b>1.8</b>	<b>1.000</b>	<b>1.000</b>	<b>4.61</b>	<b>90.5</b>	<b>0.40</b>	<b>Dn</b>	<b>37al</b>
	8.0	150.0	6.065	-5.252	1.1	1.000	1.000	4.09	102.2	0.30	Dn	37al
	8.0	160.0	5.196	-4.883	0.4	1.000	1.000	3.59	130.3	0.15	Dn	37al
	8.0	170.0	4.653	-4.582	0.2	1.000	1.000	3.51	156.7	0.07	Dn	37al
	8.0	180.0	4.358	-4.358	-0.0	1.000	1.000	3.64	180.0	-0.00	Dn	37al
	10.0	30.0	5.309	4.598	14.8	1.000	0.897	14.78	19.1	4.83	Up	37al
	10.0	33.0	5.877	4.929	16.4	1.000	0.884	15.19	20.1	4.20	Up	37al
	10.0	36.0	6.331	5.122	17.7	1.000	0.875	15.47	21.2	3.78	Up	37al
	10.0	39.0	6.707	5.213	18.6	1.000	0.868	15.66	22.4	3.46	Up	37al
<b>OptUp &gt;</b>	<b>10.0</b>	<b>40.6</b>	<b>6.874</b>	<b>5.221</b>	<b>19.0</b>	<b>1.000</b>	<b>0.867</b>	<b>15.72</b>	<b>23.0</b>	<b>3.34</b>	<b>Up</b>	<b>37al</b>
	10.0	42.0	7.025	5.221	19.4	1.000	0.866	15.77	23.6	3.22	Up	37al
	10.0	45.0	7.278	5.146	20.0	1.000	0.871	15.81	24.8	3.05	Up	37al
	10.0	50.0	7.587	4.877	20.6	1.000	0.887	15.74	27.1	2.85	Up	37al
	10.0	60.0	8.030	4.015	21.2	1.000	0.956	15.33	31.8	2.56	Up	37al
	10.0	70.0	8.358	2.859	19.2	1.000	1.000	14.75	37.0	2.15	Up	37al
	10.0	75.0	8.467	2.191	17.0	1.000	1.000	14.41	39.9	1.90	Up	37al
	10.0	80.0	8.538	1.483	14.8	1.000	1.000	14.01	42.8	1.69	Up	37al
	10.0	90.0	8.565	-0.000	11.0	1.000	1.000	13.03	48.9	1.34	Up	37al
	10.0	100.0	8.629	-1.498	19.8	1.000	1.000	11.55	53.3	1.79	Dn	37al
	10.0	110.0	8.684	-2.970	14.8	1.000	1.000	10.50	59.9	1.41	Dn	37al
	10.0	120.0	8.531	-4.265	10.0	1.000	1.000	9.23	67.5	1.07	Dn	37al
	10.0	130.0	8.225	-5.287	6.4	1.000	1.000	7.82	76.7	0.78	Dn	37al
	10.0	135.0	8.024	-5.673	4.9	1.000	1.000	7.11	82.3	0.65	Dn	37al
	10.0	140.0	7.791	-5.968	3.7	1.000	1.000	6.42	88.8	0.52	Dn	37al
<b>OptDn &gt;</b>	<b>10.0</b>	<b>149.8</b>	<b>7.207</b>	<b>6.230</b>	<b>1.8</b>	<b>1.000</b>	<b>1.000</b>	<b>5.23</b>	<b>106.0</b>	<b>0.31</b>	<b>Dn</b>	<b>37al</b>
	10.0	150.0	7.195	-6.231	1.6	1.000	1.000	5.21	106.3	0.30	Dn	37al
	10.0	160.0	6.346	-5.964	0.6	1.000	1.000	4.58	131.7	0.15	Dn	37al
	10.0	170.0	5.755	-5.668	0.2	1.000	1.000	4.45	157.0	0.08	Dn	37al
	10.0	180.0	5.408	-5.408	-0.0	1.000	1.000	4.59	180.0	-0.00	Dn	37al



**Best Performance (cont)**

	<b>TWS</b>	<b>TWA</b>	<b>V</b>	<b>VMG</b>	<b>Heel</b>	<b>Reef</b>	<b>Flat</b>	<b>AWS</b>	<b>AWA</b>	<b>Lee</b>	<b>Sail</b>	<b>Flot</b>
	12.0	30.0	5.658	4.900	18.0	1.000	0.755	17.03	19.6	4.89	Up	37al
	12.0	33.0	6.207	5.206	19.4	1.000	0.740	17.40	20.8	4.24	Up	37al
	12.0	36.0	6.647	5.377	20.3	1.000	0.729	17.64	22.0	3.80	Up	37al
	12.0	39.0	7.011	5.448	21.1	1.000	0.724	17.79	23.3	3.48	Up	37al
<b>OptUp &gt;</b>	<b>12.0</b>	<b>39.4</b>	<b>7.043</b>	<b>5.441</b>	<b>21.2</b>	<b>1.000</b>	<b>0.724</b>	<b>17.79</b>	<b>23.5</b>	<b>3.45</b>	<b>Up</b>	<b>37al</b>
	12.0	42.0	7.295	5.421	21.7	1.000	0.724	17.85	24.7	3.25	Up	37al
	12.0	45.0	7.511	5.311	22.1	1.000	0.730	17.82	26.2	3.09	Up	37al
	12.0	50.0	7.795	5.011	22.5	1.000	0.749	17.68	28.7	2.89	Up	37al
	12.0	60.0	8.243	4.122	22.3	0.957	0.899	17.18	34.0	2.60	Up	37al
	12.0	70.0	8.609	2.944	22.1	0.958	1.000	16.45	39.4	2.33	Up	37al
	12.0	75.0	8.765	2.269	22.9	1.000	0.978	15.97	42.0	2.23	Up	37al
	12.0	80.0	8.914	1.548	20.8	1.000	1.000	15.59	45.1	1.98	Up	37al
	12.0	90.0	9.072	-0.000	15.0	1.000	1.000	14.72	51.9	1.48	Up	37al
	12.0	100.0	8.989	-1.561	10.4	1.000	1.000	13.52	59.3	1.14	Up	37al
	12.0	110.0	9.150	-3.130	21.5	1.000	1.000	11.64	64.3	1.65	Dn	37al
	12.0	120.0	9.166	-4.583	13.9	1.000	1.000	10.57	72.6	1.18	Dn	37al
	12.0	130.0	8.890	-5.714	8.5	1.000	1.000	9.17	82.6	0.84	Dn	37al
	12.0	135.0	8.697	-6.150	6.5	1.000	1.000	8.43	88.6	0.70	Dn	37al
	12.0	140.0	8.479	-6.495	4.8	1.000	1.000	7.72	95.3	0.56	Dn	37al
<b>OptDn &gt;</b>	<b>12.0</b>	<b>154.1</b>	<b>7.693</b>	<b>6.921</b>	<b>1.6</b>	<b>1.000</b>	<b>1.000</b>	<b>6.09</b>	<b>120.6</b>	<b>0.24</b>	<b>Dn</b>	<b>37al</b>
	12.0	160.0	7.301	-6.861	0.9	1.000	1.000	5.71	134.1	0.16	Dn	37al
	12.0	170.0	6.751	-6.648	0.4	1.000	1.000	5.48	157.6	0.08	Dn	37al
	12.0	180.0	6.384	-6.384	-0.0	1.000	1.000	5.62	180.0	-0.00	Dn	37al
	14.0	30.0	5.838	5.055	20.3	1.000	0.639	19.12	20.1	5.03	Up	37al
	14.0	33.0	6.382	5.353	21.4	1.000	0.625	19.46	21.4	4.33	Up	37al
	14.0	36.0	6.818	5.516	22.2	1.000	0.615	19.68	22.8	3.87	Up	37al
<b>OptUp &gt;</b>	<b>14.0</b>	<b>38.8</b>	<b>7.133</b>	<b>5.560</b>	<b>22.7</b>	<b>0.995</b>	<b>0.619</b>	<b>19.78</b>	<b>24.1</b>	<b>3.58</b>	<b>Up</b>	<b>37al</b>
	14.0	39.0	7.170	5.572	22.7	0.993	0.622	19.80	24.2	3.54	Up	37al
	14.0	42.0	7.432	5.523	22.9	0.970	0.660	19.81	25.8	3.35	Up	37al
	14.0	45.0	7.640	5.402	22.8	0.948	0.703	19.77	27.5	3.19	Up	37al
	14.0	50.0	7.929	5.097	22.7	0.917	0.780	19.61	30.3	2.99	Up	37al
	14.0	60.0	8.405	4.203	22.4	0.877	0.942	19.05	36.0	2.67	Up	37al
	14.0	70.0	8.799	3.009	22.3	0.897	1.000	18.24	41.8	2.35	Up	37al
	14.0	75.0	8.979	2.324	22.4	0.923	1.000	17.75	44.8	2.20	Up	37al
	14.0	80.0	9.157	1.590	22.5	0.953	1.000	17.22	47.7	2.06	Up	37al
	14.0	90.0	9.498	-0.000	20.3	1.000	1.000	16.20	54.1	1.67	Up	37al
	14.0	100.0	9.561	-1.660	13.5	1.000	1.000	15.18	62.0	1.21	Up	37al
	14.0	110.0	9.519	-3.256	22.2	0.930	1.000	13.07	68.8	1.63	Dn	37al
	14.0	120.0	9.745	-4.873	19.6	1.000	1.000	11.75	76.5	1.31	Dn	37al
	14.0	130.0	9.594	-6.167	11.3	1.000	1.000	10.54	86.8	0.89	Dn	37al
	14.0	135.0	9.374	-6.629	8.4	1.000	1.000	9.81	93.1	0.74	Dn	37al
	14.0	140.0	9.116	-6.983	6.1	1.000	1.000	9.09	100.2	0.59	Dn	37al
	14.0	150.0	8.567	-7.419	2.9	1.000	1.000	7.84	117.0	0.34	Dn	37al
<b>OptDn &gt;</b>	<b>14.0</b>	<b>158.9</b>	<b>8.044</b>	<b>7.507</b>	<b>1.4</b>	<b>1.000</b>	<b>1.000</b>	<b>7.11</b>	<b>134.9</b>	<b>0.20</b>	<b>Dn</b>	<b>37al</b>
	14.0	160.0	7.988	-7.506	1.2	1.000	1.000	7.05	137.2	0.18	Dn	37al
	14.0	170.0	7.558	-7.443	0.5	1.000	1.000	6.69	158.7	0.09	Dn	37al
	14.0	180.0	7.239	-7.239	-0.0	1.000	1.000	6.76	180.0	-0.00	Dn	37al

**Best Performance (cont)**

	<b>TWS</b>	<b>TWA</b>	<b>V</b>	<b>VMG</b>	<b>Heel</b>	<b>Reef</b>	<b>Flat</b>	<b>AWS</b>	<b>AWA</b>	<b>Lee</b>	<b>Sail</b>	<b>Flot</b>
	16.0	30.0	5.897	5.107	21.9	1.000	0.546	21.10	20.6	5.25	Up	37al
	16.0	33.0	6.452	5.411	22.5	0.978	0.561	21.44	22.1	4.50	Up	37al
	16.0	36.0	6.903	5.584	22.8	0.948	0.595	21.66	23.6	4.01	Up	37al
<b>OptUp &gt;</b>	<b>16.0</b>	<b>38.5</b>	<b>7.191</b>	<b>5.625</b>	<b>23.0</b>	<b>0.927</b>	<b>0.627</b>	<b>21.74</b>	<b>25.0</b>	<b>3.76</b>	<b>Up</b>	<b>37al</b>
	16.0	39.0	7.256	5.639	23.0	0.923	0.633	21.76	25.2	3.69	Up	37al
	16.0	42.0	7.517	5.586	23.0	0.898	0.677	21.77	26.9	3.47	Up	37al
	16.0	45.0	7.729	5.465	23.0	0.879	0.720	21.71	28.7	3.31	Up	37al
	16.0	50.0	8.030	5.161	22.9	0.853	0.798	21.51	31.7	3.09	Up	37al
	16.0	60.0	8.532	4.266	22.5	0.812	0.975	20.91	37.7	2.74	Up	37al
	16.0	70.0	8.959	3.064	22.6	0.844	1.000	20.02	43.9	2.38	Up	37al
	16.0	75.0	9.167	2.372	22.7	0.870	1.000	19.50	47.0	2.22	Up	37al
	16.0	80.0	9.378	1.628	22.8	0.898	1.000	18.94	50.1	2.05	Up	37al
	16.0	90.0	9.788	-0.000	22.8	0.967	1.000	17.70	56.4	1.75	Up	37al
	16.0	100.0	10.068	-1.748	17.8	1.000	1.000	16.68	64.1	1.30	Up	37al
	16.0	110.0	9.922	-3.394	11.0	1.000	1.000	15.41	73.2	0.95	Up	37al
	16.0	120.0	10.186	-5.093	22.9	0.968	1.000	12.95	80.3	1.37	Dn	37al
	16.0	130.0	10.315	-6.630	15.2	1.000	1.000	11.83	89.9	0.93	Dn	37al
	16.0	135.0	10.117	-7.154	10.9	1.000	1.000	11.17	96.1	0.76	Dn	37al
	16.0	140.0	9.833	-7.532	7.8	1.000	1.000	10.47	103.4	0.61	Dn	37al
	16.0	150.0	9.160	-7.932	3.7	1.000	1.000	9.26	120.5	0.36	Dn	37al
<b>OptDn &gt;</b>	<b>16.0</b>	<b>164.7</b>	<b>8.376</b>	<b>8.080</b>	<b>1.3</b>	<b>1.000</b>	<b>1.000</b>	<b>8.22</b>	<b>149.2</b>	<b>0.16</b>	<b>Dn</b>	<b>37al</b>
	16.0	170.0	8.182	-8.057	0.7	1.000	1.000	8.07	159.9	0.10	Dn	37al
	16.0	180.0	7.889	-7.889	-0.0	1.000	1.000	8.11	180.0	-0.00	Dn	37al
	20.0	30.0	5.766	4.993	22.3	0.898	0.530	24.87	21.8	6.10	Up	37al
	20.0	33.0	6.417	5.382	23.0	0.874	0.554	25.26	23.4	5.08	Up	37al
	20.0	36.0	6.921	5.599	23.5	0.847	0.591	25.49	25.0	4.47	Up	37al
	20.0	39.0	7.301	5.674	23.5	0.819	0.638	25.59	26.8	4.07	Up	37al
<b>OptUp &gt;</b>	<b>20.0</b>	<b>39.0</b>	<b>7.280</b>	<b>5.655</b>	<b>23.6</b>	<b>0.820</b>	<b>0.639</b>	<b>25.57</b>	<b>26.8</b>	<b>4.10</b>	<b>Up</b>	<b>37al</b>
	20.0	42.0	7.582	5.634	23.5	0.795	0.690	25.58	28.7	3.80	Up	37al
	20.0	45.0	7.813	5.524	23.4	0.774	0.745	25.51	30.6	3.60	Up	37al
	20.0	50.0	8.145	5.235	23.2	0.745	0.841	25.28	33.8	3.34	Up	37al
	20.0	60.0	8.704	4.352	22.9	0.719	1.000	24.58	40.5	2.90	Up	37al
	20.0	70.0	9.212	3.151	23.2	0.757	1.000	23.58	47.1	2.47	Up	37al
	20.0	75.0	9.476	2.453	23.3	0.780	1.000	23.01	50.4	2.27	Up	37al
	20.0	80.0	9.739	1.691	23.4	0.806	1.000	22.39	53.8	2.08	Up	37al
	20.0	90.0	10.283	-0.000	23.5	0.872	1.000	21.02	60.7	1.72	Up	37al
	20.0	100.0	10.861	-1.886	23.9	0.961	1.000	19.47	67.7	1.41	Up	37al
	20.0	110.0	11.277	-3.857	18.2	1.000	1.000	18.40	76.0	0.99	Up	37al
	20.0	120.0	11.117	-5.558	24.1	0.858	1.000	15.85	86.0	1.25	Dn	37al
	20.0	130.0	11.743	-7.548	24.8	0.989	1.000	13.96	94.6	0.98	Dn	37al
	20.0	135.0	11.919	-8.428	19.0	1.000	1.000	13.56	99.4	0.74	Dn	37al
	20.0	140.0	11.692	-8.957	12.7	1.000	1.000	13.06	106.1	0.58	Dn	37al
	20.0	150.0	10.600	-9.180	5.7	1.000	1.000	12.01	124.0	0.38	Dn	37al
	20.0	160.0	9.789	-9.198	3.0	1.000	1.000	11.30	142.8	0.25	Dn	37al
<b>OptDn &gt;</b>	<b>20.0</b>	<b>162.7</b>	<b>9.640</b>	<b>9.204</b>	<b>2.5</b>	<b>1.000</b>	<b>1.000</b>	<b>11.17</b>	<b>147.8</b>	<b>0.21</b>	<b>Dn</b>	<b>37al</b>
	20.0	170.0	9.302	-9.161	1.2	1.000	1.000	10.96	161.5	0.12	Dn	37al
	20.0	180.0	8.964	-8.964	-0.0	1.000	1.000	11.04	180.0	-0.00	Dn	37al

**Best Performance (cont)**

	<b>TWS</b>	<b>TWA</b>	<b>V</b>	<b>VMG</b>	<b>Heel</b>	<b>Reef</b>	<b>Flat</b>	<b>AWS</b>	<b>AWA</b>	<b>Lee</b>	<b>Sail</b>	<b>Flot</b>
	25.0	30.0	5.146	4.456	22.6	0.811	0.506	29.18	23.3	8.50	Up	37al
	25.0	33.0	6.036	5.062	23.6	0.778	0.551	29.75	24.8	6.47	Up	37al
	25.0	36.0	6.656	5.385	23.9	0.747	0.599	30.05	26.6	5.43	Up	37al
	25.0	39.0	7.146	5.554	24.1	0.720	0.652	30.21	28.4	4.78	Up	37al
<b>OptUp &gt;</b>	<b>25.0</b>	<b>40.7</b>	<b>7.325</b>	<b>5.551</b>	<b>24.1</b>	<b>0.707</b>	<b>0.685</b>	<b>30.20</b>	<b>29.5</b>	<b>4.58</b>	<b>Up</b>	<b>37al</b>
	25.0	42.0	7.499	5.573	24.0	0.697	0.710	30.23	30.4	4.37	Up	37al
	25.0	45.0	7.773	5.496	23.9	0.676	0.770	30.15	32.4	4.09	Up	37al
	25.0	50.0	8.158	5.244	23.7	0.650	0.871	29.91	35.9	3.72	Up	37al
	25.0	60.0	8.800	4.400	23.6	0.636	1.000	29.11	43.0	3.15	Up	37al
	25.0	70.0	9.412	3.219	24.0	0.671	1.000	27.99	50.1	2.63	Up	37al
	25.0	75.0	9.732	2.519	24.1	0.691	1.000	27.36	53.7	2.39	Up	37al
	25.0	80.0	10.056	1.746	24.2	0.716	1.000	26.68	57.3	2.16	Up	37al
	25.0	90.0	10.850	-0.000	24.6	0.777	1.000	25.18	64.5	1.71	Up	37al
	25.0	100.0	11.680	-2.028	25.1	0.857	1.000	23.47	71.8	1.32	Up	37al
	25.0	110.0	12.549	-4.292	25.4	0.958	1.000	21.60	79.3	1.00	Up	37al
	25.0	120.0	13.111	-6.556	18.7	1.000	1.000	20.51	88.3	0.65	Up	37al
	25.0	130.0	13.355	-8.584	26.3	0.870	1.000	17.39	99.0	0.78	Dn	37al
	25.0	135.0	13.919	-9.842	26.8	0.950	1.000	16.23	103.4	0.65	Dn	37al
<b>OptDn &gt;</b>	<b>25.0</b>	<b>146.3</b>	<b>14.056</b>	<b>11.692</b>	<b>13.1</b>	<b>1.000</b>	<b>1.000</b>	<b>15.11</b>	<b>116.5</b>	<b>0.33</b>	<b>Dn</b>	<b>37al</b>
	25.0	150.0	13.362	-11.572	9.3	1.000	1.000	14.86	123.9	0.30	Dn	37al
	25.0	160.0	11.869	-11.153	4.8	1.000	1.000	14.41	143.8	0.23	Dn	37al
	25.0	170.0	11.021	-10.854	1.9	1.000	1.000	14.28	162.3	0.12	Dn	37al
	25.0	180.0	10.455	-10.455	-0.0	1.000	1.000	14.54	180.0	-0.00	Dn	37al
	30.0	30.0	3.885	3.365	35.0	0.500	0.781	32.29	22.4	14.56	Up	37al
	30.0	33.0	5.010	4.202	23.2	0.707	0.546	33.70	26.5	10.19	Up	37al
	30.0	36.0	6.005	4.858	24.2	0.674	0.603	34.28	28.0	7.40	Up	37al
	30.0	39.0	6.676	5.188	24.5	0.649	0.659	34.56	29.8	6.09	Up	37al
	30.0	42.0	7.202	5.352	24.6	0.626	0.718	34.69	31.7	5.28	Up	37al
<b>OptUp &gt;</b>	<b>30.0</b>	<b>43.4</b>	<b>7.330</b>	<b>5.330</b>	<b>24.6</b>	<b>0.617</b>	<b>0.747</b>	<b>34.64</b>	<b>32.7</b>	<b>5.11</b>	<b>Up</b>	<b>37al</b>
	30.0	45.0	7.572	5.354	24.6	0.606	0.782	34.65	33.8	4.79	Up	37al
	30.0	50.0	8.040	5.168	24.4	0.582	0.883	34.42	37.4	4.25	Up	37al
	30.0	60.0	8.781	4.391	24.4	0.571	1.000	33.54	44.8	3.50	Up	37al
	30.0	70.0	9.483	3.243	24.9	0.603	1.000	32.30	52.3	2.87	Up	37al
	30.0	75.0	9.854	2.550	25.0	0.621	1.000	31.62	56.1	2.58	Up	37al
	30.0	80.0	10.255	1.781	25.3	0.644	1.000	30.87	59.9	2.30	Up	37al
	30.0	90.0	11.269	-0.000	25.9	0.701	1.000	29.25	67.3	1.74	Up	37al
	30.0	100.0	12.349	-2.144	26.4	0.773	1.000	27.41	74.9	1.28	Up	37al
	30.0	110.0	13.578	-4.644	26.9	0.866	1.000	25.36	82.5	0.90	Up	37al
	30.0	120.0	14.969	-7.484	27.3	0.983	1.000	23.09	90.1	0.60	Up	37al
	30.0	130.0	15.452	-9.933	17.6	1.000	1.000	22.24	99.9	0.36	Up	37al
	30.0	135.0	16.113	-11.394	28.4	0.850	1.000	19.34	105.3	0.46	Dn	37al
	30.0	140.0	17.033	-13.048	29.0	0.938	1.000	17.89	109.4	0.35	Dn	37al
<b>OptDn &gt;</b>	<b>30.0</b>	<b>149.3</b>	<b>17.622</b>	<b>15.159</b>	<b>16.7</b>	<b>1.000</b>	<b>1.000</b>	<b>16.78</b>	<b>119.2</b>	<b>0.18</b>	<b>Dn</b>	<b>37al</b>
	30.0	150.0	17.491	-15.147	15.5	1.000	1.000	16.76	120.4	0.17	Dn	37al
	30.0	160.0	14.864	-13.968	6.9	1.000	1.000	16.77	142.6	0.16	Dn	37al
	30.0	170.0	13.436	-13.232	3.0	1.000	1.000	16.93	162.1	0.10	Dn	37al
	30.0	180.0	12.529	-12.529	-0.0	1.000	1.000	17.47	180.0	-0.00	Dn	37al

**Best Performance (cont)**

---