

IMS RATING CERTIFICATE No. 31210
Based on: FULL MEASUREMENT (ft/lbs)

IMS AMENDED TO JANUARY 2004
Offshore Racing Congress
Chelmsford, England
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IMS AMENDED TO JANUARY 2004 VPP: 26/MAY/04 11:39:36
Cert No 31210 US31210.DAT 01/JUL/04 10:59:00
OFF Meas'd: 14/AUG/02 IMX45HLK.OFF 02/APR/03 13:06:34

NOT VALID AFTER 12/2004

GPH
557.9

--- YACHT DESCRIPTION ---
Name: XCELSIOR
Sail No: BRA-2157
Class: IMX45 (MOD)
LOA: 45.06ft Beam(MB) 13.52ft
Designer: JEPPESEN
Builder: X YACHTS
Carb Rig: FRACTIONAL SLOOP 134% Jib
Keel/CB: FIXED KEEL
PropInst: STRUT DRIVE FOLDING
FwdAccom: YES SPIN: SYMMETRIC
HullCnst: HVYCORE RudCnst: STNDRD
Forestay: FIXED BoomMtl: LIGHT
Spreadrs: 3 Sets InrFsty: NONE
Runners: NONE Jumpers: NONE
Dates: AGE:5/2003 SERIES : 1/2002
COMMENTS:
FUEL TANK FULL DURING INCLINE

RATING OFFICE:
Issued: U.S. SAILING
26/MAY/04 P.O. BOX 1260
Measured: 15 MARITIME DRIVE
08/MAY/04 PORTSMOUTH, RI 02871

Revalidation Authority: US SAILING
Measurer: WILLIAMS

"I CERTIFY THAT I UNDERSTAND MY
RESPONSIBILITIES UNDER THE IMS."

OWNER:.....
Mr Todd LaBaugh
48 Orchard Dr
Rye, NY 10580-3324

FREBRDS ADJUSTED

---CENTERBOARD AND DRAFT---
ECM 0.000 CBRC 0.000 CBTC 0.000
WCBA 0.0 CBDA 0.000 KCDA 0.000 ECE 0.000
WCBB 0.0 CBDB 0.000 ENDPLATE ADJ (KEDA) 0.000

---PROPELLER AND INSTALLATION---
PRD 1.500 ST1 0.160 ST4 0.320 ST5 0.960 EDL 8.690

PIPA 0.0339

---FLOTATION DATA---
FFPS 4.298 AFPS 3.402 SFFP 1.155 SAFF 42.379
FFM 5.240 FAM 4.070 FFPV 0.000 AFPV 0.000
FF 5.247 FA 4.075 SG 1.020

---INCLINING TESTS---
W1 231.000 PD1 474.000 PLM 9000.000 PL 4500.000
W2 231.000 PD2 474.000 GSA 1.000 RSA 1.0
W3 231.000 PD3 474.000 SMB 29.591 WD 47.900
W4 231.000 PD4 474.000 RM 1838.3 RMC 1838.3
RM2 1888.2 RM20 1692.5 RM40 1361.7 RM60 971.8
RM90 459.2 WBV 0.0 CREW ARM (CRA) 5.499

CALCULATED LIMIT OF POSITIVE STABILITY: 122.3 DEGREES
RATIO STABILITY CURVE AREAS, POSITIVE/NEGATIVE 3.451

---HYDROSTATICS---MEASUREMENT TRIM---SAILING TRIM---
KEEL DRAFT (DHK0) 9.328 (DHKA) 9.470
2ND MOMENT LENGTH (LSM0) 40.020 (LSM1) 40.720
DISPLACEMENT (WEIGHT) (DSPM) 20773 (DSPS) 23495
WETTED SURFACE (WSM) 394.92 (WSS) 414.50
VCG FROM OFFSETS DATUM (For CLUB RM) (VCGD) -0.863
VCG FROM MEASUREMENT TRIM WATERLINE (VCGM) -0.071
INTEGRATED BEAM ATTENUATED WITH DEPTH (B) 11.402
MAXIMUM SECTION AREA (AMS1) 18.959
BEAM/DEPTH RATIO (BTR) 4.695
EFFECTIVE DRAFT (D) 8.331
2° HEEL (LSM2) 40.734 25° HEEL (LSM3) 41.215
SUNK (LSM4) 46.329 AVG LENGTH (L) 40.814
TRIM: .01ft/356.735ft-lb SINK: .01ft/184.319lb

SAIL AREAS: MAIN+FORE+MIZZEN: 1225.2 MAIN: 720.7
GENOA: 702.7 SYM: 1753.6 ASYM: 0.0 MIZ'N: 0.0

---FORETRIANGLE---MAIN & SPARS---
IG 61.750 J 16.270 HB 0.550 TH NO
MW 0.930 FSP 0.220 MGT 4.20 TL 3.900
GO 1.000 LPG 21.70 MGU 7.70 MDT1 0.470
ISP 61.920 LP 21.92 MGM 13.10 MDL1 0.940
IM 62.017 JL 0.00 MGL 17.00 MDT2 0.410
HBI 4.387 JR 0.00 MSW 64.0 MDL2 0.670
SFJ 1.300 P 59.730 MWT 730.0
SPL 17.040 TPS 0.000 E 20.300 MCG 19.710
SL 60.00 ASL EC 20.300 BD 0.640
SMW 29.10 AMG BAS 5.950 CPW 0.000
SF ASF SPS 0.000 BAL 0.500

---MIZZEN---
IY 0.000 PY 0.000 HBY 0.000 TLY 0.000
EB 0.000 EY 0.000 MGTY 0.000 MDT1Y 0.000
YSD 0.00 ECY 0.000 MGUY 0.000 MDL1Y 0.000
YSF 0.00 BASY 0.000 MGYM 0.000 MDT2Y 0.000
YSMG 0.00 BALY 0.000 MGLY 0.000 MDL2Y 0.000
HBIY 0.000 BDIY 0.000

--- LIMITS AND REGULATIONS ---
Limit of Positive Stability: MEETS REQ Measurement Inventory: 09/MAY/04
Minimum Displacem't 11109lb: MEETS REQ Accommodation Length: 43.94ft
Maximum Crew Weight: 1982 lbs Accum Certificate: C/R DA= 0.01%
Stability Index: 126.5 Plan Approval: NONE FILED
C/R HeavyItems Pitch Adjustm't 0.00000 Anchor(s) Weight: 0 Dist: 0.00
Applied Age Allowance: 0.10%

NOTE TO OWNER: The range available to revise crew weight is 1289-2379 lb.

--- TIME ALLOWANCES IN SEC/MI BY TRUE WIND VELOCITY & ANGLE ---
(NOT WIND-AVERAGED)

Wind Velocity:	6kt	8kt	10kt	12kt	14kt	16kt	20kt	CHECKSUM
BEAT ANGLES:	43.5°	42.5°	40.9°	39.5°	38.6°	38.2°	38.3°	(281.5)
BEAT VMG:	904.1	764.5	698.7	663.8	643.9	633.2	628.9	(4937.1)
52°:	587.0	502.5	472.8	457.8	449.0	444.1	440.1	(3353.3)
R 60°:	549.4	477.6	453.4	440.7	433.1	428.4	423.6	(3206.2)
E 75°:	519.4	459.2	433.1	420.4	412.5	407.1	400.2	(3051.9)
A 90°:	522.8	454.3	428.1	411.7	398.8	390.8	381.3	(2987.8)
C 110°:	532.2	458.9	425.9	404.4	389.4	379.6	364.4	(2954.8)
H 120°:	566.1	475.8	436.0	410.1	389.7	373.1	350.1	(3000.9)
135°:	660.6	531.5	466.5	431.7	406.7	385.4	347.1	(3229.5)
150°:	796.9	630.8	530.7	471.2	436.7	411.8	371.1	(3649.2)
RUN VMG:	920.2	728.4	612.8	539.3	487.6	451.5	403.6	(4143.4)
GYBE ANGLES:	141.0°	144.9°	148.7°	156.7°	165.7°	171.3°	173.9°	(1102.2)

NOTE: To convert any time allowance above to speed in knots: Kt = 3600/TA

--- TIME ALLOWANCES FOR SELECTED COURSES (AFTER WIND-AVERAGING) ---

Wnd/Lwd VMG	931.3	758.8	665.3	609.0	572.6	548.4	521.3	(4606.7)
CircularRandom	759.5	617.3	541.9	498.3	471.5	453.8	431.4	(3773.7)
Ocean for PCS	862.4	679.5	576.4	512.2	469.4	438.9	397.2	(3936.0)
Non-Spinnaker	821.9	660.4	572.9	521.2	489.1	468.1	442.5	(3976.1)

--- SIMPLIFIED SCORING OPTIONS ---

	Time-on-Distance (sec/mi)	Time-on-Time TMF	Performance Line PLT PLD
OFFSHORE	557.9 (=GPH)	1.0755 (=600/GPH)	0.873 83.1 (Ocean)
INSHORE	624.1 (=ILC)	1.0816 (=675/ILC)	1.242 371.4 (Olympic)

Performance Line Corrected Time = (PLT x Elapsed Time) - (PLD x Distance)