




INTERNATIONAL TWELVE METRE CLASS

Yacht's Name	<i>Defender</i>		
National letters and Sail Number	<i>US 33</i>	Club	<i>Balboa YC, NYYC</i>
Designer	<i>Pedrick Yacht Design</i>		
Builder	<i>Newport Offshore Ltd.</i>	Building Year	<i>1983</i>
Owner	<i>Andy Rose / USMMA Sailing Foundation</i>		
Owner's Address	<i>Steamboat Rd. Kings Point, NY USA</i>		
Lloyds R class certificate (Number or Date)			

RATING CERTIFICATE

This yacht has been measured by measurer(s) appointed by the International Twelve Metre Association and has been found to rate not more than 12.000 metres.

This certificate is dated:	<u>June 8, 2023</u>	
Measurer	<u>Kershaw/Williams</u>	Signature <u><i>Anders</i></u>
Valid until	<u>June 8, 2025</u>	
Supersedes	<u>June 25, 2019</u>	
Is this an Appendix E Certificate?	Y / N	<input checked="" type="checkbox"/> Yes
Was Appendix F used for Measurement?	Y / N	<input type="checkbox"/> No
Signature <u><i>Kershaw/Williams</i></u>		
ITMA Technical Director		
		Stamp of Authority of the International Twelve Metre Association

RATING CALCULATION**OVERALL LENGTH**

Overhang Forward to FGS

2.035

Overhang Aft to AGS

2.051

Total Overhang (Subtract)

4.086

19.497**MEASURED LENGTH (LBG)**

Girth at Bow

1.579

Twice vertical Height at Bow (Subtract)

1.200

Girth Difference at FGS

0.379

Add 1.5 x Girth Difference at FGS (min 0.540 m)

0.569

Girth at Stern

3.551

Twice vertical Height at Stern (Subtract)

1.866

Girth Difference at AGS

1.685

Add 1/3 Girth Difference at AGS (min 0.400 m)

0.562

Add any penalty (Beam or Displacement)

Sum of Length and Girth Corrections

16.541

Age/Design Correction Factor (ADCF)(see page 3)

0.9900

LENGTH (L)

Skin IM to d1 Port

3.330

Chain IM to d1 Port

3.302

d Port

0.028

Skin IM to d1 Starboard

3.325

Chain IM to d1 Starboard

3.294

d Starboard

0.031

Add d

0.059

Add GIRTH 2 d**0.118**

Mean Freeboard Bow

Datum Sta. Actual Sta. Rating FB

Mean Freeboard Midship

1.392

1.392

Mean Freeboard Stern

1.136

1.136

Sum of Freeboards

1.113

1.113

3.641

Subtract FREEBOARD, F

Limit used

1.210**Add SAIL AREAS (Square root)****13.155****TOTAL OF MEASUREMENTS****28.439**

PENALTY (Draft or Tumblehome)

0.000

0

RATING**12.000**

Date and Place of Measurement

08-Jun-23

Measurer's Name(s)

Kershaw/Williams

Signature



Yacht's name : Defender		Date	08-Jun-23
Range Measurement (Yes or No)	no	Date:	

PENALTIES

Overhang Forward to MWL	2.690	
Overhang Aft to MWL	3.182	
Subtract from overall length	5.872	
Difference of immersion from salt to fresh water	Meas. Density	0.000
WATERLINE LENGTH (LWL)		13.625
Minimum Displacement for Zero Penalty [m3]	23.764	
Minimum Weight for Zero Penalty [ton] (Water of sg 1.025)	24.358	
WEIGHT [tonne] Actual weight		24.400
Equivalent LWL (for Displ. < min.)	13.633	
Difference		
DISPLACEMENT PENALTY (add to L)		0.000
Displacement Determination Method	Hull Scan	
DRAFT (actual)	2.676	
Max. Draft for Zero Penalty	2.680	
Difference (if positive)		
DRAFT PENALTY (add to Rating)	Appendix E	0.000
BEAM (Min)	3.639	
Max Beam at 1/3 of Midship Freeboard		
Difference (if positive)	0.000	
BEAM PENALTY (add to L)		0.000
Tumblehome Max. (2 x 2% of Extr. Beam)	0.000	
Extreme Beam	3.639	
Beam at deck	3.639	
Difference (if positive)	0.000	
TUMBLEHOME PENALTY (add to Rating)		0.000

Date and Place of Measurement	08-Jun-23	
Measurer's Name(s)	Kershaw/Williams	Signature <i>Anders</i>

Design/Age Correction Factor Calculation		
Age Date	1983	
ADCF (Table E-2)	0.9900	
Hull Alteration Scope and Date		
Appendage Change Scope and Date		
Change/Alteration Correction ADCF		
Accommodation Deficiency Ballast		

Yacht's name : Defender

Date

08-Jun-23

SAIL PLAN

Max Height of Sail Plan =	<input type="text" value="25.000"/>	J=	<input type="text" value="7.467"/>	I =	<input type="text" value="18.750"/>
Boom above Mast Datum =	<input type="text" value="1.550"/>	P=	<input type="text" value="23.450"/>	E=	<input type="text" value="9.685"/>
Rated Mainsail Area	<input type="text" value="113.557"/>	Spi boom=	<input type="text" value="7.467"/>	√S=	<input type="text" value="13.155"/>
J used for Rating			<input type="text" value="7.467"/>		
Rated Foretriangle Area	<input type="text" value="59.503"/>	Propeller allowance			<input type="text" value="1.000"/>
TOTAL RATED SAIL AREA (S)	<input type="text" value="173.059"/>	Corrected sail area			<input type="text" value="173.059"/>

SAIL LIMITS

Mainsail max girth:	1/2 height (68% of E)	<input type="text" value="6.586"/>	3/4 height (41% of E)	<input type="text" value="3.971"/>
Genoa:	max. foot length (J + 4.8m)	<input type="text" value="12.267"/>		
Spinnaker:	1/2 foot max breadth (125% J)	<input type="text" value="9.334"/>	max. luff length=	<input type="text" value="18.646"/>

Spar Measurement

MAST (material)	<input type="text" value="Aluminium"/>	Mast Weight	<input type="text" value="454"/>	CG pos.	<input type="text" value="9.520"/>
Mast dimensions [mm]	Deck <input type="text" value="358x 250"/>	Half-Height <input type="text" value="358 x 250"/>	Jib-Halyard <input type="text" value="292 x 197"/>	Head <input type="text" value="168 x 128"/>	
Sections area [cm ²]	<input type="text" value="703"/>	<input type="text" value="703"/>	<input type="text" value="452"/>	<input type="text" value="169"/>	
Mast CG Correction (if applicable) Wt & CG	<input type="text" value=""/>	@	<input type="text" value=""/>	Mk ²	<input type="text" value=""/>

Engine/Propeller Installation

Engine and propeller weight	<input type="text" value="NA"/>	Propeller diameter =	<input type="text" value=""/>
Minimum boat speed with engine	<input type="text" value=""/>	Propeller position =	<input type="text" value=""/>
Propeller Type (folding feathering fixed pitch etc.), no of blades	<input type="text" value=""/>		<input type="text" value=""/>
Propeller Skew	<input type="text" value=""/>		<input type="text" value=""/>

Flotation

Internal Ballast	Amount	Location aft of bow

Measurer's Notes

1	Anchor	Frame	15-16
2	Chain		15-16
3	Rode		15
4	Batteries x2		14-15
5	Floated sucessfully 08 June 2023 by AW		

Date and Place of Measurement

08-Jun-23

Measurer's Name(s)

Kershaw/Williams

Signature

