

# 12

## INTERNATIONAL TWELVE METRE CLASS

Yacht's Name Freedom

National letters and Sail Number US 30 Club New York Yacht Club

Designer Sparkman & Stephens

Builder Minnefords Building Year 1979

Owner Charles A. Robertson

Owner's Address 741 Boston Post Rd. Suite 200  
Guilford, CT 06437 USA

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: June 3, 2019

Measurer A Williams Signature Ander

Valid until June 3, 2021


Supersedes June 6 2018

Is this an **Appendix E** Certificate? Y / N  Yes

Was **Appendix F** used for Measurement? Y / N  Yes

Signature [Signature]  
ITMA Technical Director

Stamp of Authority of the  
International Twelve Metre Association



**RATING CALCULATION****OVERALL LENGTH**

Overhang Forward to FGS

1.904

Overhang Aft to AGS

2.080

Total Overhang (Subtract)

3.984

**19.332****MEASURED LENGTH (L<sub>BG</sub>)**

Girth at Bow

1.574

Twice vertical Height at Bow (Subtract)

1.200

Girth Difference at FGS

0.374

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

**0.561**

Girth at Stern

3.323

Twice vertical Height at Stern (Subtract)

1.634

Girth Difference at AGS

1.689

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

**0.563**

Add any penalty (Beam or Displacement)

Sum of Length and Girth Corrections

**16.472**

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

0.9900

**LENGTH (L)****16.307**

Skin IM to d1 Port

2.169

Chain IM to d1 Port

2.157

d Port

0.012

Skin IM to d1 Starboard

2.167

Chain IM to d1 Starboard

2.155

d Starboard

0.012

Add d

0.024

**Add GIRTH 2 d****0.048**

Mean Freeboard Bow

Datum Sta.	Actual Sta.	Rating FB
	1.184	1.184
	0.992	0.987
	0.997	0.977
		3.148

Mean Freeboard Midship

Mean Freeboard Stern

Sum of Freeboards

**1.049****Subtract FREEBOARD, F****Add SAIL AREAS (Square root)****13.131****TOTAL OF MEASUREMENTS****28.437**

PENALTY (Draft or Tumblehome)

0.000

0

**RATING****11.999**

Date and Place of Measurement

3-Jun-19

Measurer's Name(s)

A Williams

Signature



<b>Yacht's name : Freedom</b>		<b>Date</b>	<b>3-Jun-19</b>
Range Measurement (Yes or No)	Yes	Date:	April 2017

## PENALTIES

Overhang Forward to <b>MWL</b>		2.458	
Overhang Aft to <b>MWL</b>		3.007	
Subtract from overall length		5.465	
Difference of immersion from salt to fresh water	Meas. Density		0.000
<b>WATERLINE LENGTH (LWL)</b>			<b>13.867</b>
Minimum Displacement for Zero Penalty [m3]		24.984	
Minimum Weight for Zero Penalty [ton] (Water of sg 1.025)		25.609	
<b>WEIGHT [tonne]</b> Actual weight			<b>25.723</b>
Equivalent LWL (for Displ. < min.)		13.889	
Difference		0.022	
<b>DISPLACEMENT PENALTY (add to L)</b>			<b>0.000</b>
Displacement Determination Method			
<b>DRAFT (actual)</b>		2.704	
Max. Draft for Zero Penalty		2.719	
Difference (if positive)			
<b>DRAFT PENALTY (add to Rating)</b>			<b>0.000</b>
<b>BEAM (Min)</b>		3.645	
Max Beam at 1/3 of Midship Freeboard		0.000	
Difference (if positive)		0.000	
<b>BEAM PENALTY (add to L)</b>			<b>0.000</b>
Tumblehome Max. (2 x 2% of Extr. Beam)		0.000	
Extreme Beam		3.720	
Beam at deck		3.720	
Difference (if positive)		0.000	
<b>TUMBLEHOME PENALTY (add to Rating)</b>			<b>0.000</b>

Date and Place of Measurement	<b>3-Jun-19</b>	
Measurer's Name(s)	<b>A Williams</b>	<b>Signature</b>

<b>Design/Age Correction Factor Calculation</b>		
Age Date	1979	
ADCF ( Table E-2)	0.9890	
Hull Alteration Scope and Date	1983 Hull change	
Appendage Change Scope and Date	1983 keel	
Change/Alteration Correction ADCF	0.990	
Accommodation Deficiency Ballast		

Yacht's name : Freedom

Date

3-Jun-19

**SAIL PLAN**

Max Height of Sail Plan =	<input type="text" value="25.000"/>	J=	<input type="text" value="7.350"/>	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="9.710"/>
Rated Mainsail Area	<input type="text" value="113.850"/>	Spi boom=	<input type="text" value="7.350"/>	√S=	<input type="text" value="13.131"/>
J used for Rating			<input type="text" value="7.350"/>		
Rated Foretriangle Area	<input type="text" value="58.570"/>	Propeller allowance		<input type="text" value="1.000"/>	
TOTAL RATED SAIL AREA (S)	<input type="text" value="172.420"/>	Corrected sail area		<input type="text" value="172.420"/>	

**SAIL LIMITS**

Mainsail max girth:	1/2 height (68% of E)	<input type="text" value="6.603"/>	3/4 height (41% of E)	<input type="text" value="3.981"/>
Genoa:	max. foot length (J + 4.8m)	<input type="text" value="12.150"/>		
Spinnaker:	1/2 foot max breadth (125% J)	<input type="text" value="9.188"/>	max. luff length=	<input type="text" value="18.611"/>

**Spar Measurement**

MAST (material)	<input type="text" value="Aluminium"/>	Mast Weight	<input type="text" value="456"/>	CG pos.	<input type="text" value="9.520"/>
Mast dimensions [mm]	Deck <input type="text" value="352 x 246"/>	Half-Height <input type="text" value="350 x 246"/>	Jib-Halyard <input type="text" value="282 x 204"/>	Head <input type="text" value="168 x 126"/>	
Sections area [cm <sup>2</sup> ]	<input type="text" value="680"/>	<input type="text" value="676"/>	<input type="text" value="452"/>	<input type="text" value="166"/>	
Mast CG Correction (if applicable) Wt & CG	<input type="text" value="54kg"/>	( <input type="text" value="2.540"/>	Mk <sup>2</sup>	<input type="text"/>	

**Engine/Propeller Installation**

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

**Flotation**

Internal Ballast	Amount	Location aft of bow
10 pcs at 13.5 kg each	135 kg	5.5 m

**Measurer's Notes**

- 1 Mast has 54kg of corrector weigh at gooseneck
- 2 Mast and J moved aft 2017
- 3 Light Trim Tab
- 4 Flotation change 2019
- 5
- 6
- 7
- 8

Date and Place of Measurement

3-Jun-19

M. J. J.

Measurer's Name(s)

A Williams

Signature

*Ander*