



Vessel	
Grampian Explorer	

Vessel Particulars		
LOA	72.0 m	236.2 ft
LBP (estimated)	66.8 m	219.2 ft
Beam	16.0 m	52.5 ft
Draft (operating)	4.5 m	14.8 ft
Depth (main deck->keel)	7.0 m	23.0 ft

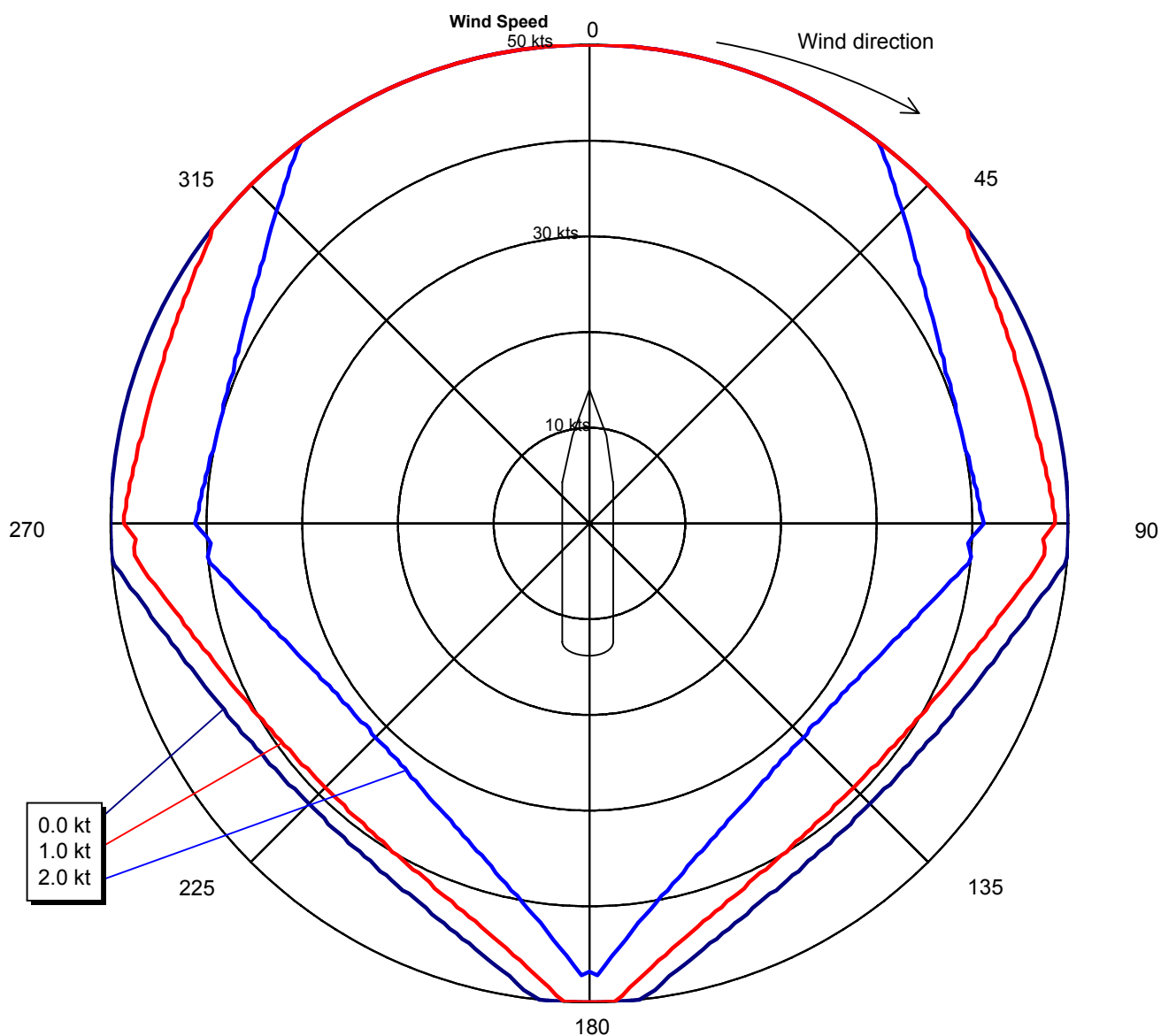
Propulsor Details								
Thruster	Power		Thrust (lbs)		Offsets (<i>from COR - + Fwd, + Stbd</i>)			
	kW	HP	Max	Min	X (m)	X (ft)	Y (m)	Y (ft)
Bow Tunnel	590	791	17402	0	28.9	94.8		
Bow Azimuth	735	985	21670	0	23.3	76.4		
Stern Tunnel	590	791	17402	0	-27.1	-88.9		
Stern Tunnel	590	791	17402	0	-29.0	-95.1		
Main Propellers	2005	2688	70963	0	-31.5	-103.4	±2.4	±7.9
Rudders					-33.4	-109.6	±2.4	±7.9

Notes
<ul style="list-style-type: none"> - Current in-flow addressed at 6% per knot of in-flow velocity - Standard workboat scaled aerodynamic and hydrodynamic scaled curves used - Thruster locations estimated from GA drawing - Tunnel thruster max rated thrust = 85.4 kN (approx) - Azimuth Thruster max rated thrust = 140 kN (approx) - Main props max rated thrust = 278.6 kN each (approx) - High Lift rudders, maximum commanded rudder angle = 30 deg

DISCLAIMER
<p>The analysis performed in this set of holding plots has utilized simplified methods of determining holding capability using publicly found methods, industry standard guidelines, and Nautronix proprietary information. These holding plots should by no means replace more detailed methods such as a full design analysis, model testing, or actual sea trials for the final design of the vessel. Finally, Nautronix has made every effort to ensure the accuracy and reliability of the results. However, Nautronix makes no representation, warranty, or guarantee in connection with these results and hereby expressly disclaims any liability or responsibility for loss or damage resulting from the use of this data.</p>

**All Thrusters Online
Port and Stbd Mains Online
100% operating thrust available**

Vessel			
Grampian Explorer			
Propulsors		Environment	
Bow Tunnel Thr	1 × 590 KW	Max. Wind Speed	50.0 kt
Bow Azimuth Thr	1 × 735 KW	Current Speed	0.0 - 2.0 kt
Stern Tunnel Thr	1 × 590 KW	Sig. Wave Hgt.	wind driven
Stern Tunnel Thr	1 × 590 KW		
Main propellers	2 × 2005 KW		
High Lift rudders		Collinear environment	



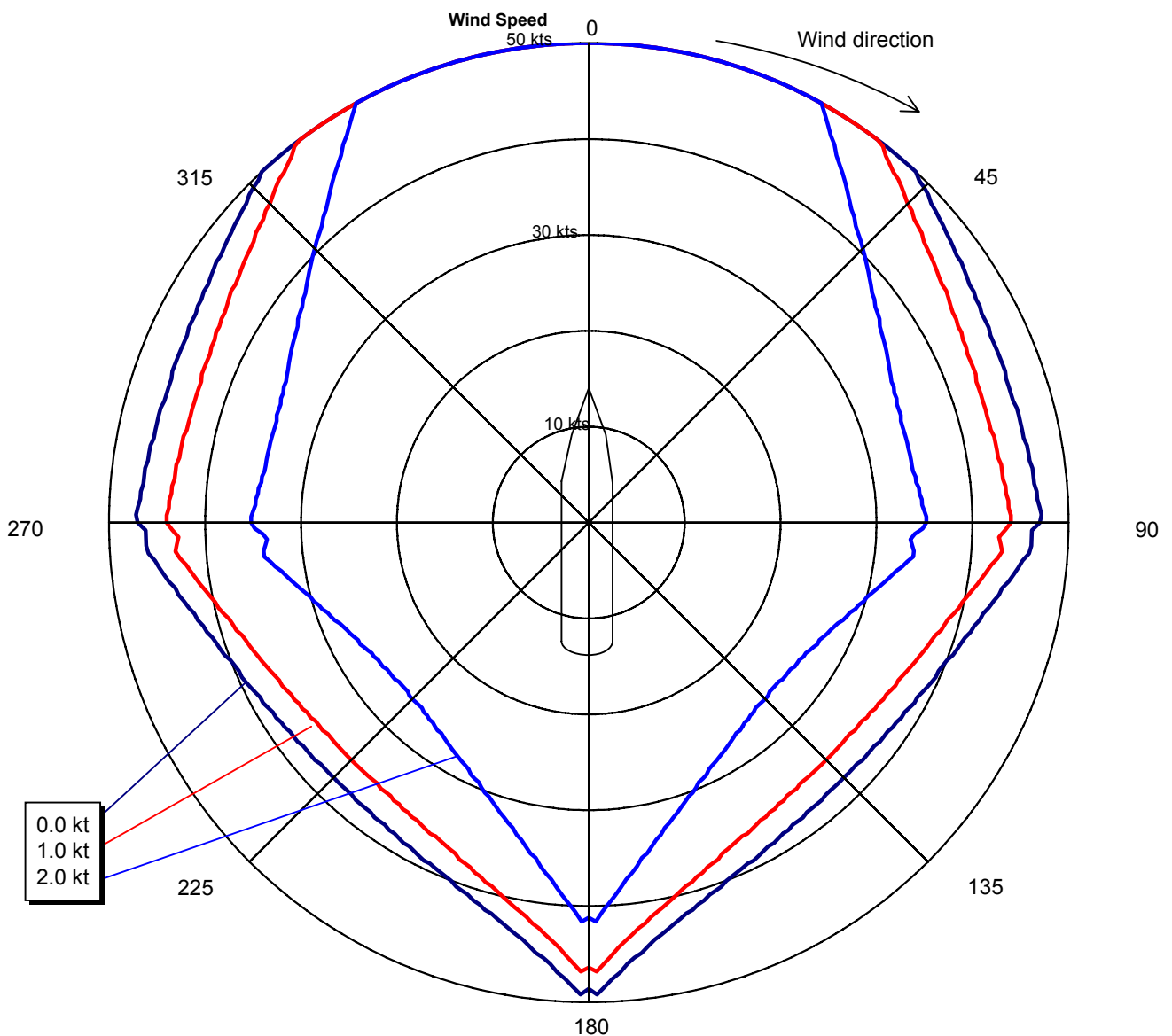
Date: 03/03/03

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Holding plots are based on customer supplied information and are only estimates. True vessel capability must be determined through sea trials.

**All Thrusters Online
Port and Stbd Mains Online
80% operating thrust available**

Vessel	
Grampian Explorer	
Propulsors	Environment
Bow Tunnel Thr 1 × 590 KW	Max. Wind Speed 50.0 kt
Bow Azimuth Thr 1 × 735 KW	Current Speed 0.0 - 2.0 kt
Stern Tunnel Thr 1 × 590 KW	Sig. Wave Hgt. wind driven
Stern Tunnel Thr 1 × 590 KW	
Main propellers 2 × 2005 KW	Collinear environment
High Lift rudders	



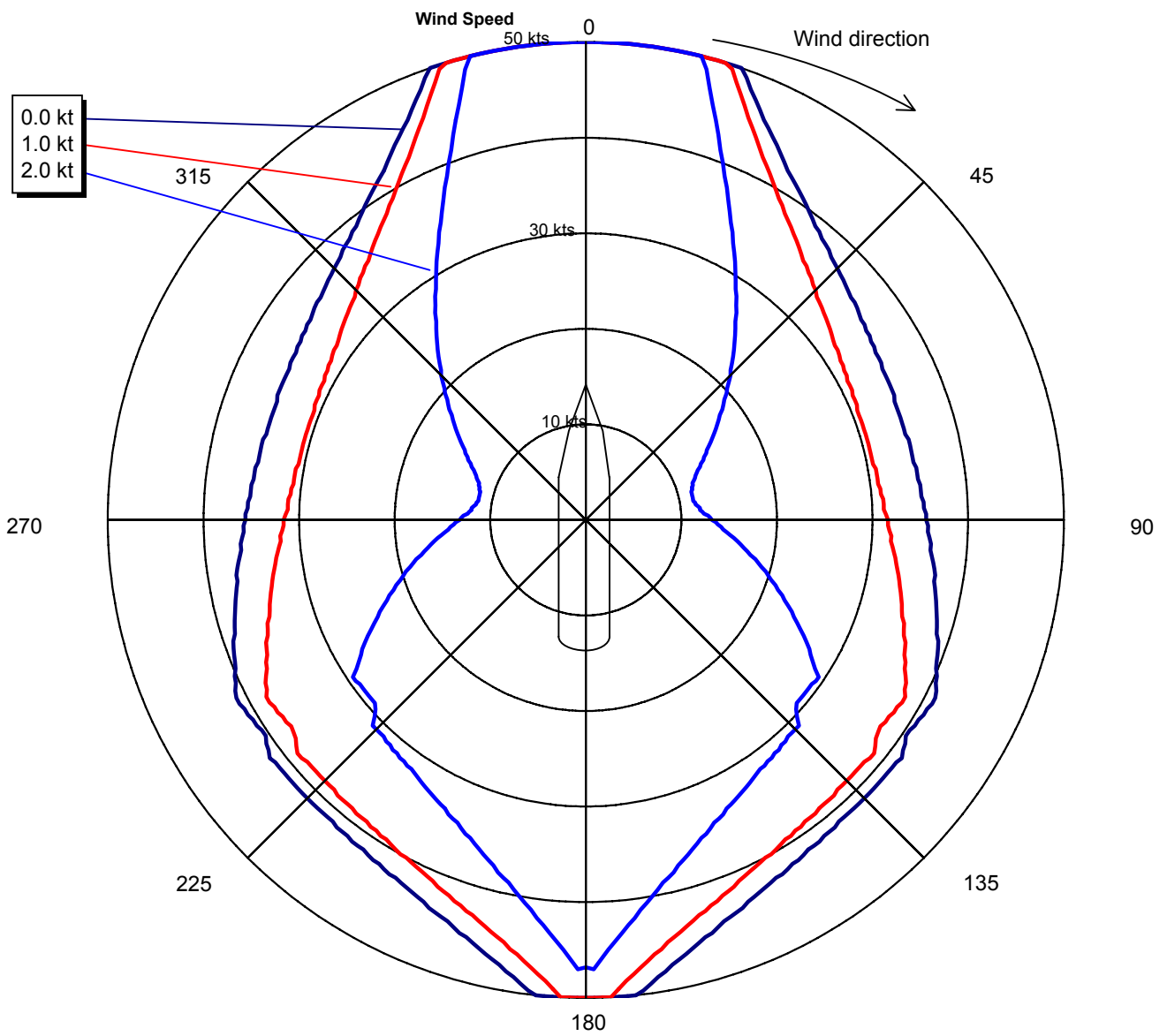
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**Loss of Bow Azimuth Thruster
100% operating thrust available from other propulsors**

Vessel			
Grampian Explorer			
Propulsors		Environment	
Bow Tunnel Thr	1 × 590 KW	Max. Wind Speed	50.0 kt
Bow Azimuth Thr	1 × 735 KW (Offline)	Current Speed	0.0 - 2.0 kt
Stern Tunnel Thr	1 × 590 KW	Sig. Wave Hgt.	wind driven
Stern Tunnel Thr	1 × 590 KW		
Main propellers	2 × 2005 KW		
High Lift rudders		Collinear environment	



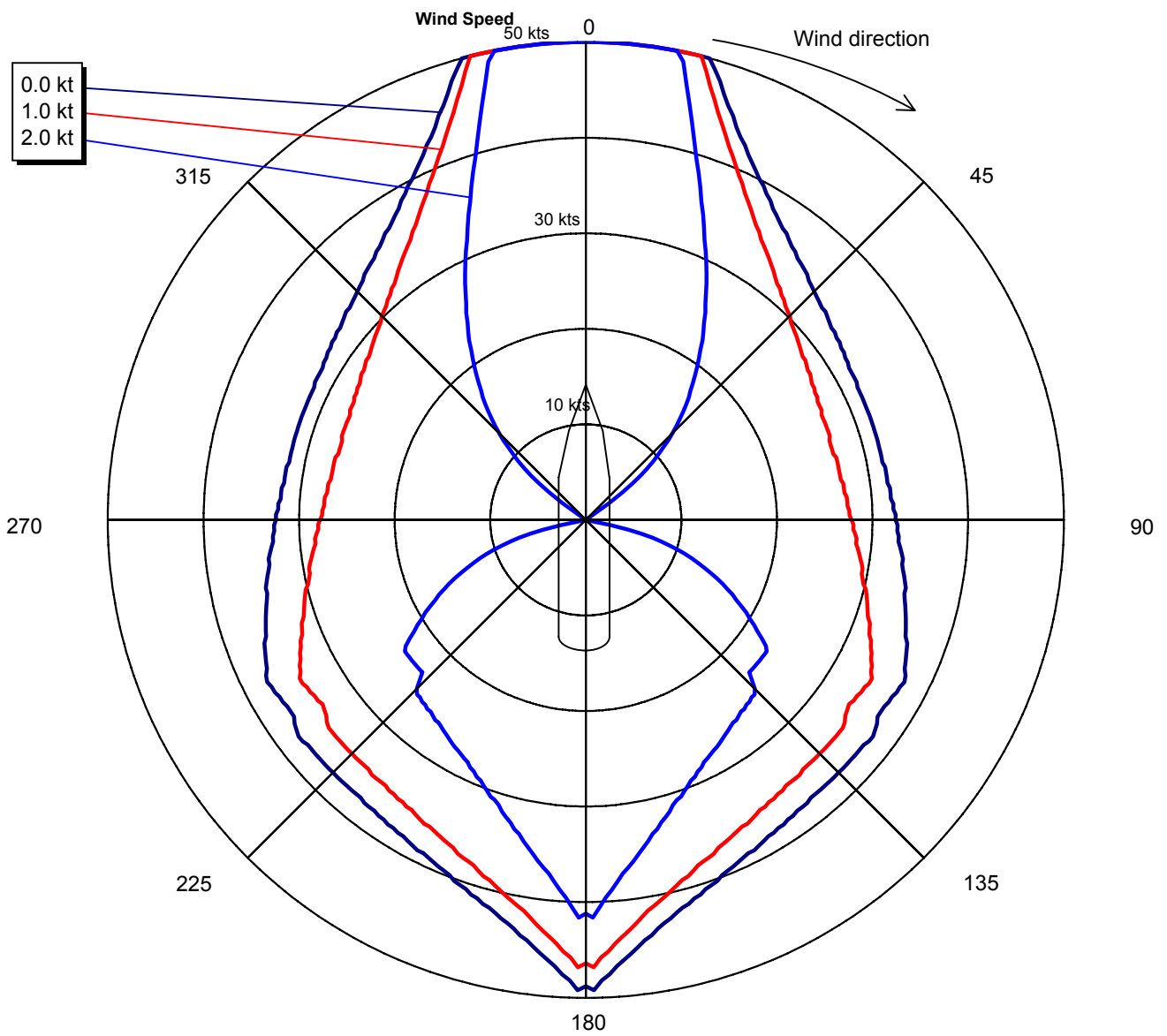
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High Lift rudders		Collinear environment	



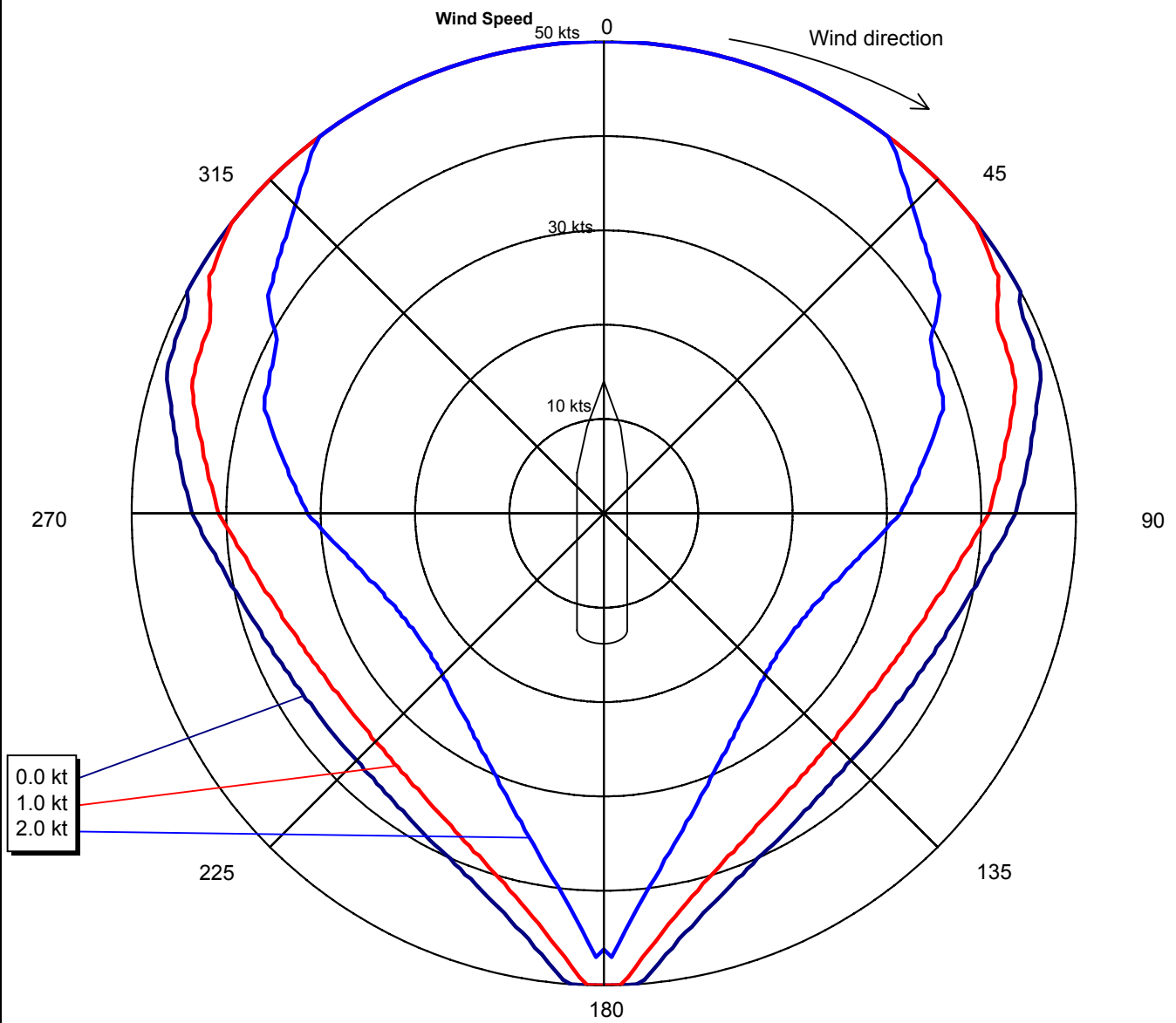
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**Loss of Aft Stern Tunnel Thruster
100% operating thrust available from other propulsors**

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Bow Tunnel Thr	1 × 590 KW	Max. Wind Speed	50.0 kt
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Stern Tunnel Thr	1 × 590 KW	Sig. Wave Hgt.	wind driven
Stern Tunnel Thr	1 × 590 KW (Offline)		
Main propellers	2 × 2005 KW		
High Lift rudders			
Collinear environment			



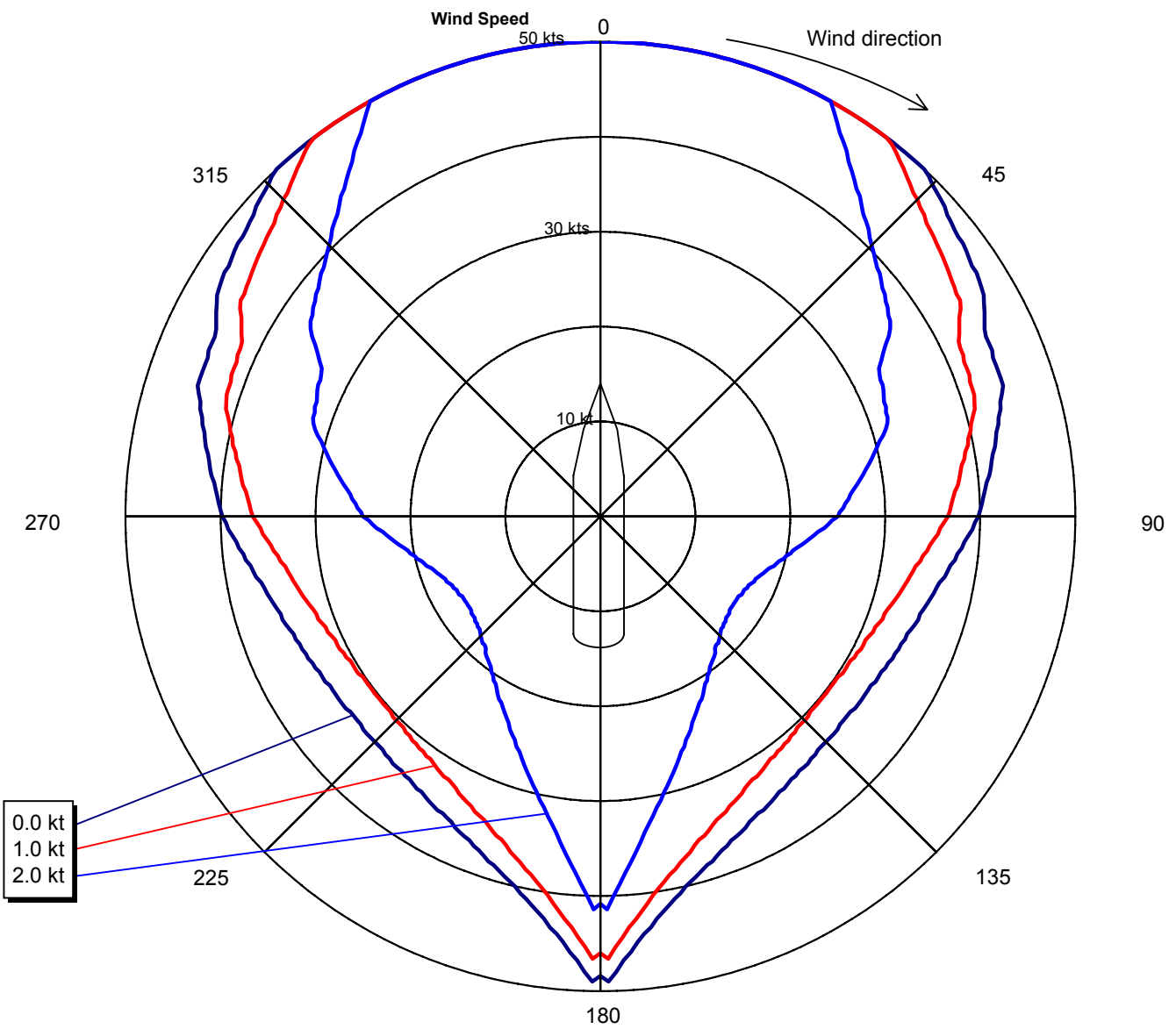
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Stern Tunnel Thr	1 × 590 KW (Offline)		
Main propellers	2 × 2005 KW		
High Lift rudders			
Collinear environment			



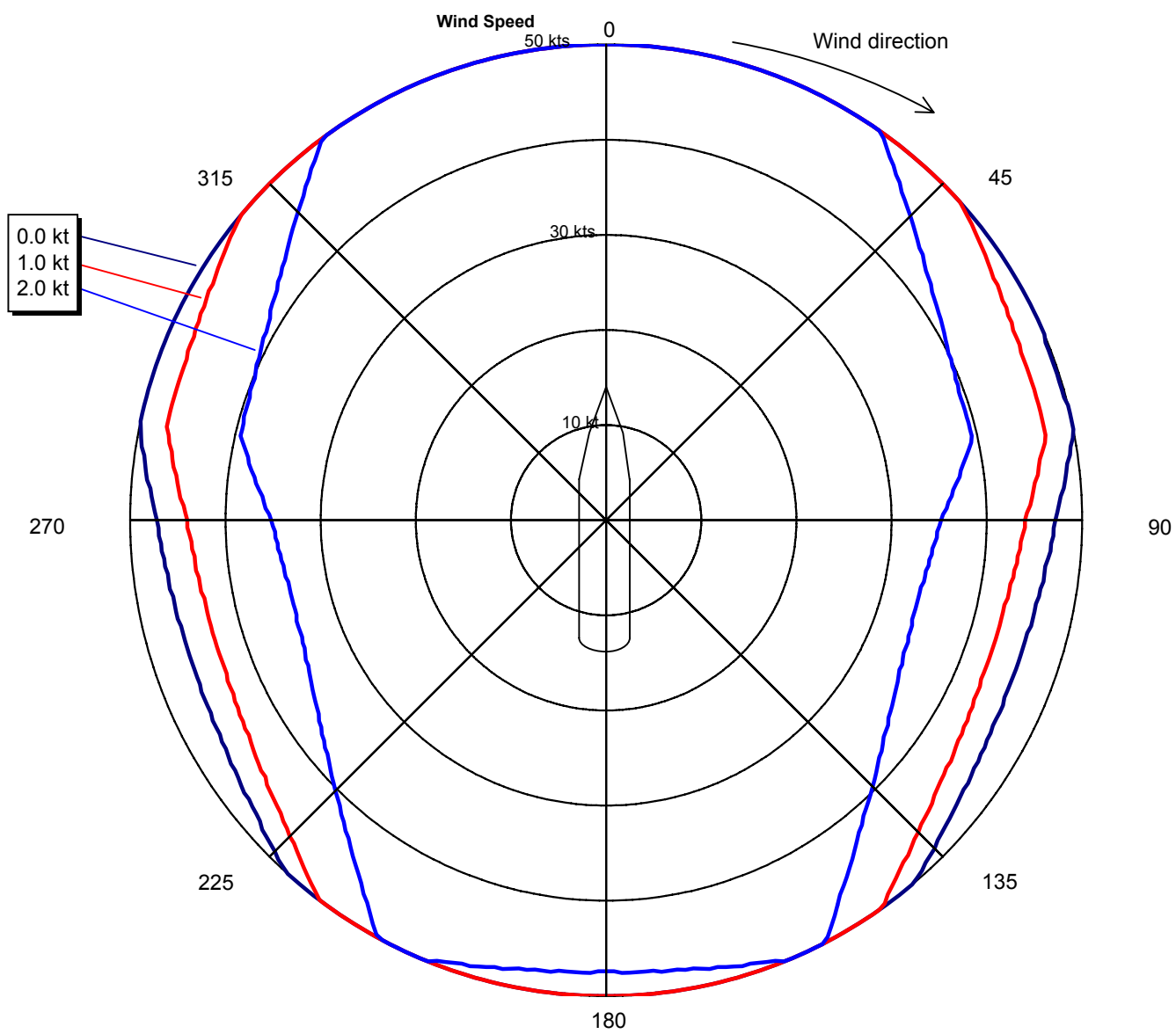
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**Loss of Port Main
100% operating thrust available from other propulsors**

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Bow Tunnel Thr	1 × 590 KW	Max. Wind Speed	50.0 kt
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Stern Tunnel Thr	1 × 590 KW	Sig. Wave Hgt.	wind driven
Stern Tunnel Thr	1 × 590 KW		
Main propellers	1 × 2005 KW (PM Offline)		
High Lift rudders		Collinear environment	



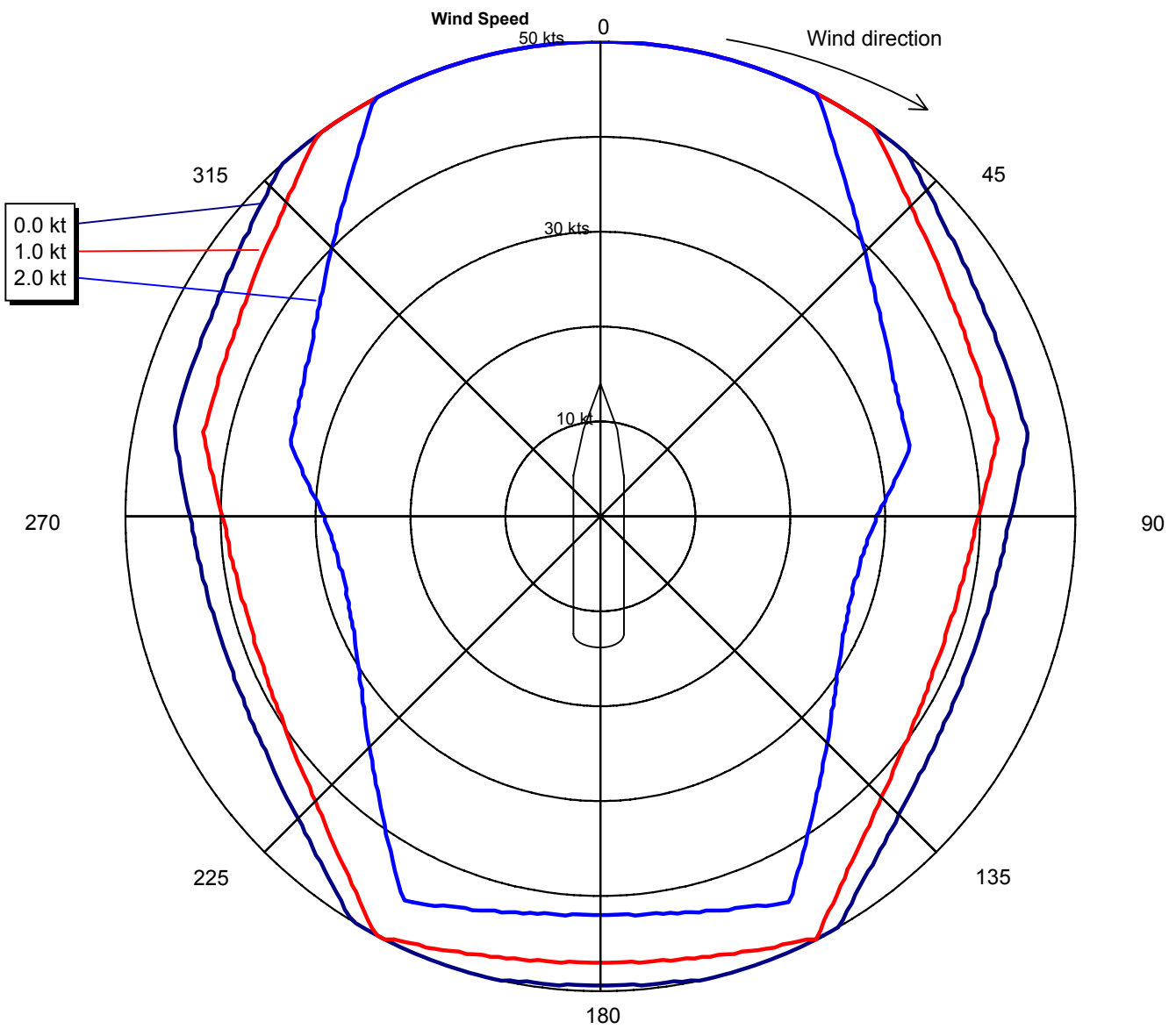
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High Lift rudders		Collinear environment	



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