

WLNG FST Engineering Completion

WLNG FST Extreme Weather Analysis

FST and Jackets

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2025-01-31

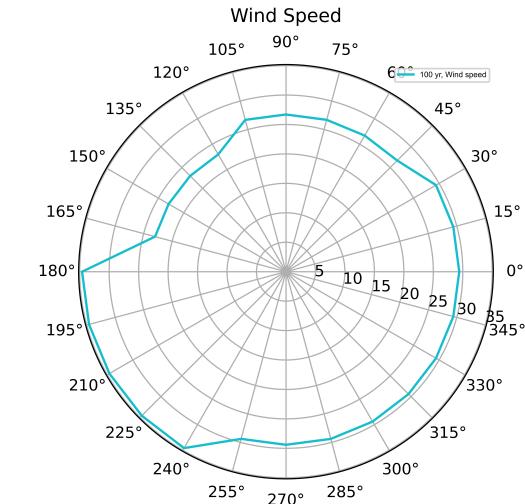
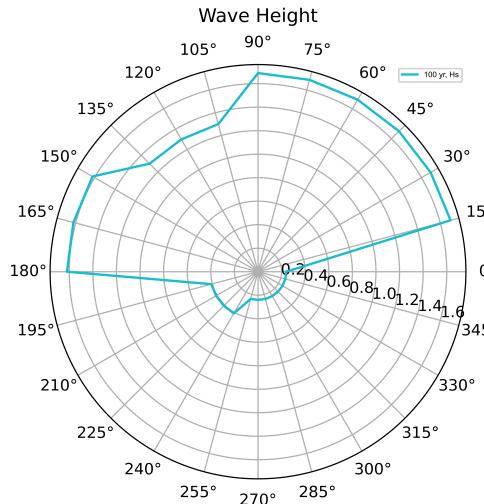
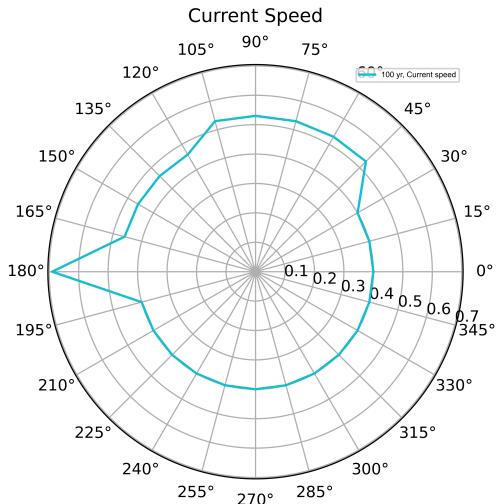
Introduction

- FST analysis for WLNG

Design Data

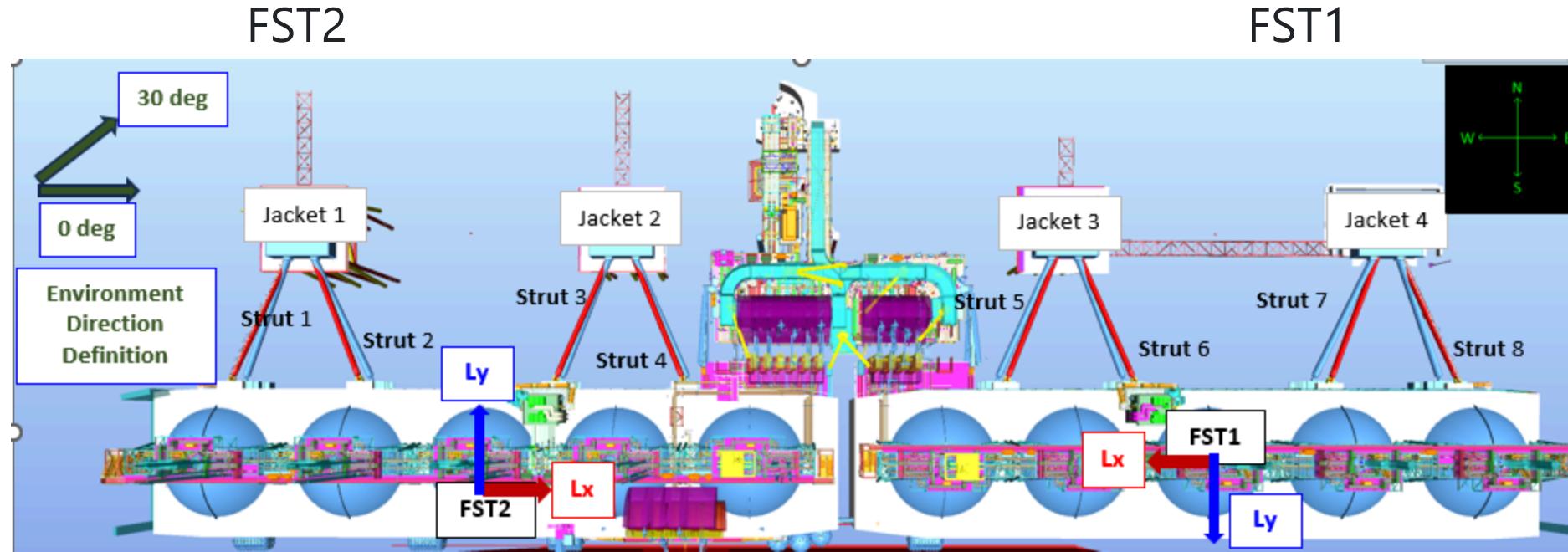
Analysis Methodology

Design Data - Environment



- All radial plots are given with Wind direction
- The associated wave and current magnitude and direction are used. Refer to Metocean report for details.

FSTs Only, General Arrangement



- strut, jacket and FST numbering shown
- FST local axes shown

Methodology

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Methodology - Analysis

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- TBA

Methodology - Result Interpretation

- Timetrace plots are actual values (not statistical)
 - Strut positive tension is tension and negative tension is compression i.e. axes independent values
 - Jacket forces are in global X and Y direction
 - FST forces are in FST local axes
- Radial/rose plots - ONLY positive values used
 - Objective:
 - For understanding value change with direction.
 - The increase/decrease help determine the max force directions.
 - Static values: absolute values
 - Dynamic values: absolute maximum i.e. max (abs(max), abs(min))

- Applicable details will be added to each slide

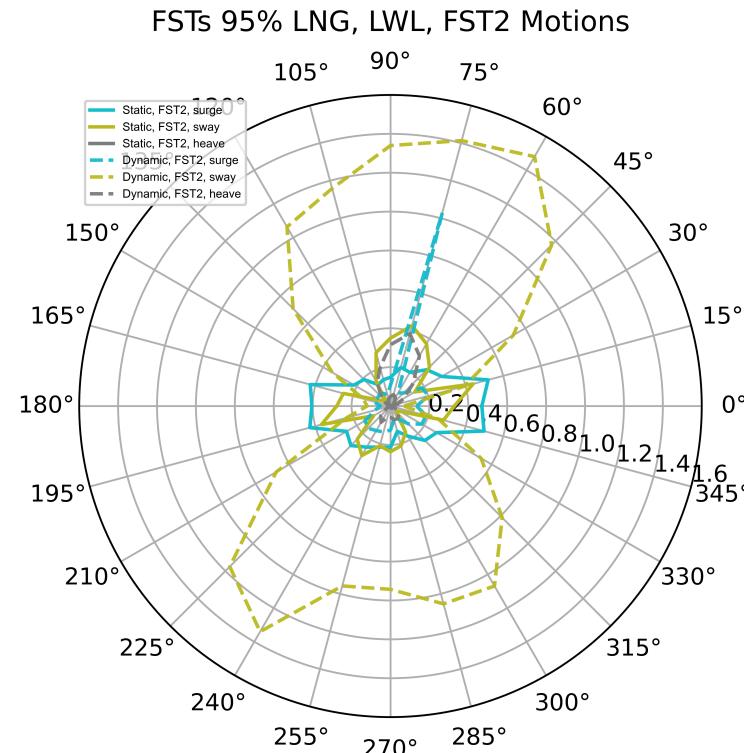
100 year Analysis Results

FST Motion Response

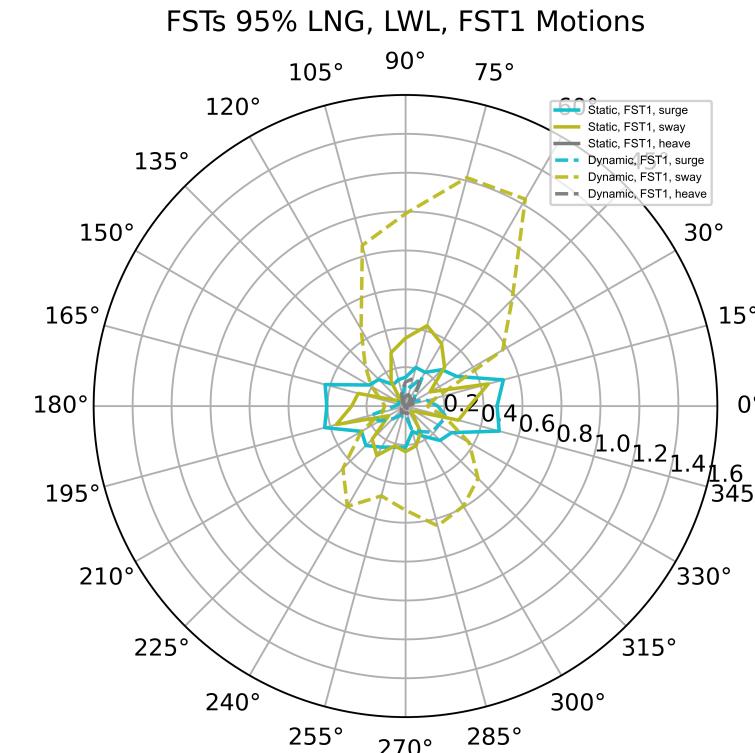
FSTs 95% LNG, 100yr, LWL - FST Surge and Sway

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FST2



FST1

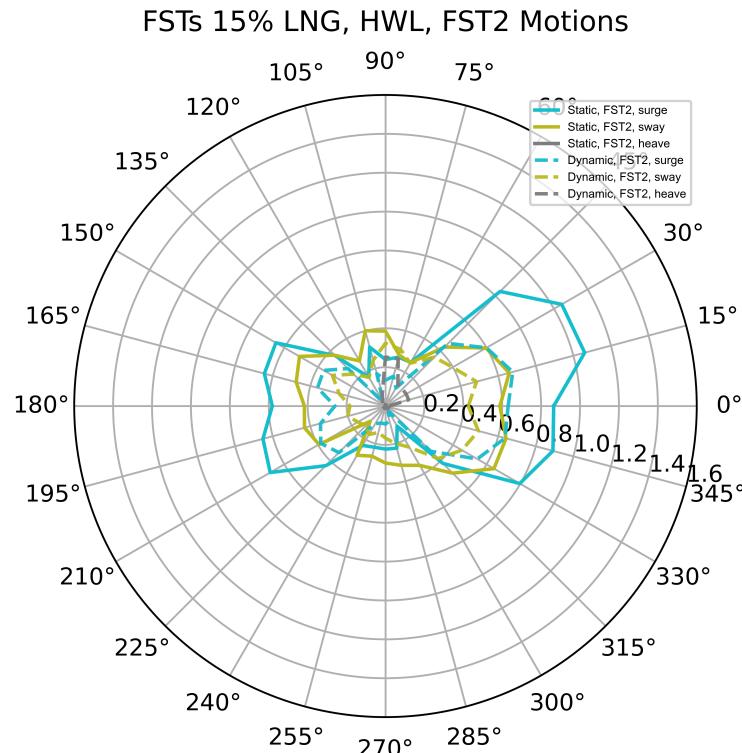


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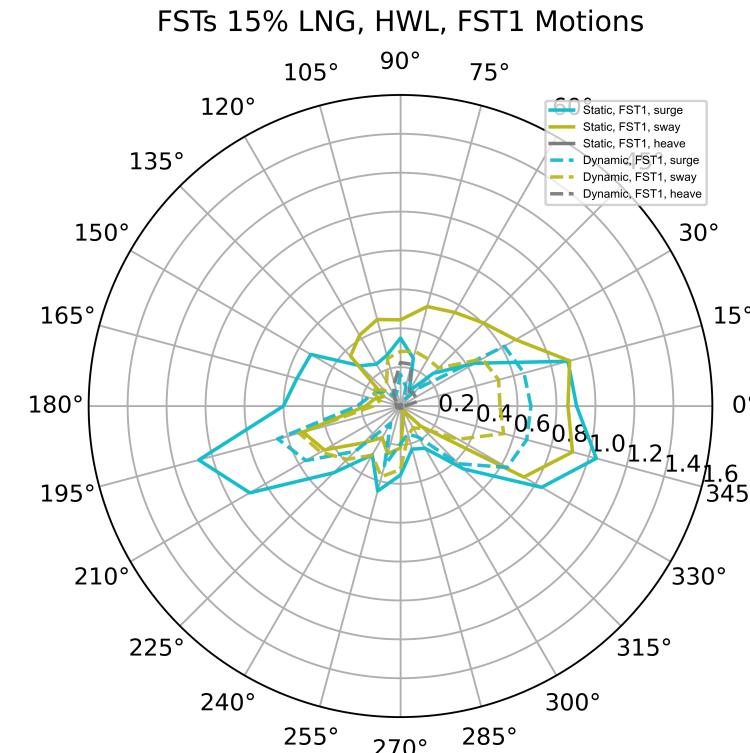
FSTs 15% LNG, 100yr, HWL - FST Surge and Sway

- TBA

FST2



FST1

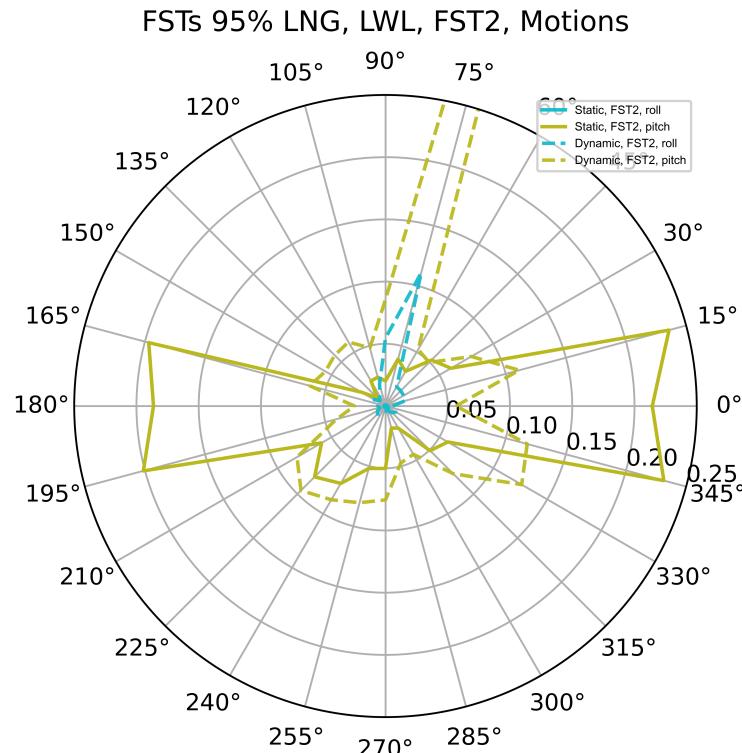


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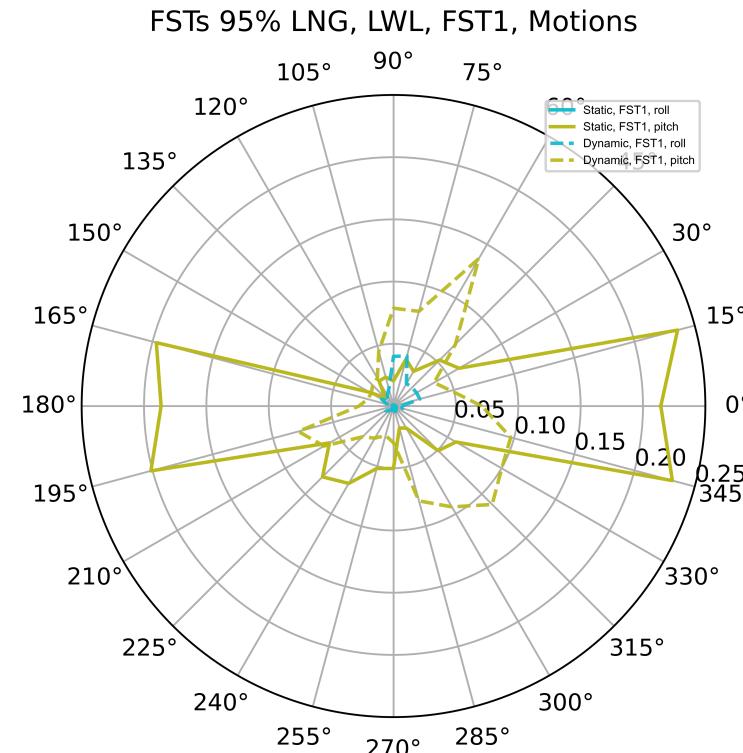
FSTs 95% LNG, 100yr, LWL - FST Rotations

- TBA

FST2



FST1

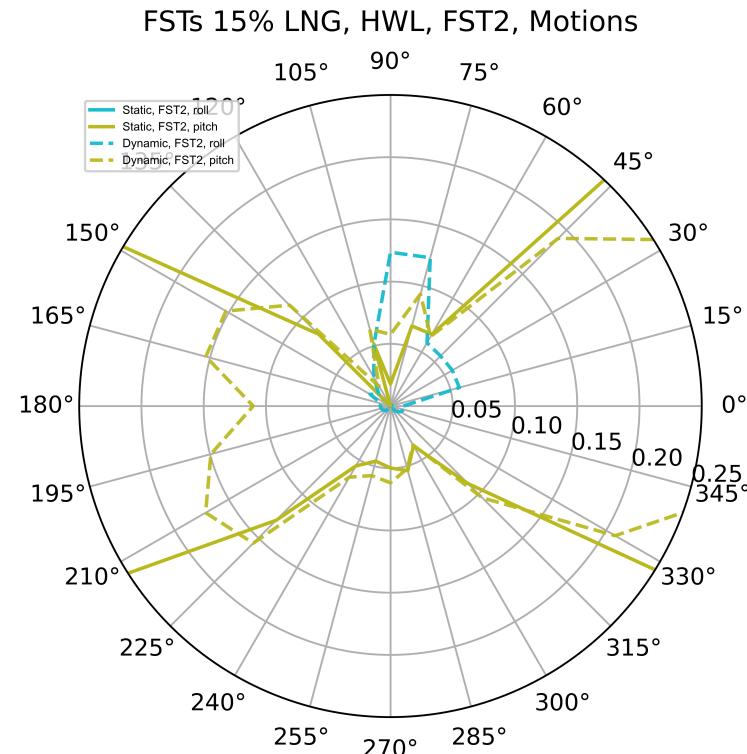


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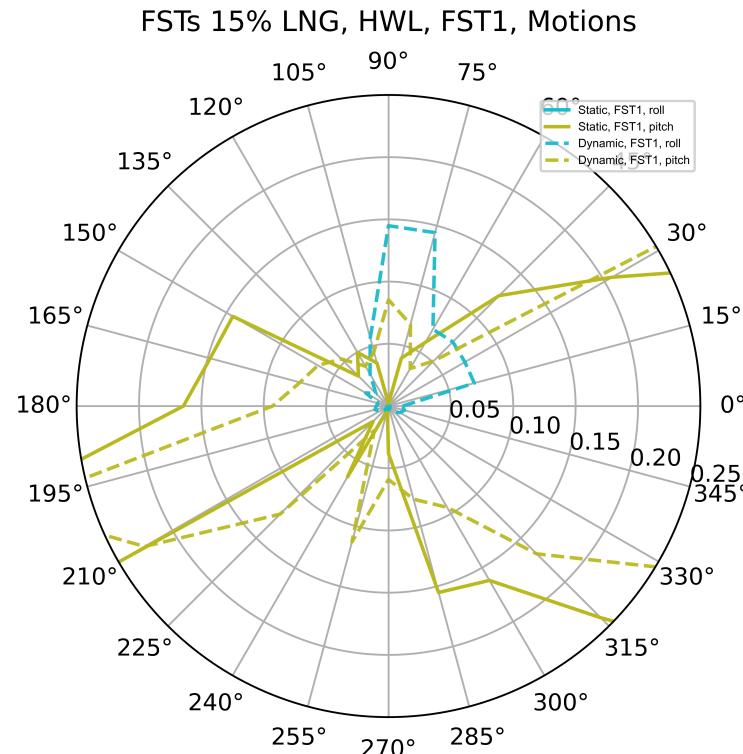
FSTs 15% LNG, 100yr, HWL - FST Rotations

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FST2



FST1



- TBA

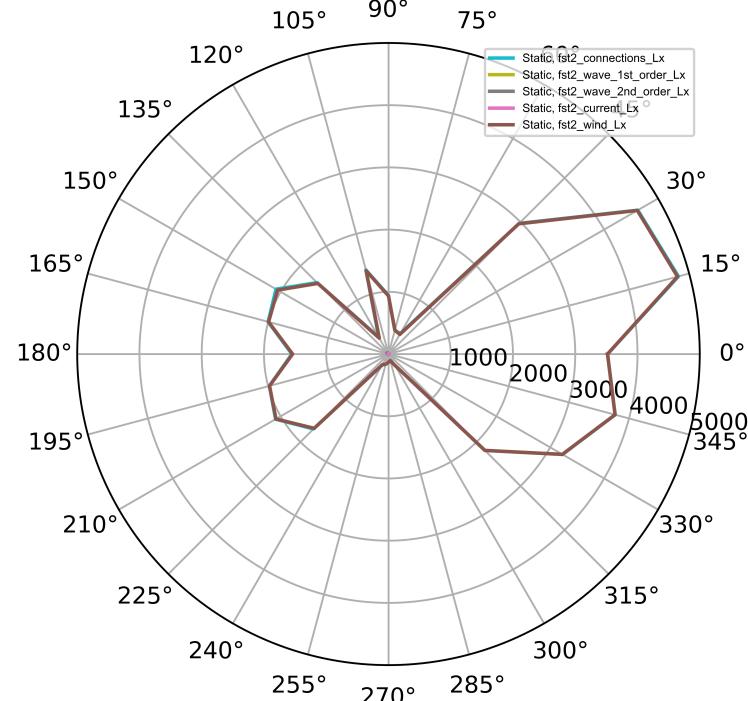
FST Load Response, Static

FSTs 95% LNG, 100yr, HWL, FST Forces, X Direction

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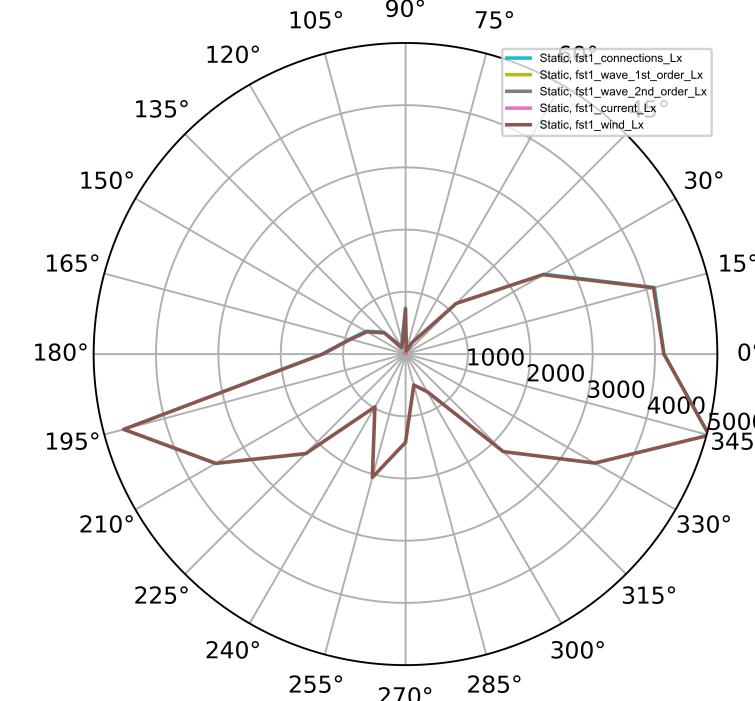
FST2

FSTs 95% LNG, HWL, FST2, Loads, Lx direction



FST1

FSTs 95% LNG, HWL, FST1, Loads, Lx direction



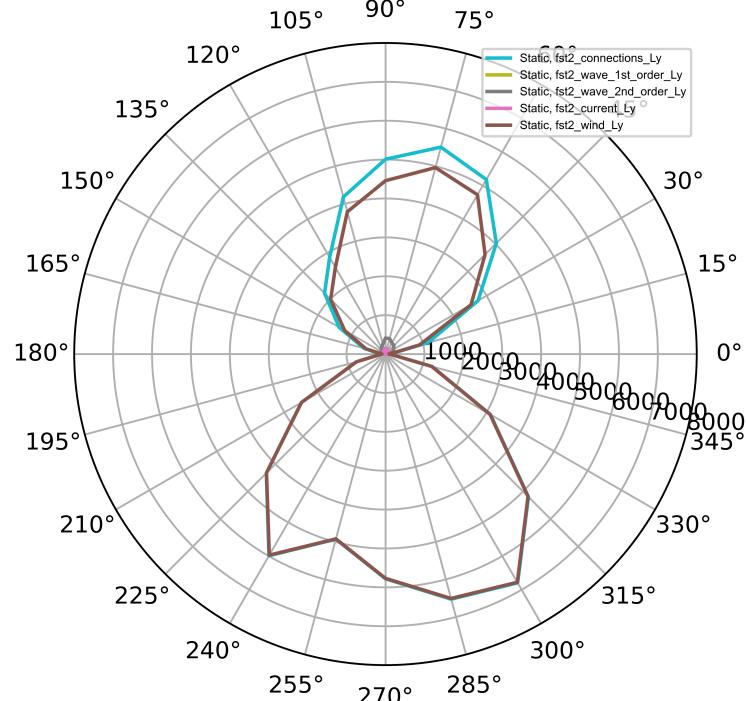
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FSTs 95% LNG, 100yr, HWL, FST Forces, Y Direction

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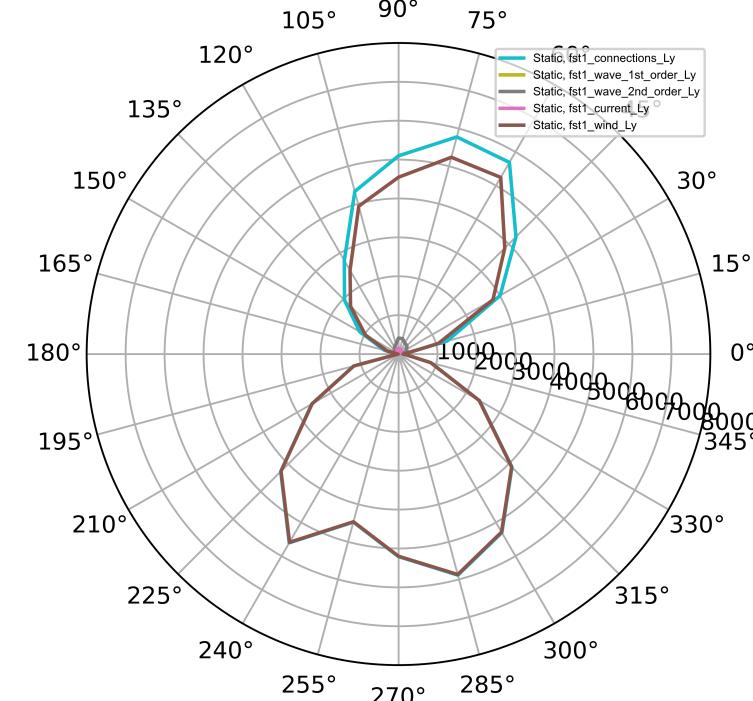
FST2

FSTs 95% LNG, HWL, FST2, Loads, Ly direction



FST1

FSTs 95% LNG, HWL, FST1, Loads, Ly direction



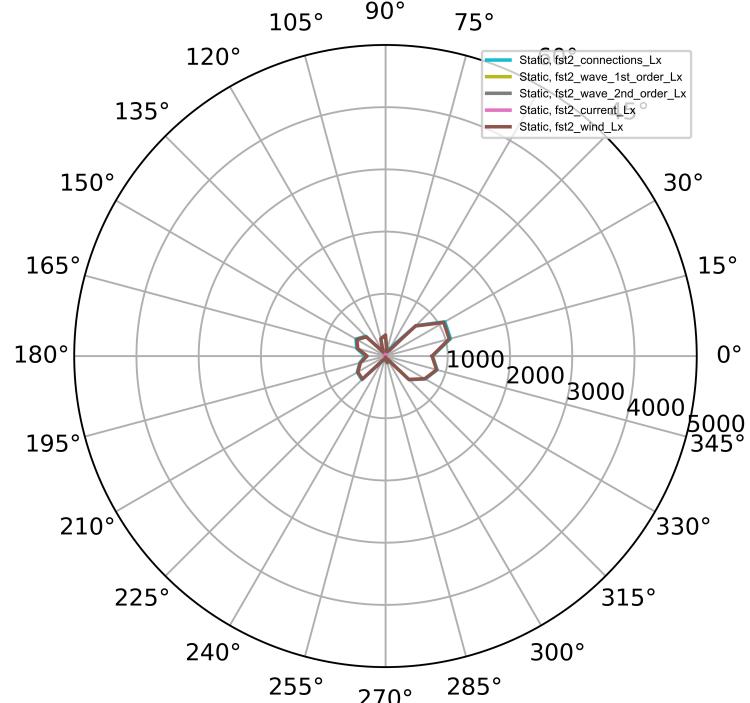
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FSTs 15% LNG, 100yr, LWL, FST Forces, X Direction

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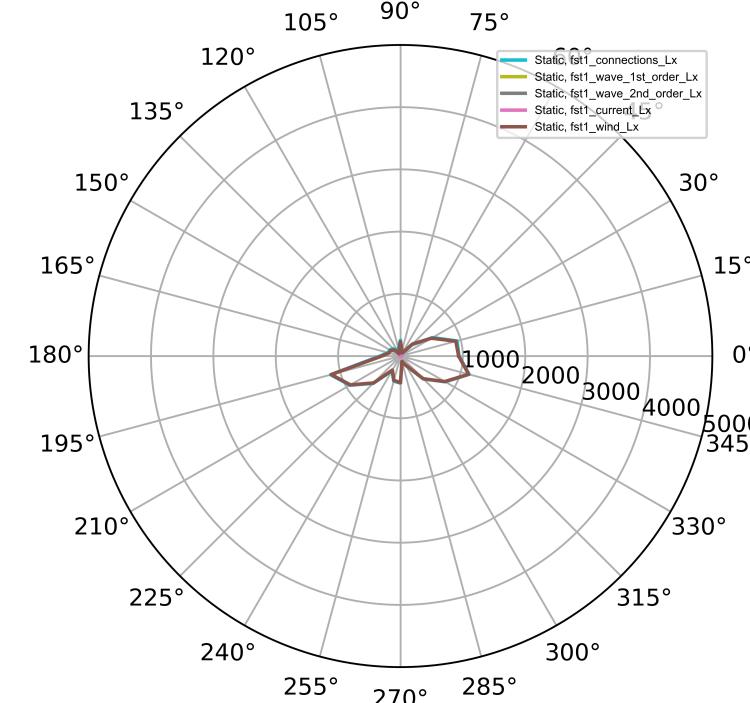
FST2

FSTs 95% LNG, LWL, FST2, Loads, Lx direction



FST1

FSTs 95% LNG, LWL, FST1, Loads, Lx direction



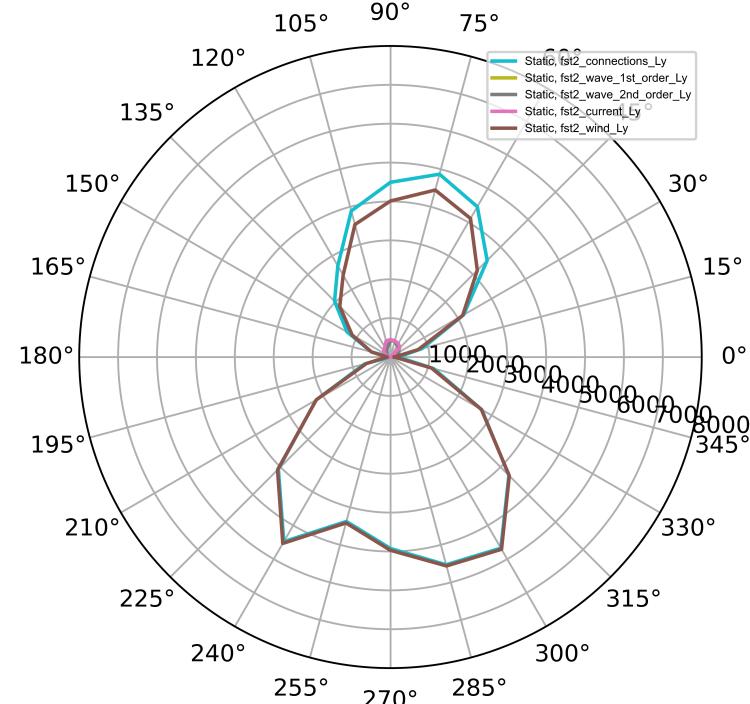
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FSTs 15% LNG, 100yr, LWL, FST Forces, Y Direction

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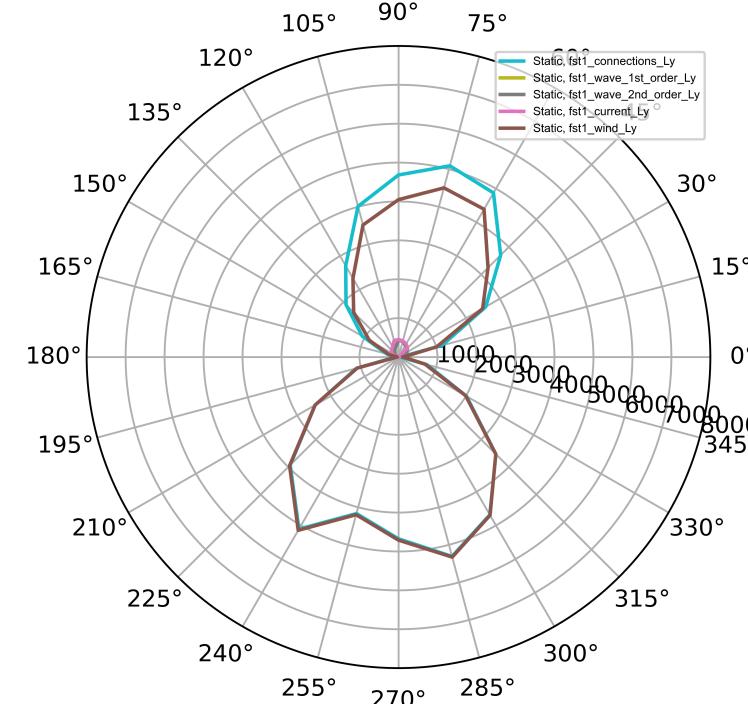
FST2

FSTs 95% LNG, LWL, FST2, Loads, Ly direction



FST1

FSTs 95% LNG, LWL, FST1, Loads, Ly direction



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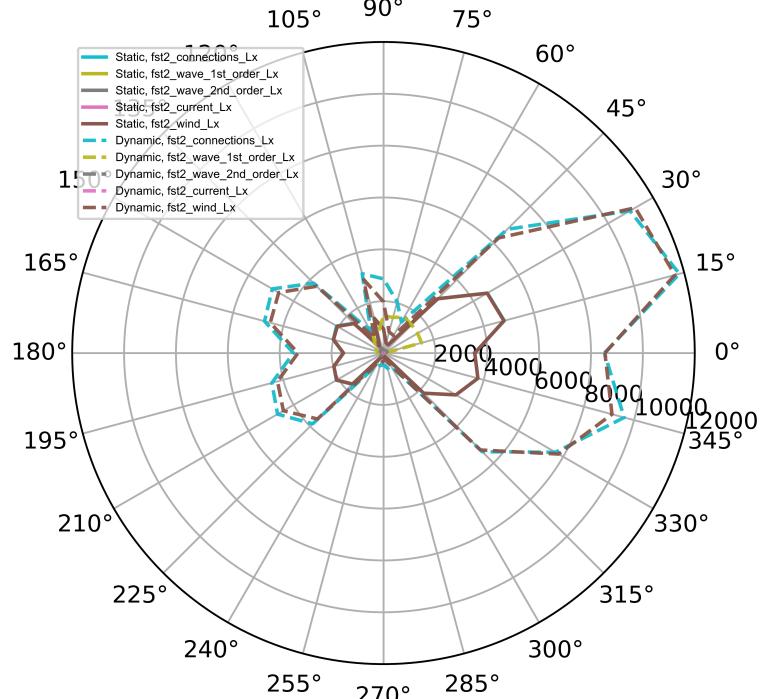
FST Load Response, Dynamic

FSTs 95% LNG, 100yr, HWL, FST Forces, X Direction

- TBA

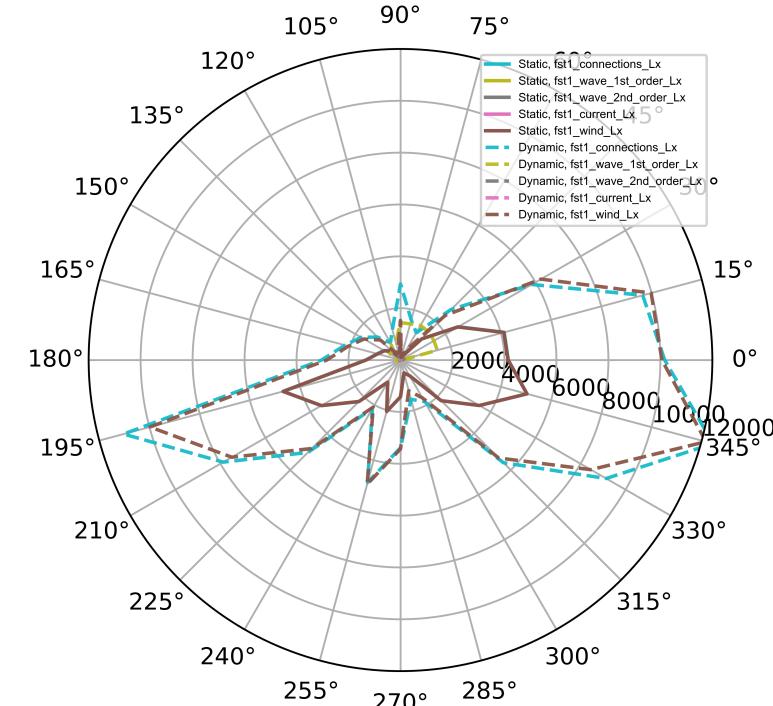
FST2

FSTs 95% LNG, HWL, FST2, Loads, Lx direction



FST1

FSTs 95% LNG, HWL, FST1, Loads, Lx direction



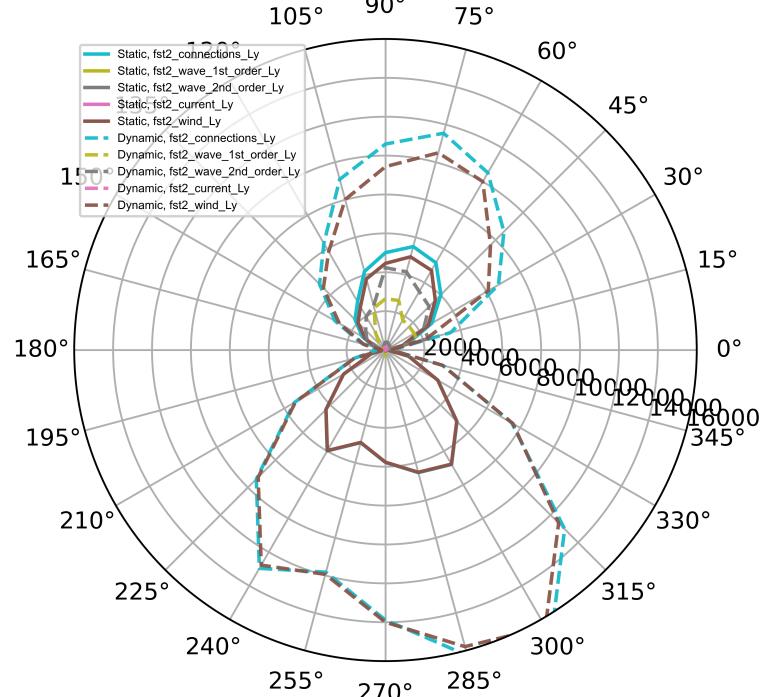
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FSTs 95% LNG, 100yr, HWL, FST Forces, Y Direction

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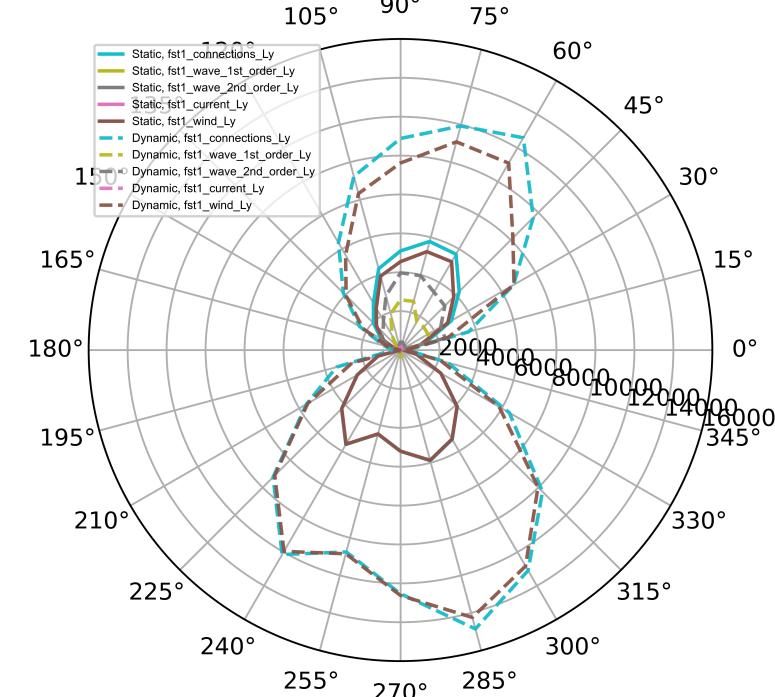
FST2

FSTs 95% LNG, HWL, FST2, Loads, Ly direction



FST1

FSTs 95% LNG, HWL, FST1, Loads, Ly direction



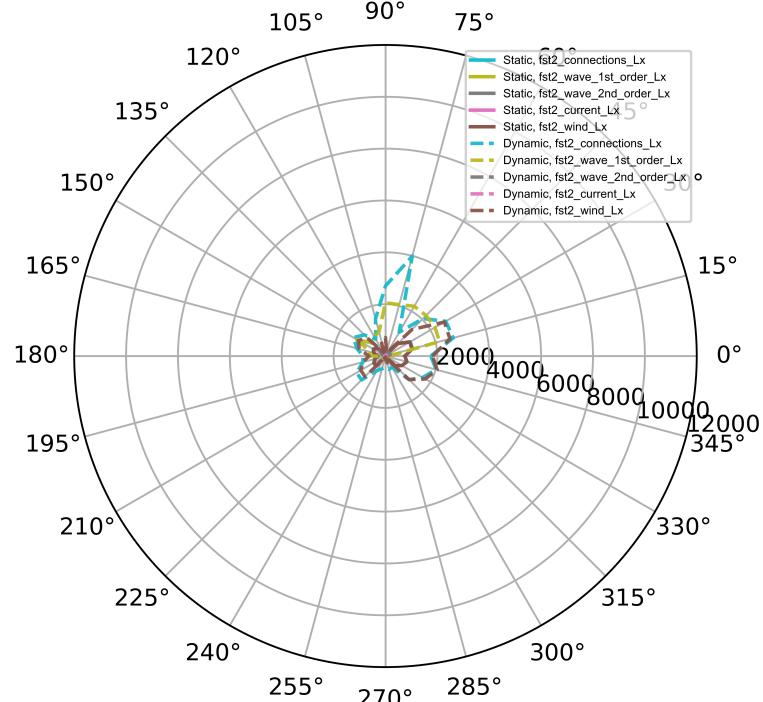
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FSTs 15% LNG, 100yr, LWL, FST Forces, X Direction

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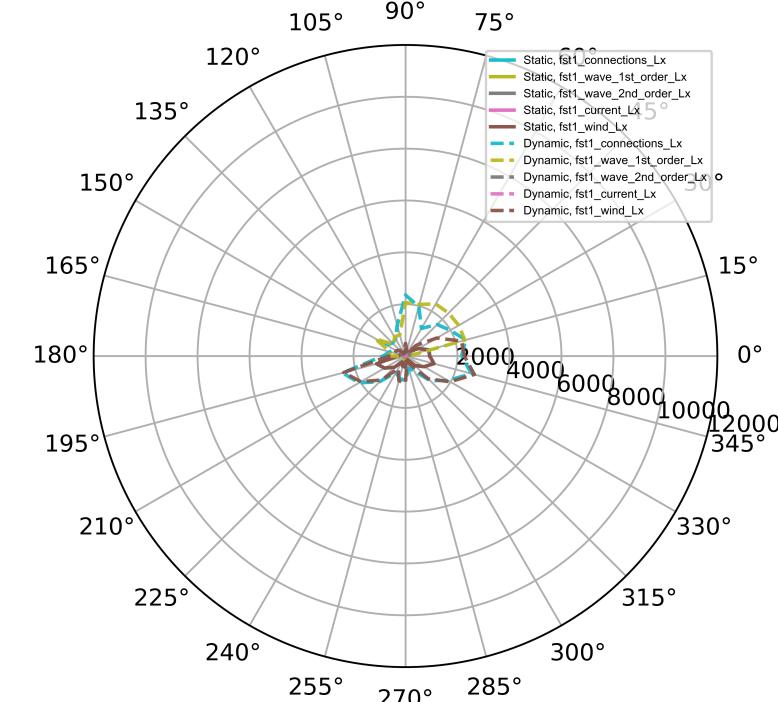
FST2

FSTs 95% LNG, LWL, FST2, Loads, Lx direction



FST1

FSTs 95% LNG, LWL, FST1, Loads, Lx direction



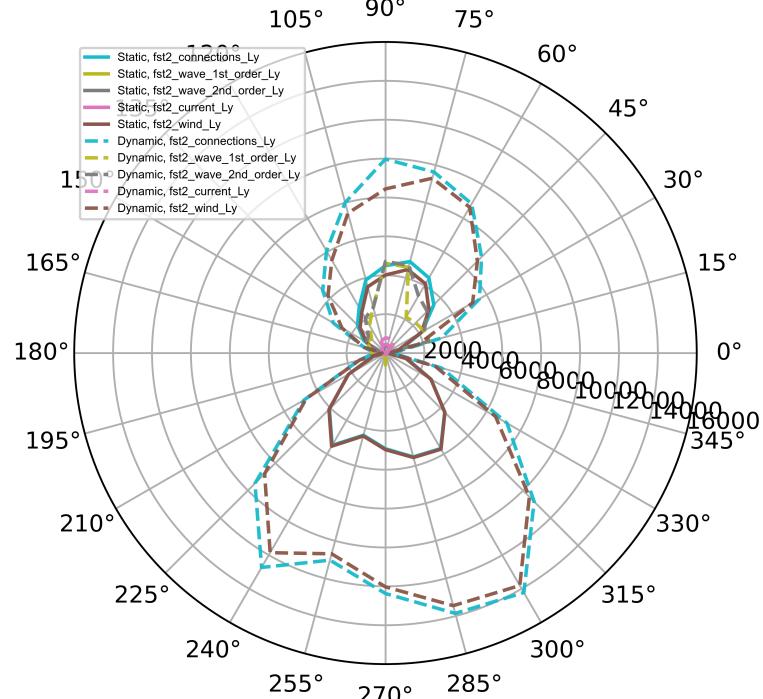
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FSTs 15% LNG, 100yr, LWL, FST Forces, Y Direction

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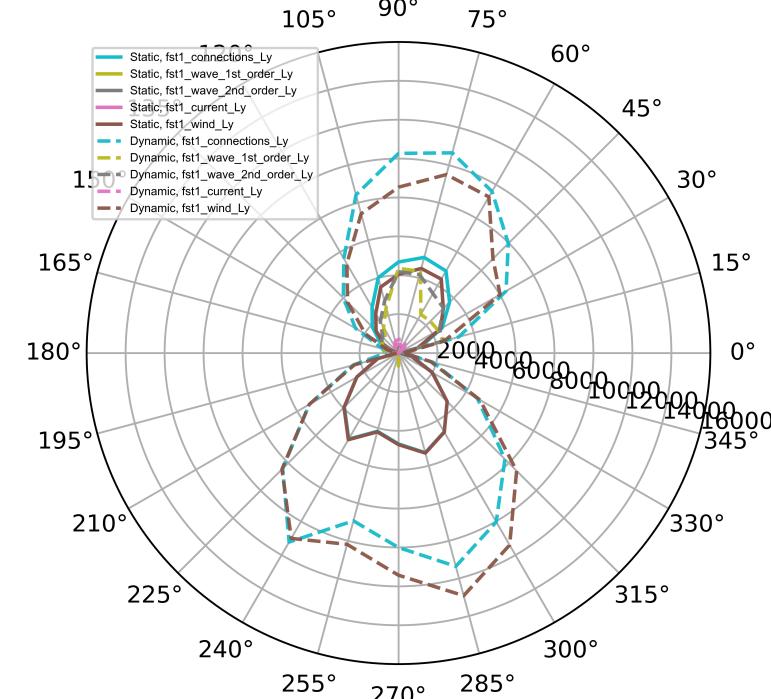
FST2

FSTs 95% LNG, LWL, FST2, Loads, Ly direction



FST1

FSTs 95% LNG, LWL, FST1, Loads, Ly direction



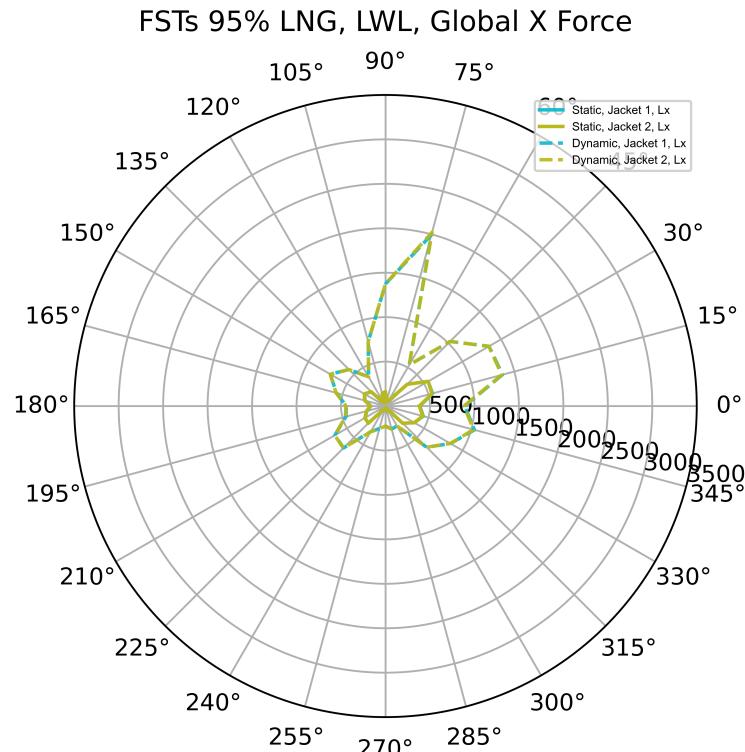
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Jacket Loads, Static

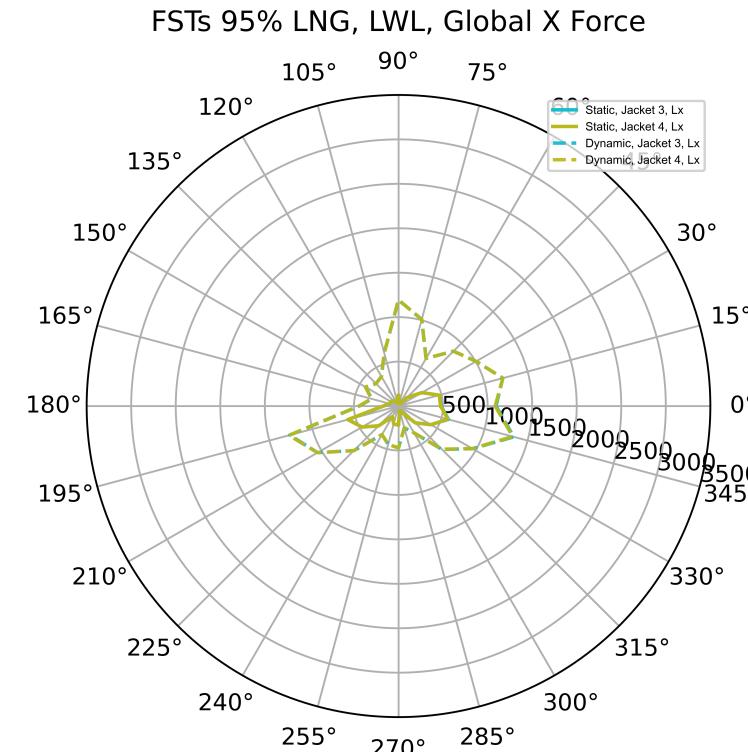
Max Jacket Loads, FSTs 95% LNG, 100yr, LWL, Fx

- Two (2) struts contribute to each jacket global force

FST2



FST1

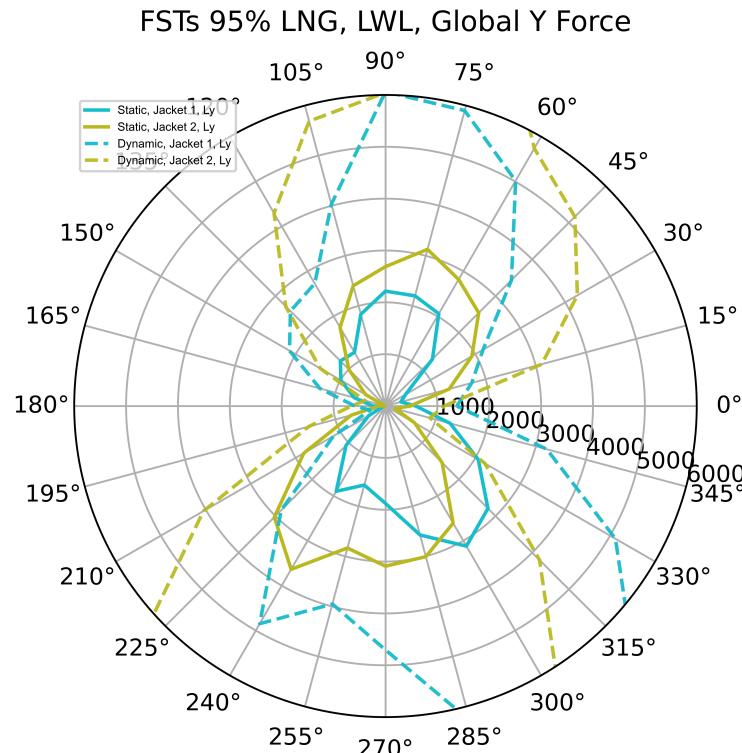


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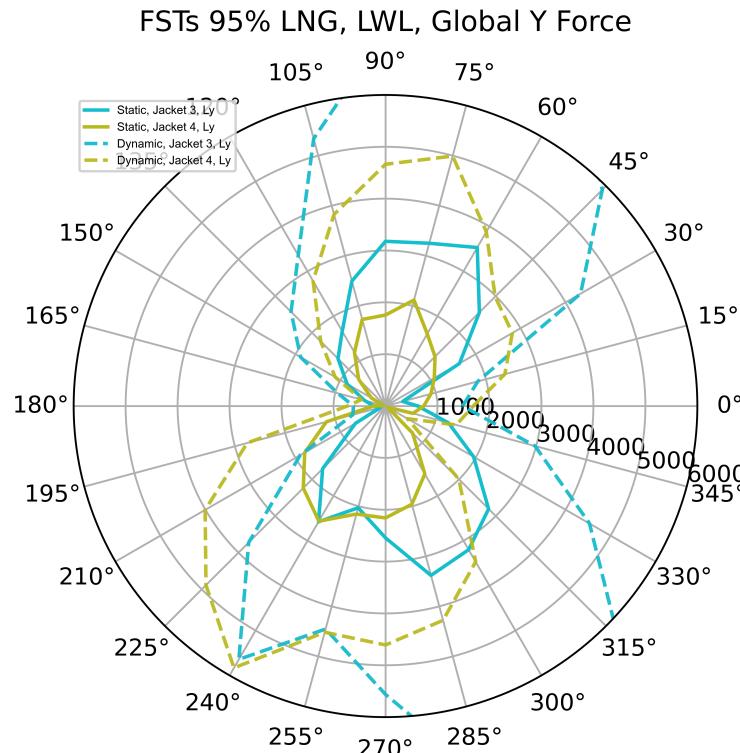
Max Jacket Loads, FSTs 95% LNG, 100yr, LWL, Fy

- Two (2) struts contribute to each jacket global force

FST2



FST1

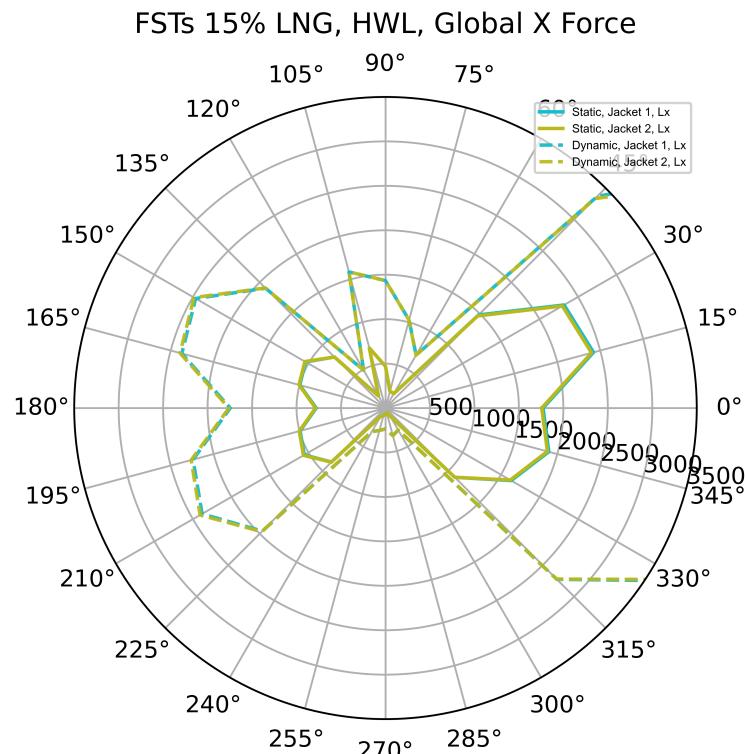


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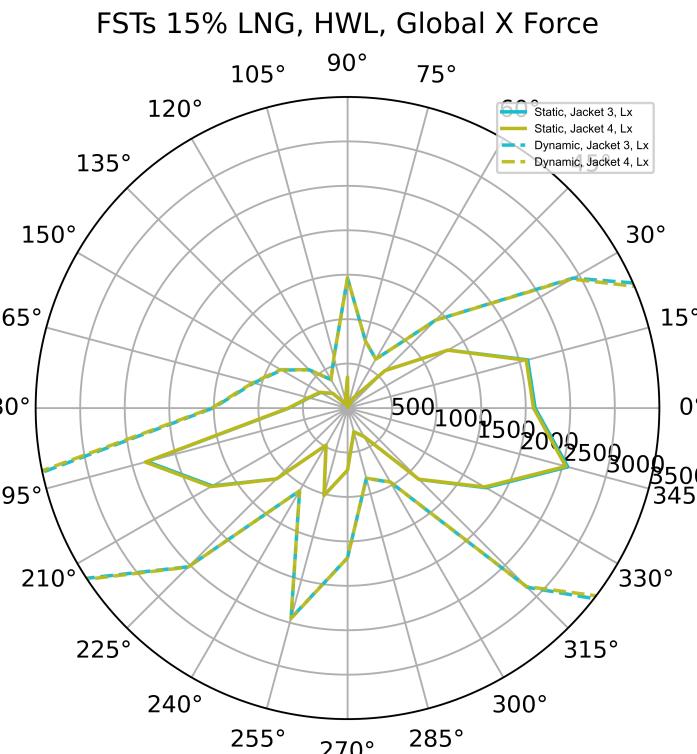
Max Jacket Loads, FSTs 95% LNG, 100yr, HWL, Fx

- Two (2) struts contribute to each jacket global force

FST2



FST1

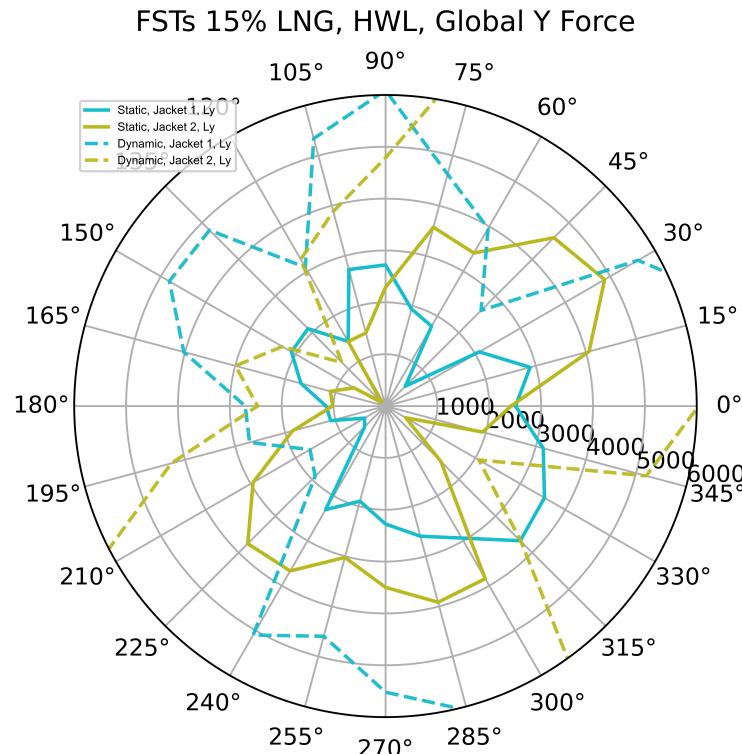


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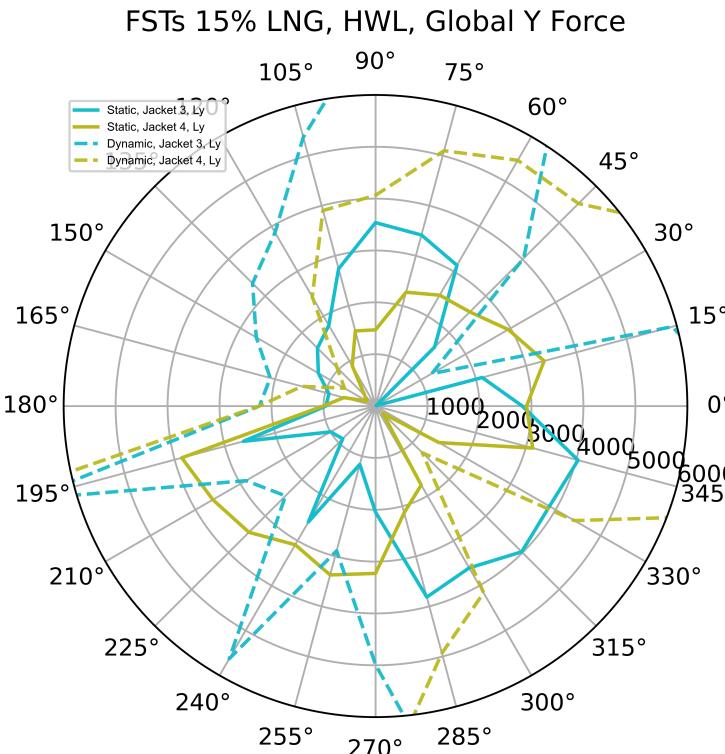
Max Jacket Loads, FSTs 95% LNG, 100yr, HWL, Fy

- Two (2) struts contribute to each jacket global force

FST2



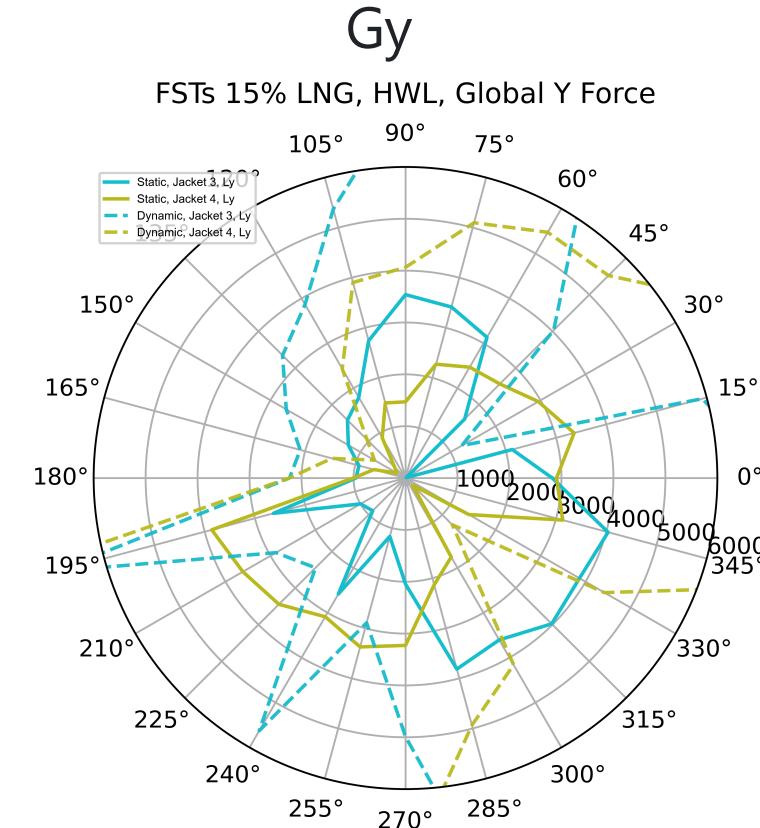
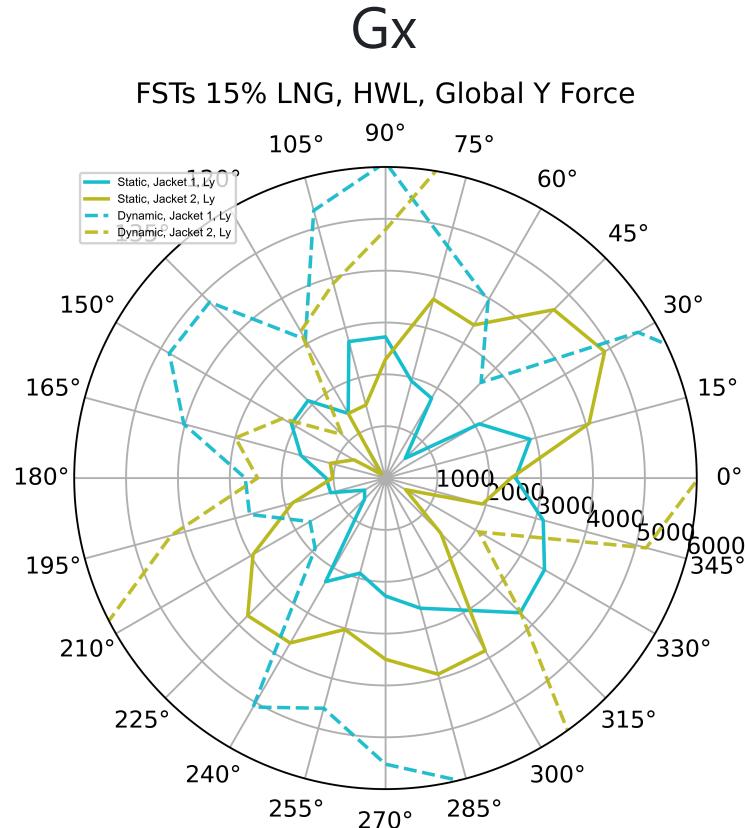
FST1



- TBA

Max Jacket Loads, FSTs 95% LNG, 100yr, HWL, Fx vs. Fy

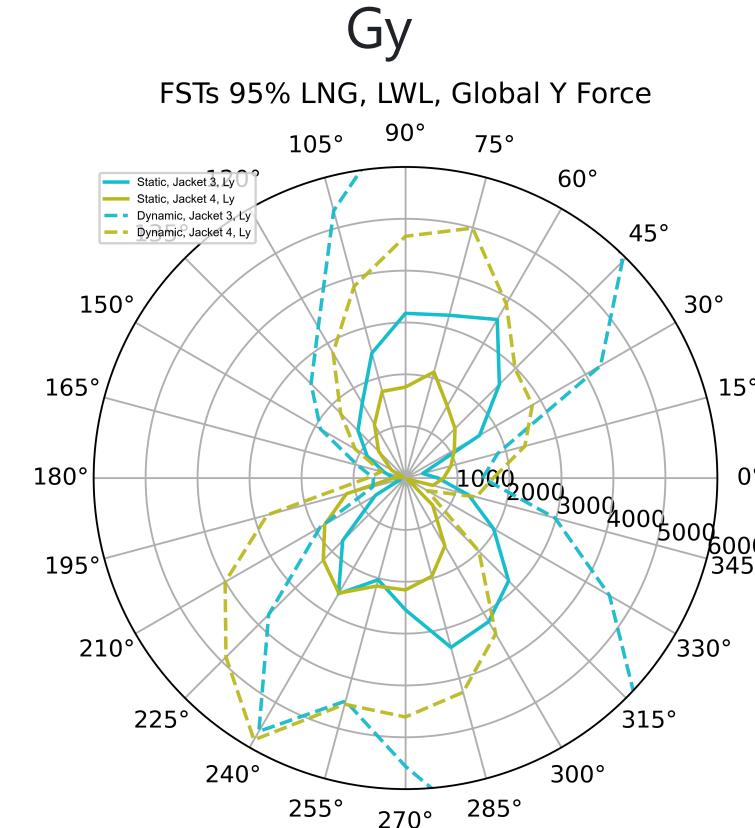
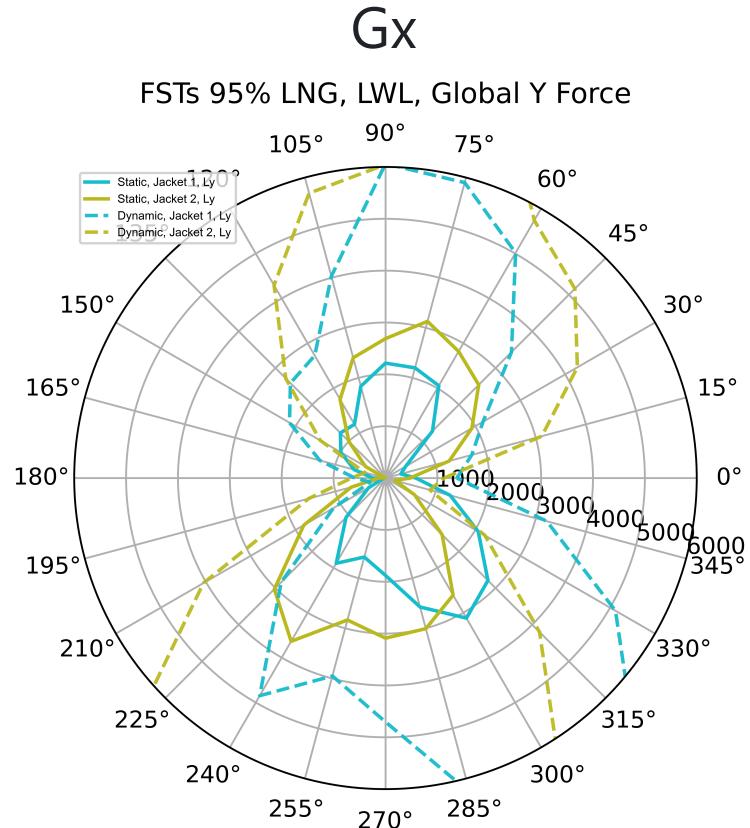
- Two (2) struts contribute to each jacket global force



- TBA

Max Jacket Loads, FSTs 95% LNG, 100yr, LWL, Fx vs. Fy

- Two (2) struts contribute to each jacket global force



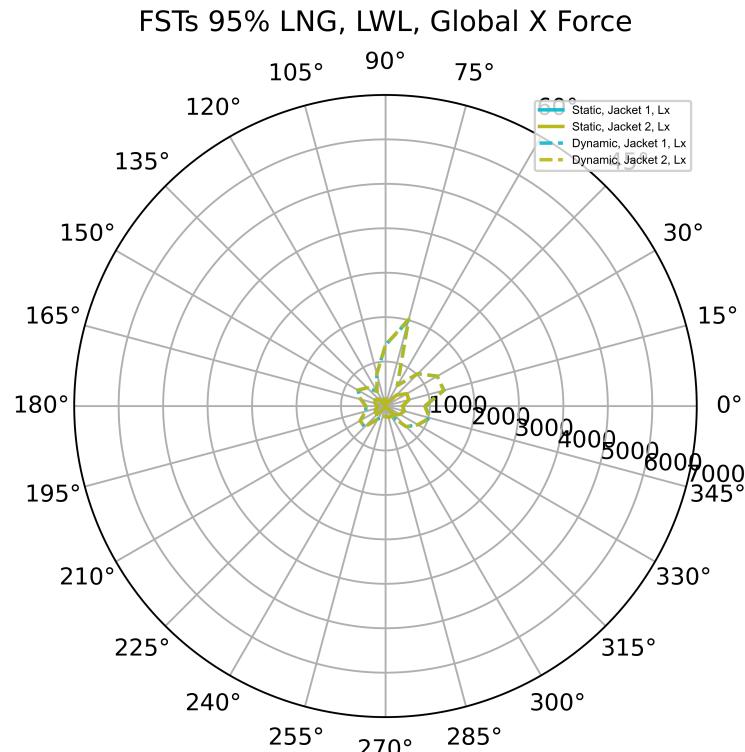
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Jacket Loads, Dynamic

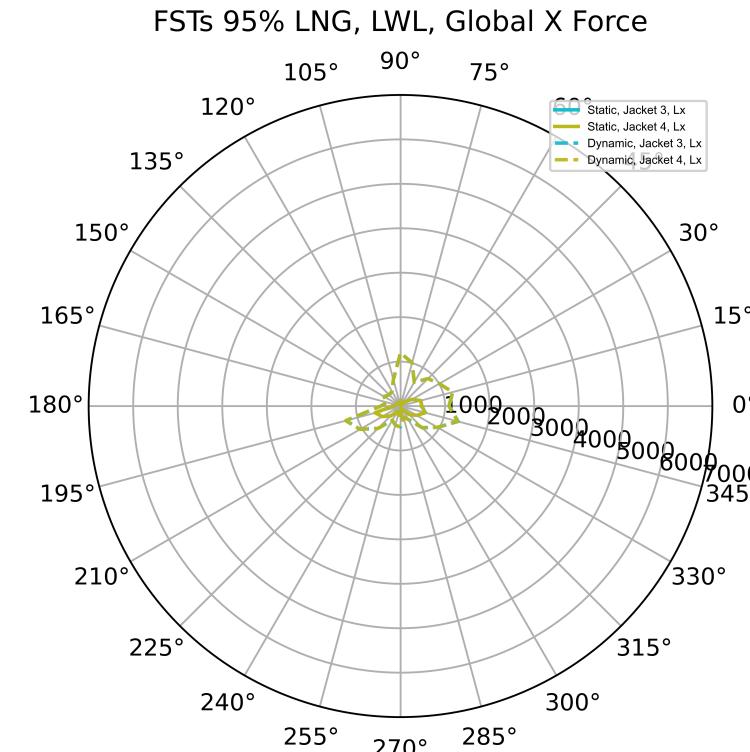
Max Jacket Loads, FSTs 95% LNG, 100yr, LWL, Fx

- Two (2) struts contribute to each jacket global force

FST2



FST1

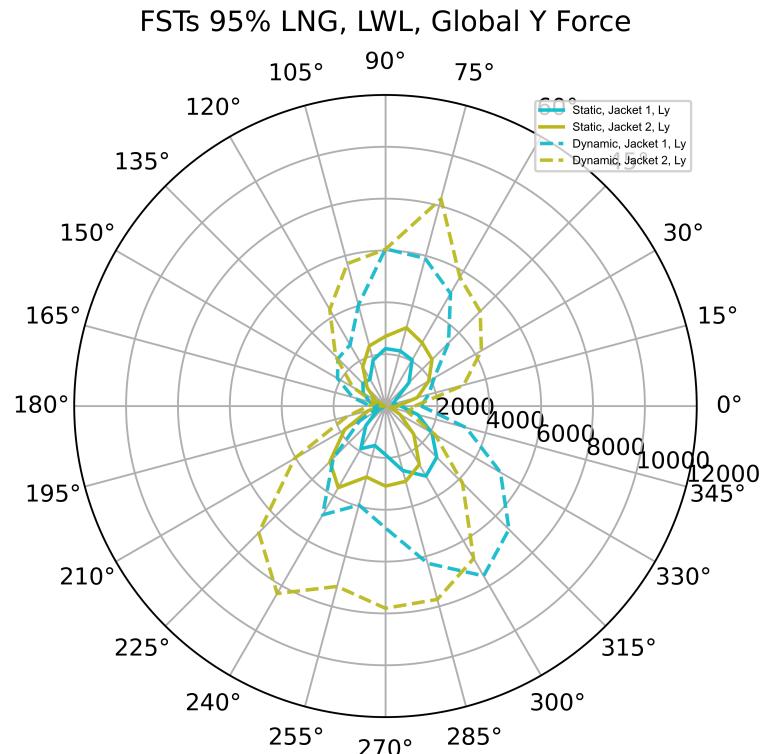


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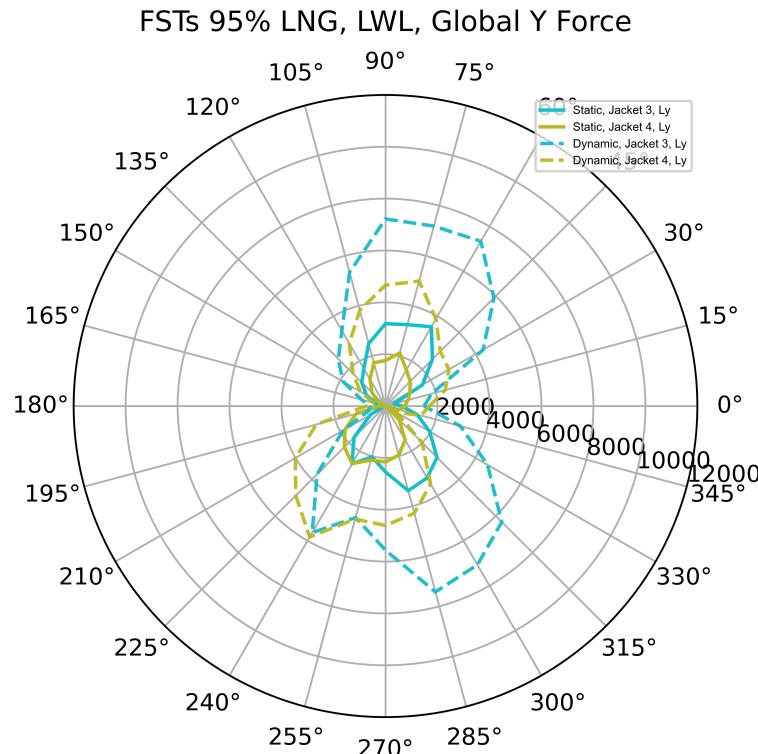
Max Jacket Loads, FSTs 95% LNG, 100yr, LWL, Fy

- Two (2) struts contribute to each jacket global force

FST2



FST1

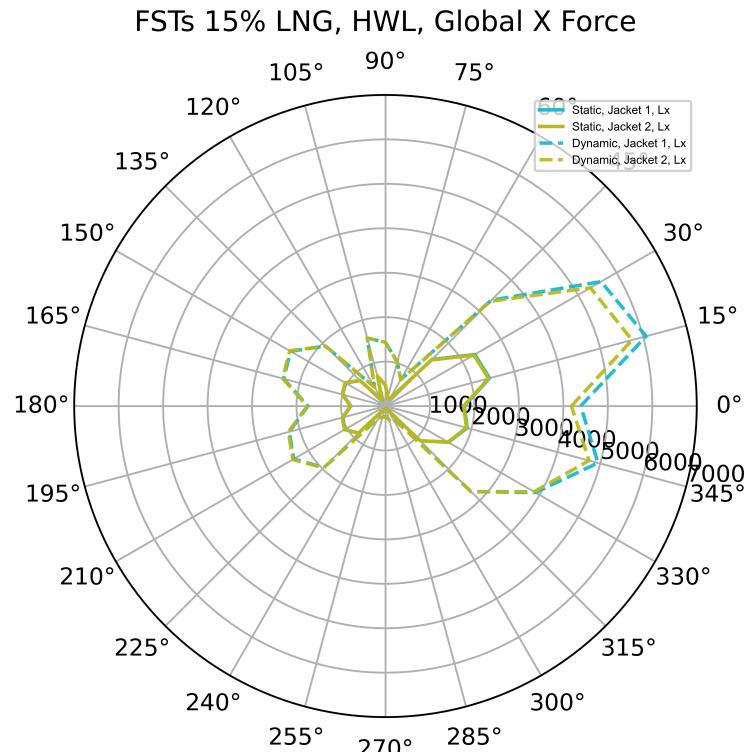


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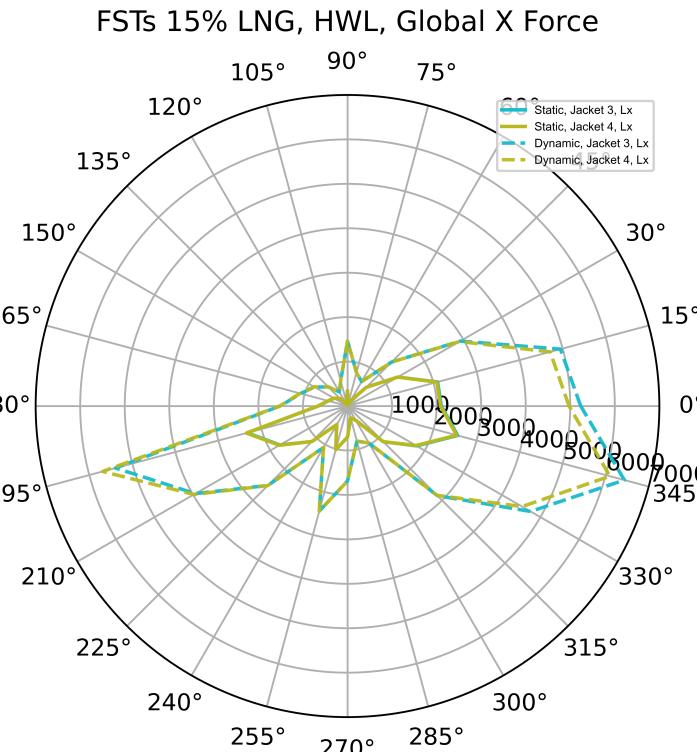
Max Jacket Loads, FSTs 95% LNG, 100yr, HWL, Fx

- Two (2) struts contribute to each jacket global force

FST2



FST1

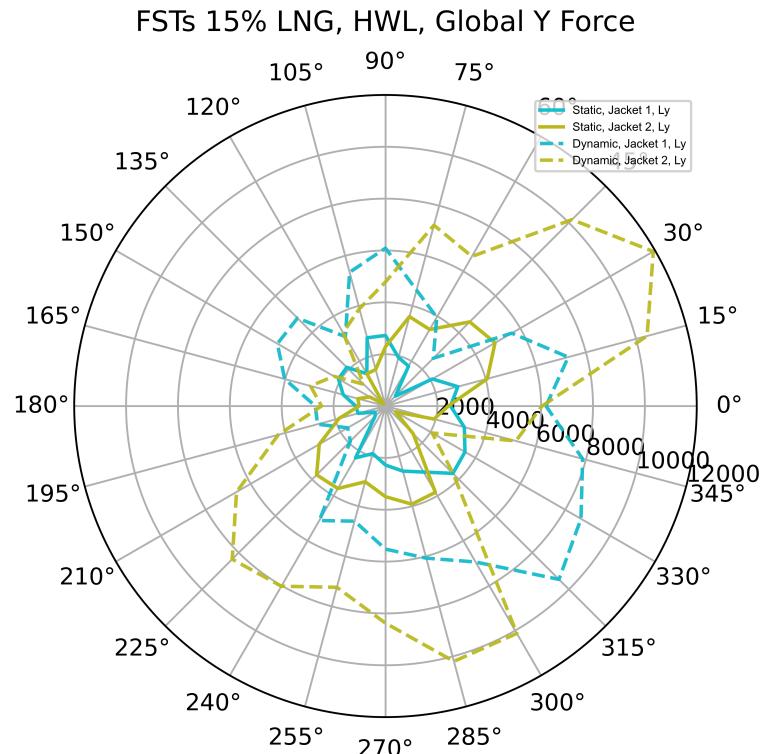


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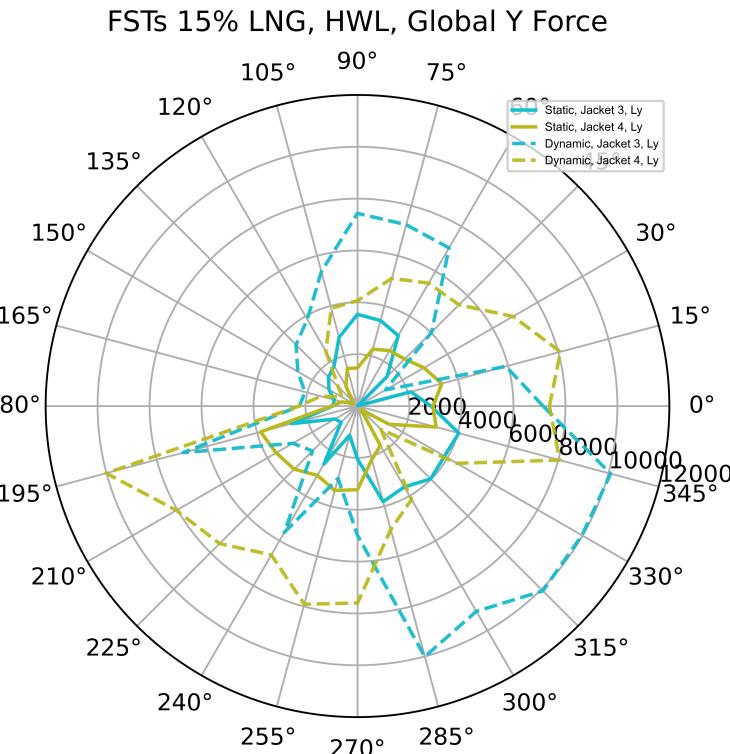
Max Jacket Loads, FSTs 95% LNG, 100yr, HWL, Fy

- Two (2) struts contribute to each jacket global force

FST2



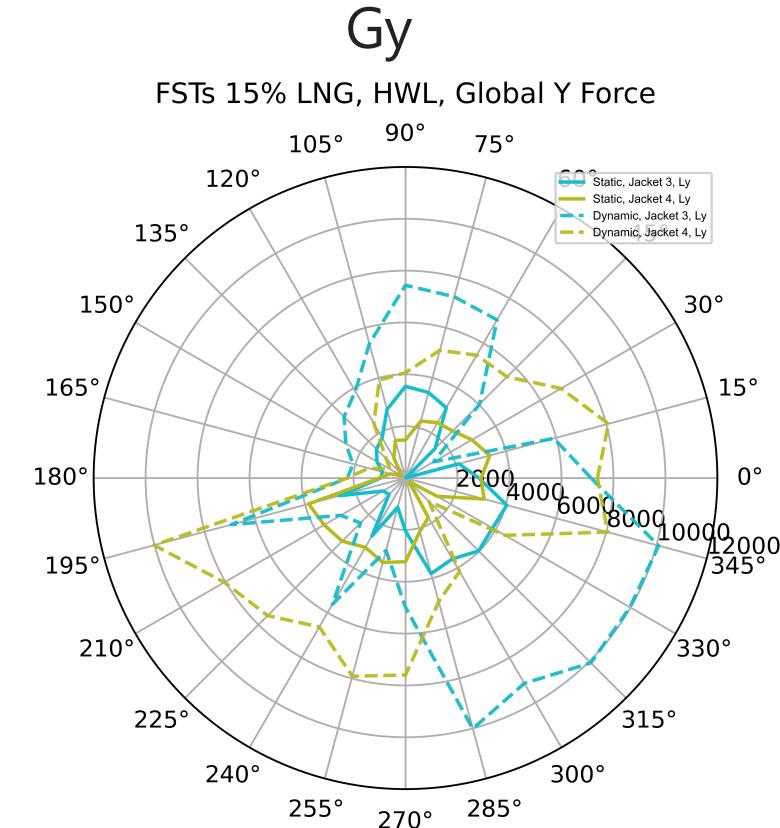
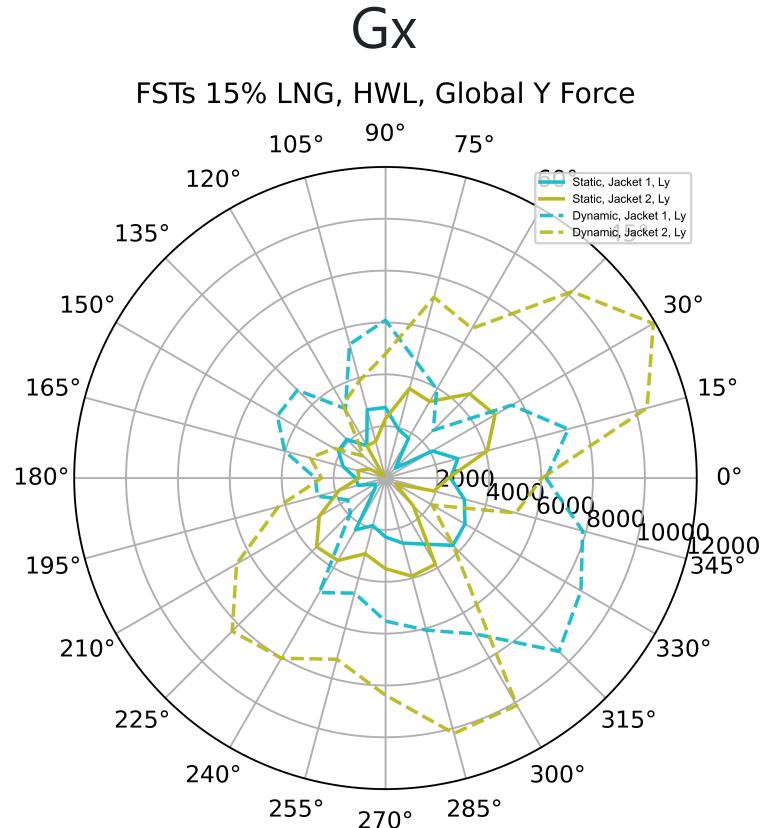
FST1



- TBA

Max Jacket Loads, FSTs 95% LNG, 100yr, HWL, Fx vs. Fy

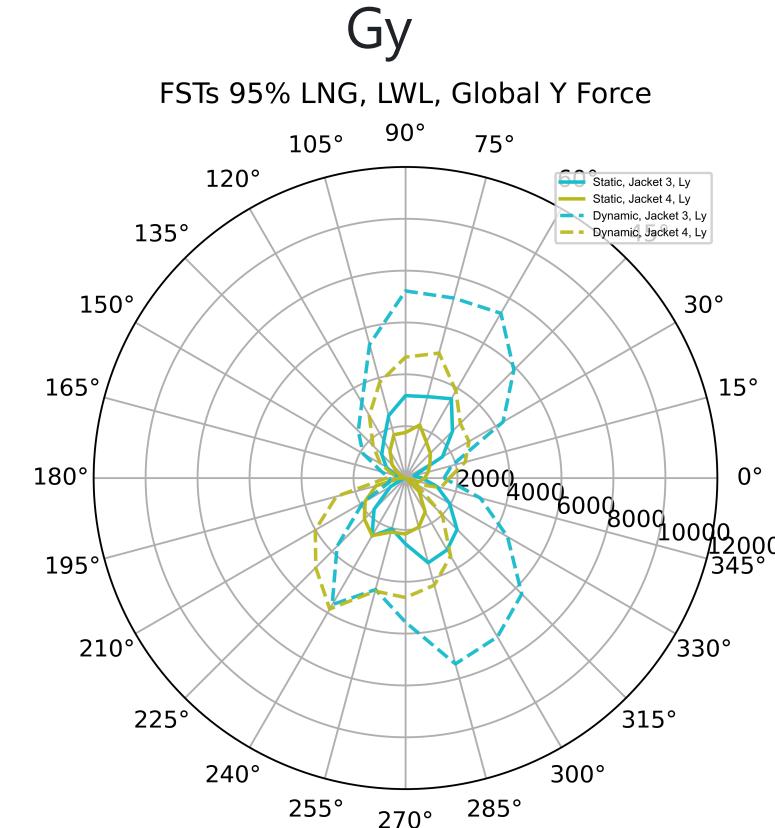
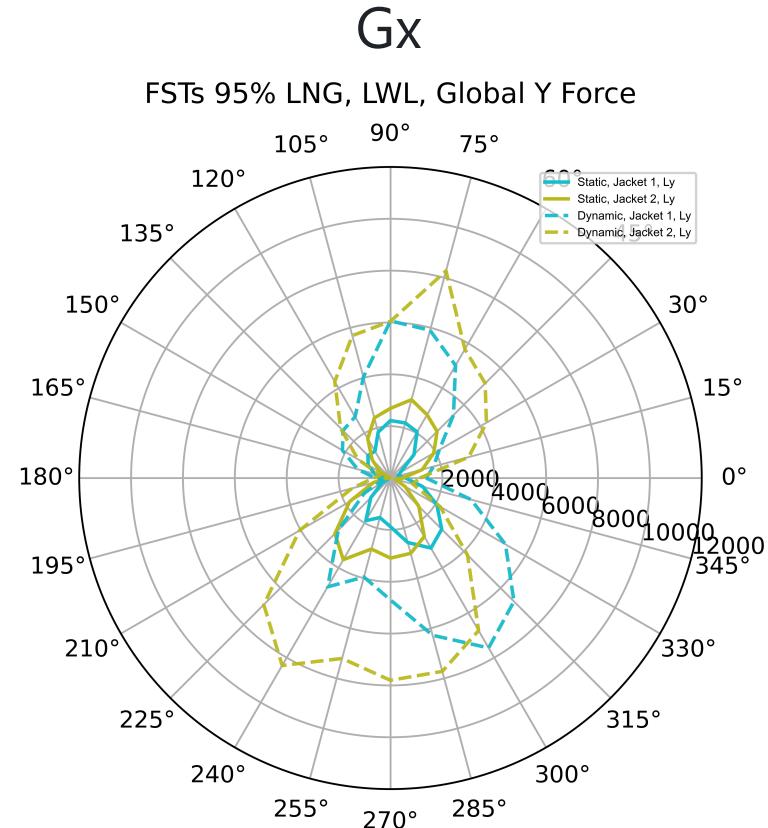
- Two (2) struts contribute to each jacket global force



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Max Jacket Loads, FSTs 95% LNG, 100yr, LWL, Fx vs. Fy

- Two (2) struts contribute to each jacket global force



- TBA

Max Jacket Loads, FSTs 15% LNG, 100yr, HWL, Fx vs. Fy

- Max loads are absolute maximum i.e. max (abs(max), abs(min))



- The HWL static & dynamic forces are significantly higher than those of LWL.
- The 15% LNG & LWL needs to be investigated further.