

# **Potential Flow Forces and Moments from Selected Ship Flow Codes in a Set of Numerical Experiments**

## **Appendix O — Minimum and Maximum Plots for Prescribed Pitch Motion of Model 5613**

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O-454.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 1.1000$ rad/s, $F_n = 0.0$ ) . . . . .	O-325

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O-455.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 1.1000$ rad/s, $F_n = 0.0$ )	O-326
O-456.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 1.1000$ rad/s, $F_n = 0.0$ )	O-326
O-457.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 0.2079$ rad/s, $F_n = 0.3$ )	O-328
O-458.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 0.2079$ rad/s, $F_n = 0.3$ )	O-328
O-459.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (FRE-DYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 0.2079$ rad/s, $F_n = 0.3$ )	O-329
O-460.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 0.2079$ rad/s, $F_n = 0.3$ )	O-329
O-461.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 0.2079$ rad/s, $F_n = 0.3$ )	O-330
O-462.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 0.2079$ rad/s, $F_n = 0.3$ )	O-330
O-463.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 0.2079$ rad/s, $F_n = 0.3$ )	O-331
O-464.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 0.2079$ rad/s, $F_n = 0.3$ )	O-331
O-465.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 0.3831$ rad/s, $F_n = 0.3$ )	O-333
O-466.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 0.3831$ rad/s, $F_n = 0.3$ )	O-333
O-467.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (FRE-DYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 0.3831$ rad/s, $F_n = 0.3$ )	O-334
O-468.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 0.3831$ rad/s, $F_n = 0.3$ )	O-334

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O-469.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 0.3831$ rad/s, $F_n = 0.3$ ) . . . . .	O-335
O-470.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 0.3831$ rad/s, $F_n = 0.3$ ) . . . . .	O-335
O-471.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 0.3831$ rad/s, $F_n = 0.3$ ) . . . . .	O-336
O-472.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 0.3831$ rad/s, $F_n = 0.3$ ) . . . . .	O-336
O-473.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 1.1000$ rad/s, $F_n = 0.3$ ) . . . . .	O-338
O-474.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 1.1000$ rad/s, $F_n = 0.3$ ) . . . . .	O-338
O-475.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (FRE-DYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 1.1000$ rad/s, $F_n = 0.3$ ) . . . . .	O-339
O-476.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 1.1000$ rad/s, $F_n = 0.3$ ) . . . . .	O-339
O-477.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 1.1000$ rad/s, $F_n = 0.3$ ) . . . . .	O-340
O-478.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 1.1000$ rad/s, $F_n = 0.3$ ) . . . . .	O-340
O-479.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 1.1000$ rad/s, $F_n = 0.3$ ) . . . . .	O-341
O-480.	Minimum and Maximum of Variables $M_y^{\text{rad}}$ and $(M_y^{\text{rad}})^*$ for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m, $\omega = 1.1000$ rad/s, $F_n = 0.3$ ) . . . . .	O-341



### Introduction

This appendix contains plots and tables related to the minimum and maximum value of each variable versus the pitch amplitude  $\theta_a$  for the prescribed pitch motion of Model 5613 in task 1. The plots are found in Figures O–1 through O–60. For each variable, speed, and frequency there is one plot that depicts the results from all the codes. If  $f$  stands for a time-dependent variable, then the quantities plotted are the minimum and maximum of

$$f^* \equiv \frac{f - \langle f \rangle}{\theta_a}$$

where  $\langle f \rangle$  is the mean. Only filtered values  $f$  are used since filtered values lessen the impact of spikes that probably originate in numerical filtering schemes in the codes. Linear variation as a function of the amplitude appears as a horizontal line. Quadratic variation appears as a straight line with a nonzero slope.

Tables O–1 through O–480 in this appendix correspond to the plots. Following each plot is one table for each of the eight codes for which data were received. The tables give information about the mean, the minimum and maximum of the unfiltered variable, the minimum and maximum of the filtered variable, and the starred function depicted in the figure.

For the corresponding time history plots, the reader is referred to Appendix E.

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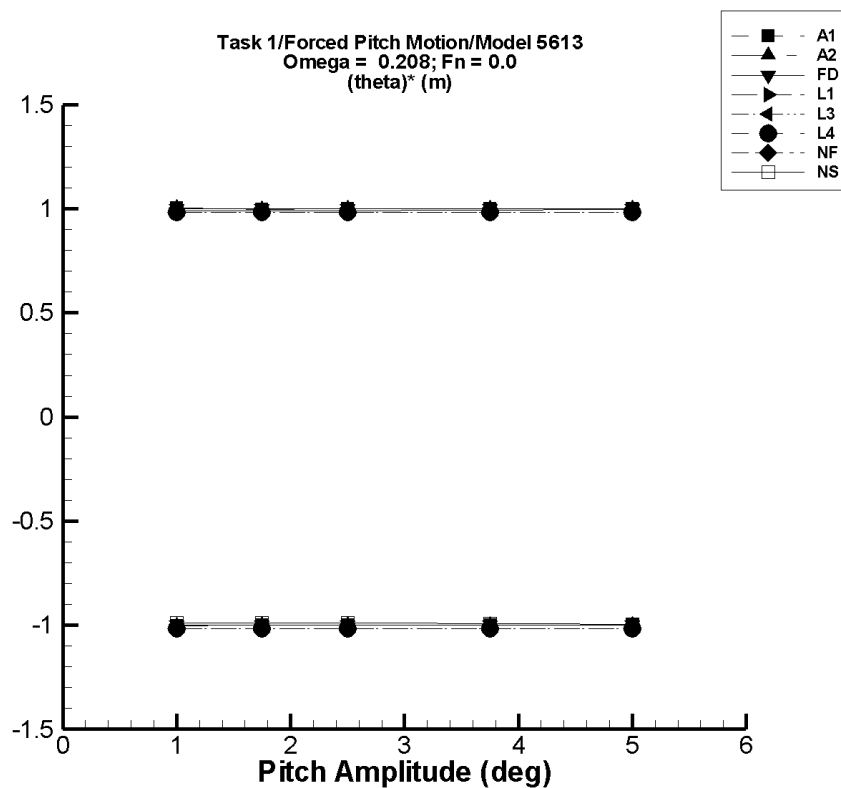


Figure O-1. Minimum and maximum of filtered  $(\theta - \langle \theta \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

TASK 1/PITCH MOTION/MODEL 5613

Table O–1. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-6.06E-07	-1.00	1.00	-1.00	1.00	-1.00	1.00
1.75	-1.18E-06	-1.75	1.75	-1.75	1.75	-0.997	0.999
2.50	-1.52E-06	-2.50	2.50	-2.50	2.50	-0.998	0.999
3.75	-3.13E-06	-3.75	3.75	-3.74	3.75	-0.998	0.999
5.00	-3.69E-06	-5.00	5.00	-5.00	5.00	-0.999	1.00

Table O–2. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-6.06E-07	-1.00	1.00	-1.00	1.00	-1.00	1.00
1.75	-1.18E-06	-1.75	1.75	-1.75	1.75	-0.997	0.999
2.50	-1.52E-06	-2.50	2.50	-2.50	2.50	-0.998	0.999
3.75	-3.13E-06	-3.75	3.75	-3.74	3.75	-0.998	0.999
5.00	-3.69E-06	-5.00	5.00	-5.00	5.00	-0.999	1.00

Table O–3. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

FREDYN							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-7.23E-08	-1.00	1.00	-0.999	0.999	-0.999	0.999
1.75	-3.44E-08	-1.75	1.75	-1.75	1.75	-0.999	0.999
2.50	-1.64E-07	-2.50	2.50	-2.50	2.50	-0.999	0.999
3.75	1.14E-07	-3.75	3.75	-3.75	3.75	-0.999	0.999
5.00	-2.70E-07	-5.00	5.00	-4.99	4.99	-0.999	0.999

Table O–4. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

LAMP-1							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-5.05E-07	-1.00	1.00	-1.00	1.00	-1.00	1.00
1.75	3.68E-06	-1.75	1.75	-1.75	1.75	-1.00	1.00
2.50	8.79E-07	-2.50	2.50	-2.50	2.50	-1.00	1.00
3.75	6.74E-06	-3.75	3.75	-3.75	3.75	-1.00	1.00
5.00	1.71E-06	-5.00	5.00	-5.00	5.00	-1.00	1.00

Table O–5. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$	$\langle\theta\rangle$	<b>Unfiltered <math>\theta</math></b>		<b>Filtered <math>\theta</math></b>		<b>Filtered <math>(\theta)^*</math></b>	
(°)	Mean (deg)	Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-5.05E-07	-1.00	1.00	-1.00	1.00	-1.00	1.00
1.75	3.68E-06	-1.75	1.75	-1.75	1.75	-1.00	1.00
2.50	8.79E-07	-2.50	2.50	-2.50	2.50	-1.00	1.00
3.75	6.74E-06	-3.75	3.75	-3.75	3.75	-1.00	1.00
5.00	1.71E-06	-5.00	5.00	-5.00	5.00	-1.00	1.00

Table O–6. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$	$\langle\theta\rangle$	<b>Unfiltered <math>\theta</math></b>		<b>Filtered <math>\theta</math></b>		<b>Filtered <math>(\theta)^*</math></b>	
(°)	Mean (deg)	Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-5.05E-07	-1.00	1.00	-1.00	1.00	-1.00	1.00
1.75	3.68E-06	-1.75	1.75	-1.75	1.75	-1.00	1.00
2.50	8.79E-07	-2.50	2.50	-2.50	2.50	-1.00	1.00
3.75	6.74E-06	-3.75	3.75	-3.75	3.75	-1.00	1.00
5.00	1.71E-06	-5.00	5.00	-5.00	5.00	-1.00	1.00

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Table O–7. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$	$\langle\theta\rangle$	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
(°)	Mean (deg)	Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–8. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$	$\langle\theta\rangle$	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
(°)	Mean (deg)	Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	4.89E-08	-1.00	1.00	-0.990	0.990	-0.990	0.990
1.75	1.87E-07	-1.75	1.75	-1.73	1.73	-0.990	0.990
2.50	2.43E-07	-2.50	2.50	-2.48	2.48	-0.990	0.990
3.75	-7.97E-08	-3.75	3.75	-3.73	3.73	-0.994	0.994
5.00	3.33E-07	-5.00	5.00	-4.98	4.98	-0.997	0.997

# TASK 1/PITCH MOTION/MODEL 5613

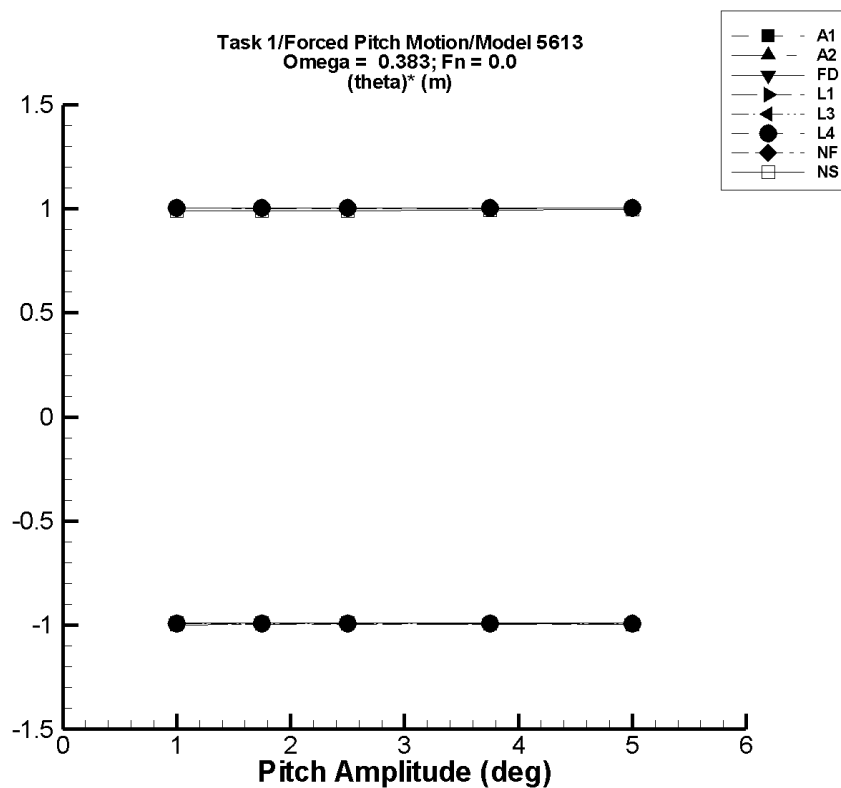


Figure O-2. Minimum and maximum of filtered  $(\theta - \langle \theta \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–9. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-4.18E-08	-1.00	1.00	-0.999	1.01	-0.999	1.01
1.75	3.68E-08	-1.75	1.75	-1.74	1.75	-0.995	1.00
2.50	1.32E-07	-2.50	2.50	-2.49	2.50	-0.996	1.00
3.75	2.64E-08	-3.75	3.75	-3.73	3.76	-0.996	1.00
5.00	-6.11E-08	-5.00	5.00	-4.98	5.02	-0.997	1.00

Table O–10. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-4.18E-08	-1.00	1.00	-0.999	1.01	-0.999	1.01
1.75	3.68E-08	-1.75	1.75	-1.74	1.75	-0.995	1.00
2.50	1.32E-07	-2.50	2.50	-2.49	2.50	-0.996	1.00
3.75	2.64E-08	-3.75	3.75	-3.73	3.76	-0.996	1.00
5.00	-6.11E-08	-5.00	5.00	-4.98	5.02	-0.997	1.00



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Table O–11. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

FREDYN							
$\theta_a$ (°)	$\langle \theta \rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-1.35E-07	-1.00	1.00	-0.996	0.996	-0.996	0.996
1.75	-1.87E-07	-1.75	1.75	-1.74	1.74	-0.996	0.996
2.50	-3.07E-07	-2.50	2.50	-2.49	2.49	-0.996	0.996
3.75	-6.55E-07	-3.75	3.75	-3.74	3.74	-0.996	0.996
5.00	-5.16E-07	-5.00	5.00	-4.98	4.98	-0.996	0.996

Table O–12. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

LAMP-1							
$\theta_a$ (°)	$\langle \theta \rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	4.66E-06	-1.00	1.00	-0.999	0.999	-0.999	0.999
1.75	4.69E-06	-1.75	1.75	-1.75	1.75	-0.999	0.999
2.50	9.93E-06	-2.50	2.50	-2.50	2.50	-0.999	0.999
3.75	1.19E-05	-3.75	3.75	-3.75	3.75	-0.999	0.999
5.00	2.05E-05	-5.00	5.00	-4.99	4.99	-0.999	0.999

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Table O–13. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

LAMP-3							
$\theta_a$ (°)	$\langle \theta \rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	4.66E-06	-1.00	1.00	-0.999	0.999	-0.999	0.999
1.75	4.69E-06	-1.75	1.75	-1.75	1.75	-0.999	0.999
2.50	9.93E-06	-2.50	2.50	-2.50	2.50	-0.999	0.999
3.75	1.19E-05	-3.75	3.75	-3.75	3.75	-0.999	0.999
5.00	2.05E-05	-5.00	5.00	-4.99	4.99	-0.999	0.999

Table O–14. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

LAMP-4							
$\theta_a$ (°)	$\langle \theta \rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	4.66E-06	-1.00	1.00	-0.999	0.999	-0.999	0.999
1.75	4.69E-06	-1.75	1.75	-1.75	1.75	-0.999	0.999
2.50	9.93E-06	-2.50	2.50	-2.50	2.50	-0.999	0.999
3.75	1.19E-05	-3.75	3.75	-3.75	3.75	-0.999	0.999
5.00	2.05E-05	-5.00	5.00	-4.99	4.99	-0.999	0.999

TASK 1/PITCH MOTION/MODEL 5613

Table O–15. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$	$\langle\theta\rangle$	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
(°)	Mean (deg)	Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–16. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$	$\langle\theta\rangle$	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
(°)	Mean (deg)	Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-1.73E-08	-1.00	1.00	-0.990	0.990	-0.990	0.990
1.75	-2.42E-08	-1.75	1.75	-1.73	1.73	-0.990	0.990
2.50	-1.39E-07	-2.50	2.50	-2.47	2.47	-0.990	0.990
3.75	-6.09E-08	-3.75	3.75	-3.73	3.73	-0.994	0.994
5.00	-1.77E-07	-5.00	5.00	-4.98	4.98	-0.997	0.997

# TASK 1/PITCH MOTION/MODEL 5613

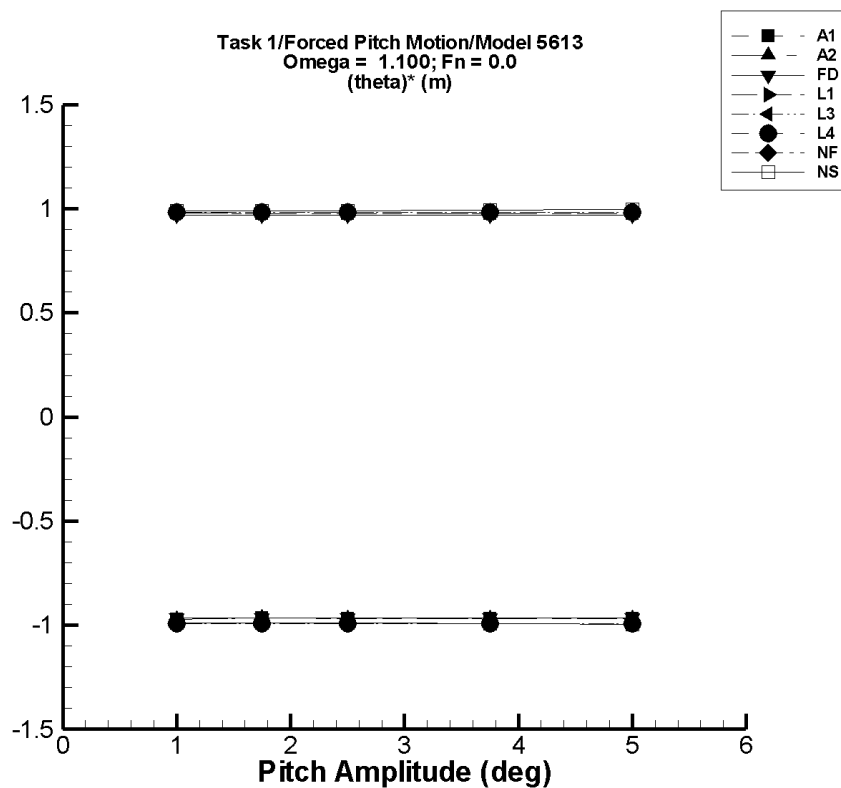


Figure O-3. Minimum and maximum of filtered  $(\theta - \langle \theta \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–17. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-1.04E-06	-1.00	1.00	-0.971	0.978	-0.971	0.978
1.75	-1.85E-06	-1.75	1.75	-1.69	1.71	-0.967	0.974
2.50	-2.58E-06	-2.50	2.50	-2.42	2.44	-0.968	0.975
3.75	-4.00E-06	-3.74	3.75	-3.63	3.66	-0.968	0.975
5.00	-5.39E-06	-5.00	5.00	-4.84	4.88	-0.969	0.976

Table O–18. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-1.04E-06	-1.00	1.00	-0.971	0.978	-0.971	0.978
1.75	-1.85E-06	-1.75	1.75	-1.69	1.71	-0.967	0.974
2.50	-2.58E-06	-2.50	2.50	-2.42	2.44	-0.968	0.975
3.75	-4.00E-06	-3.74	3.75	-3.63	3.66	-0.968	0.975
5.00	-5.39E-06	-5.00	5.00	-4.84	4.88	-0.969	0.976

TASK 1/PITCH MOTION/MODEL 5613

Table O–19. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

FREDYN							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-7.48E-09	-0.999	1.00	-0.968	0.968	-0.968	0.968
1.75	-1.00E-07	-1.75	1.75	-1.69	1.69	-0.968	0.968
2.50	-1.71E-07	-2.50	2.50	-2.42	2.42	-0.968	0.968
3.75	-5.81E-07	-3.75	3.75	-3.63	3.63	-0.968	0.968
5.00	-2.50E-07	-4.99	5.00	-4.84	4.84	-0.968	0.968

Table O–20. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

LAMP-1							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	6.93E-05	-1.00	1.00	-0.989	0.989	-0.989	0.989
1.75	1.20E-04	-1.75	1.75	-1.73	1.73	-0.989	0.989
2.50	1.73E-04	-2.50	2.50	-2.47	2.47	-0.989	0.989
3.75	2.59E-04	-3.75	3.75	-3.71	3.71	-0.989	0.989
5.00	3.45E-04	-5.00	5.00	-4.94	4.94	-0.989	0.989

# TASK 1/PITCH MOTION/MODEL 5613

Table O–21. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

LAMP-3							
$\theta_a$ (°)	$\langle \theta \rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	6.93E-05	-1.00	1.00	-0.989	0.989	-0.989	0.989
1.75	1.20E-04	-1.75	1.75	-1.73	1.73	-0.989	0.989
2.50	1.73E-04	-2.50	2.50	-2.47	2.47	-0.989	0.989
3.75	2.59E-04	-3.75	3.75	-3.71	3.71	-0.989	0.989
5.00	3.45E-04	-5.00	5.00	-4.94	4.94	-0.989	0.989

Table O–22. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

LAMP-4							
$\theta_a$ (°)	$\langle \theta \rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	6.93E-05	-1.00	1.00	-0.989	0.989	-0.989	0.989
1.75	1.20E-04	-1.75	1.75	-1.73	1.73	-0.989	0.989
2.50	1.73E-04	-2.50	2.50	-2.47	2.47	-0.989	0.989
3.75	2.59E-04	-3.75	3.75	-3.71	3.71	-0.989	0.989
5.00	3.45E-04	-5.00	5.00	-4.94	4.94	-0.989	0.989

# TASK 1/PITCH MOTION/MODEL 5613

Table O–23. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$	$\langle\theta\rangle$	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
(°)	Mean (deg)	Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–24. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$	$\langle\theta\rangle$	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
(°)	Mean (deg)	Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-4.15E-08	-1.00	1.00	-0.990	0.990	-0.990	0.990
1.75	-1.24E-07	-1.75	1.75	-1.73	1.73	-0.990	0.990
2.50	-3.02E-07	-2.50	2.50	-2.47	2.47	-0.990	0.990
3.75	-2.18E-07	-3.75	3.75	-3.73	3.73	-0.994	0.994
5.00	6.54E-07	-5.00	5.00	-4.98	4.98	-0.997	0.997



# TASK 1/PITCH MOTION/MODEL 5613

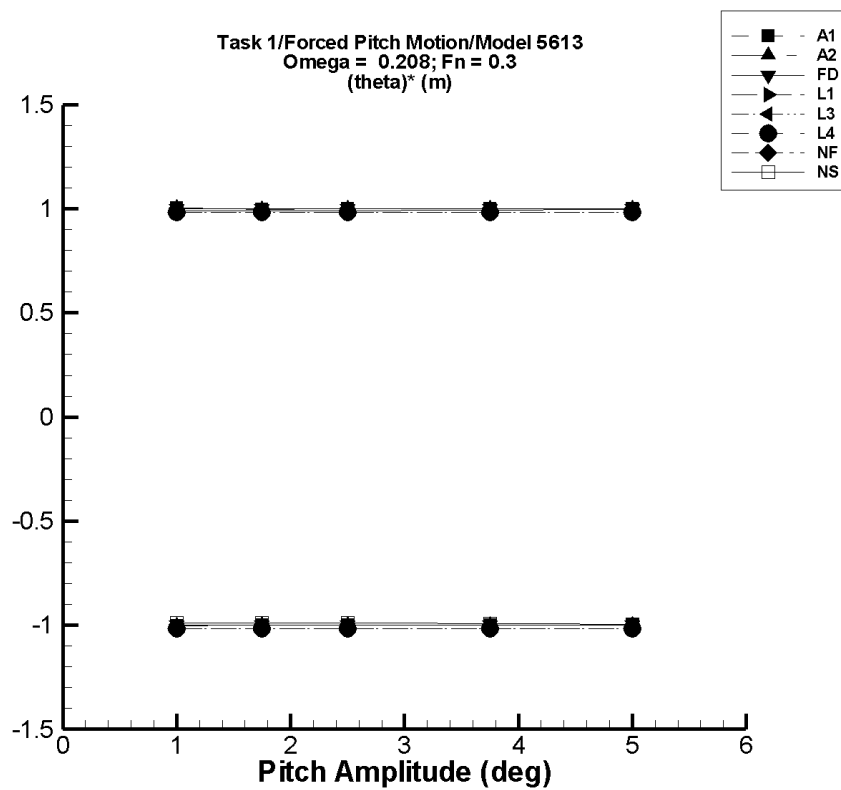


Figure O-4. Minimum and maximum of filtered  $(\theta - \langle \theta \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

TASK 1/PITCH MOTION/MODEL 5613

Table O–25. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-6.06E-07	-1.00	1.00	-1.00	1.00	-1.00	1.00
1.75	-1.18E-06	-1.75	1.75	-1.75	1.75	-0.997	0.999
2.50	-1.52E-06	-2.50	2.50	-2.50	2.50	-0.998	0.999
3.75	-3.13E-06	-3.75	3.75	-3.74	3.75	-0.998	0.999
5.00	-3.69E-06	-5.00	5.00	-5.00	5.00	-0.999	1.00

Table O–26. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-6.06E-07	-1.00	1.00	-1.00	1.00	-1.00	1.00
1.75	-1.18E-06	-1.75	1.75	-1.75	1.75	-0.997	0.999
2.50	-1.52E-06	-2.50	2.50	-2.50	2.50	-0.998	0.999
3.75	-3.13E-06	-3.75	3.75	-3.74	3.75	-0.998	0.999
5.00	-3.69E-06	-5.00	5.00	-5.00	5.00	-0.999	1.00

TASK 1/PITCH MOTION/MODEL 5613

Table O–27. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

FREDYN							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-7.23E-08	-1.00	1.00	-0.999	0.999	-0.999	0.999
1.75	-3.44E-08	-1.75	1.75	-1.75	1.75	-0.999	0.999
2.50	-1.64E-07	-2.50	2.50	-2.50	2.50	-0.999	0.999
3.75	1.14E-07	-3.75	3.75	-3.75	3.75	-0.999	0.999
5.00	-2.70E-07	-5.00	5.00	-4.99	4.99	-0.999	0.999

Table O–28. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

LAMP-1							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-5.05E-07	-1.00	1.00	-1.00	1.00	-1.00	1.00
1.75	3.68E-06	-1.75	1.75	-1.75	1.75	-1.00	1.00
2.50	8.79E-07	-2.50	2.50	-2.50	2.50	-1.00	1.00
3.75	6.74E-06	-3.75	3.75	-3.75	3.75	-1.00	1.00
5.00	1.71E-06	-5.00	5.00	-5.00	5.00	-1.00	1.00

TASK 1/PITCH MOTION/MODEL 5613

Table O–29. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

LAMP-3							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-5.05E-07	-1.00	1.00	-1.00	1.00	-1.00	1.00
1.75	3.68E-06	-1.75	1.75	-1.75	1.75	-1.00	1.00
2.50	8.79E-07	-2.50	2.50	-2.50	2.50	-1.00	1.00
3.75	6.74E-06	-3.75	3.75	-3.75	3.75	-1.00	1.00
5.00	1.71E-06	-5.00	5.00	-5.00	5.00	-1.00	1.00

Table O–30. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

LAMP-4							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-5.05E-07	-1.00	1.00	-1.00	1.00	-1.00	1.00
1.75	3.68E-06	-1.75	1.75	-1.75	1.75	-1.00	1.00
2.50	8.79E-07	-2.50	2.50	-2.50	2.50	-1.00	1.00
3.75	6.74E-06	-3.75	3.75	-3.75	3.75	-1.00	1.00
5.00	1.71E-06	-5.00	5.00	-5.00	5.00	-1.00	1.00

TASK 1/PITCH MOTION/MODEL 5613

Table O–31. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$	$\langle\theta\rangle$	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
(°)	Mean (deg)	Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–32. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$	$\langle\theta\rangle$	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
(°)	Mean (deg)	Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	4.89E-08	-1.00	1.00	-0.990	0.990	-0.990	0.990
1.75	1.87E-07	-1.75	1.75	-1.73	1.73	-0.990	0.990
2.50	2.43E-07	-2.50	2.50	-2.48	2.48	-0.990	0.990
3.75	-7.97E-08	-3.75	3.75	-3.73	3.73	-0.994	0.994
5.00	3.33E-07	-5.00	5.00	-4.98	4.98	-0.997	0.997

# TASK 1/PITCH MOTION/MODEL 5613

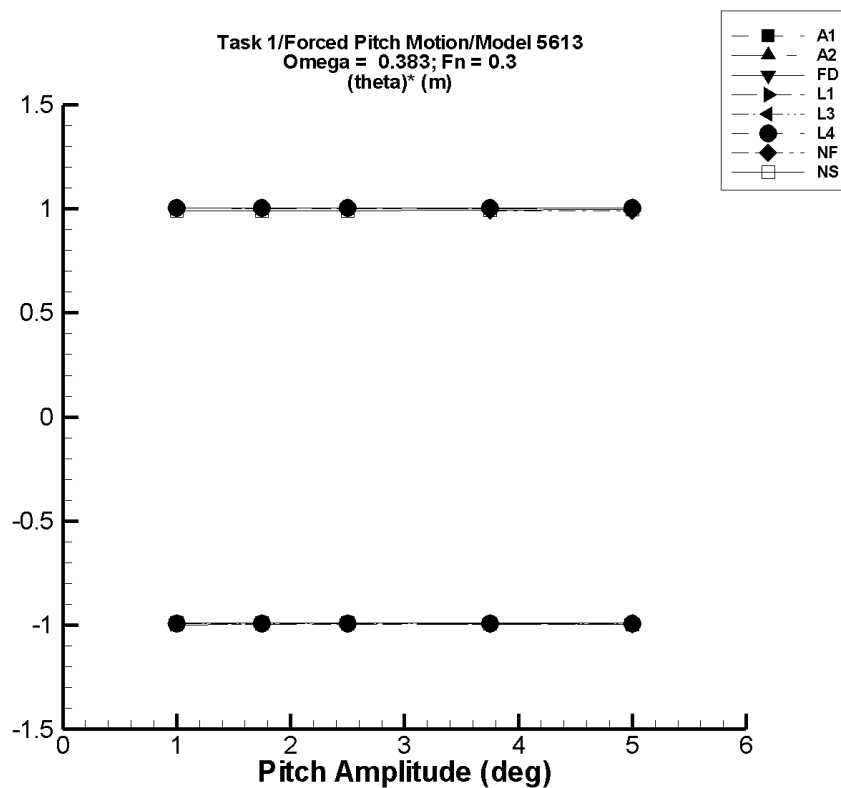


Figure O-5. Minimum and maximum of filtered  $(\theta - \langle \theta \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–33. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-4.18E-08	-1.00	1.00	-0.999	1.01	-0.999	1.01
1.75	3.68E-08	-1.75	1.75	-1.74	1.75	-0.995	1.00
2.50	1.32E-07	-2.50	2.50	-2.49	2.50	-0.996	1.00
3.75	2.64E-08	-3.75	3.75	-3.73	3.76	-0.996	1.00
5.00	-6.11E-08	-5.00	5.00	-4.98	5.02	-0.997	1.00

Table O–34. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-4.18E-08	-1.00	1.00	-0.999	1.01	-0.999	1.01
1.75	3.68E-08	-1.75	1.75	-1.74	1.75	-0.995	1.00
2.50	1.32E-07	-2.50	2.50	-2.49	2.50	-0.996	1.00
3.75	2.64E-08	-3.75	3.75	-3.73	3.76	-0.996	1.00
5.00	-6.11E-08	-5.00	5.00	-4.98	5.02	-0.997	1.00

TASK 1/PITCH MOTION/MODEL 5613

Table O–35. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

FREDYN							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-1.35E-07	-1.00	1.00	-0.996	0.996	-0.996	0.996
1.75	-1.87E-07	-1.75	1.75	-1.74	1.74	-0.996	0.996
2.50	-3.07E-07	-2.50	2.50	-2.49	2.49	-0.996	0.996
3.75	-6.55E-07	-3.75	3.75	-3.74	3.74	-0.996	0.996
5.00	-5.16E-07	-5.00	5.00	-4.98	4.98	-0.996	0.996

Table O–36. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

LAMP-1							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	4.66E-06	-1.00	1.00	-0.999	0.999	-0.999	0.999
1.75	4.69E-06	-1.75	1.75	-1.75	1.75	-0.999	0.999
2.50	9.93E-06	-2.50	2.50	-2.50	2.50	-0.999	0.999
3.75	1.19E-05	-3.75	3.75	-3.75	3.75	-0.999	0.999
5.00	2.05E-05	-5.00	5.00	-4.99	4.99	-0.999	0.999



# TASK 1/PITCH MOTION/MODEL 5613

Table O–37. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

LAMP-3							
$\theta_a$ (°)	$\langle \theta \rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	4.66E-06	-1.00	1.00	-0.999	0.999	-0.999	0.999
1.75	4.69E-06	-1.75	1.75	-1.75	1.75	-0.999	0.999
2.50	9.93E-06	-2.50	2.50	-2.50	2.50	-0.999	0.999
3.75	1.19E-05	-3.75	3.75	-3.75	3.75	-0.999	0.999
5.00	2.05E-05	-5.00	5.00	-4.99	4.99	-0.999	0.999

Table O–38. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

LAMP-4							
$\theta_a$ (°)	$\langle \theta \rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	4.66E-06	-1.00	1.00	-0.999	0.999	-0.999	0.999
1.75	4.69E-06	-1.75	1.75	-1.75	1.75	-0.999	0.999
2.50	9.93E-06	-2.50	2.50	-2.50	2.50	-0.999	0.999
3.75	1.19E-05	-3.75	3.75	-3.75	3.75	-0.999	0.999
5.00	2.05E-05	-5.00	5.00	-4.99	4.99	-0.999	0.999

TASK 1/PITCH MOTION/MODEL 5613

Table O–39. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	9.40E-03	-2.50	2.50	-2.48	2.48	-0.997	0.990
3.75	1.41E-02	-3.75	3.75	-3.72	3.73	-0.997	0.990
5.00	1.88E-02	-5.00	5.00	-4.97	4.97	-0.997	0.990

Table O–40. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-1.73E-08	-1.00	1.00	-0.990	0.990	-0.990	0.990
1.75	-2.42E-08	-1.75	1.75	-1.73	1.73	-0.990	0.990
2.50	-1.39E-07	-2.50	2.50	-2.47	2.47	-0.990	0.990
3.75	-6.09E-08	-3.75	3.75	-3.73	3.73	-0.994	0.994
5.00	-1.77E-07	-5.00	5.00	-4.98	4.98	-0.997	0.997

# TASK 1/PITCH MOTION/MODEL 5613

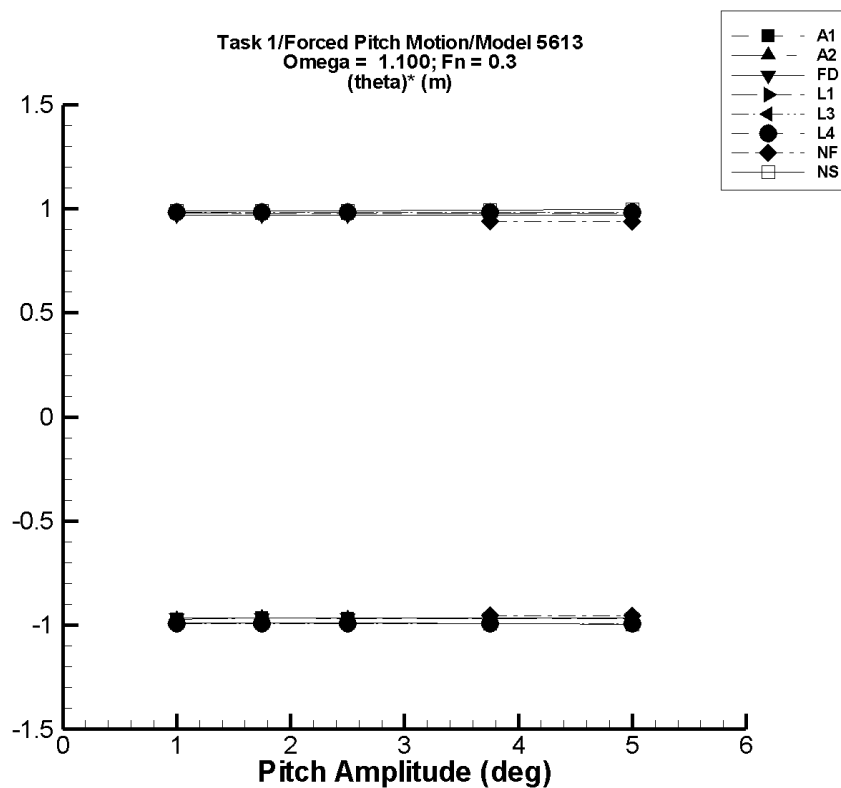


Figure O-6. Minimum and maximum of filtered  $(\theta - \langle \theta \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–41. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-1.04E-06	-1.00	1.00	-0.971	0.978	-0.971	0.978
1.75	-1.85E-06	-1.75	1.75	-1.69	1.71	-0.967	0.974
2.50	-2.58E-06	-2.50	2.50	-2.42	2.44	-0.968	0.975
3.75	-4.00E-06	-3.74	3.75	-3.63	3.66	-0.968	0.975
5.00	-5.39E-06	-5.00	5.00	-4.84	4.88	-0.969	0.976

Table O–42. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-1.04E-06	-1.00	1.00	-0.971	0.978	-0.971	0.978
1.75	-1.85E-06	-1.75	1.75	-1.69	1.71	-0.967	0.974
2.50	-2.58E-06	-2.50	2.50	-2.42	2.44	-0.968	0.975
3.75	-4.00E-06	-3.74	3.75	-3.63	3.66	-0.968	0.975
5.00	-5.39E-06	-5.00	5.00	-4.84	4.88	-0.969	0.976

# TASK 1/PITCH MOTION/MODEL 5613

Table O–43. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

FREDYN							
$\theta_a$ (°)	$\langle \theta \rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-7.48E-09	-0.999	1.00	-0.968	0.968	-0.968	0.968
1.75	-1.00E-07	-1.75	1.75	-1.69	1.69	-0.968	0.968
2.50	-1.71E-07	-2.50	2.50	-2.42	2.42	-0.968	0.968
3.75	-5.81E-07	-3.75	3.75	-3.63	3.63	-0.968	0.968
5.00	-2.50E-07	-4.99	5.00	-4.84	4.84	-0.968	0.968

Table O–44. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

LAMP-1							
$\theta_a$ (°)	$\langle \theta \rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	6.93E-05	-1.00	1.00	-0.989	0.989	-0.989	0.989
1.75	1.20E-04	-1.75	1.75	-1.73	1.73	-0.989	0.989
2.50	1.73E-04	-2.50	2.50	-2.47	2.47	-0.989	0.989
3.75	2.59E-04	-3.75	3.75	-3.71	3.71	-0.989	0.989
5.00	3.45E-04	-5.00	5.00	-4.94	4.94	-0.989	0.989

TASK 1/PITCH MOTION/MODEL 5613

Table O–45. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

LAMP-3							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	6.93E-05	-1.00	1.00	-0.989	0.989	-0.989	0.989
1.75	1.20E-04	-1.75	1.75	-1.73	1.73	-0.989	0.989
2.50	1.73E-04	-2.50	2.50	-2.47	2.47	-0.989	0.989
3.75	2.59E-04	-3.75	3.75	-3.71	3.71	-0.989	0.989
5.00	3.45E-04	-5.00	5.00	-4.94	4.94	-0.989	0.989

Table O–46. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

LAMP-4							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	6.93E-05	-1.00	1.00	-0.989	0.989	-0.989	0.989
1.75	1.20E-04	-1.75	1.75	-1.73	1.73	-0.989	0.989
2.50	1.73E-04	-2.50	2.50	-2.47	2.47	-0.989	0.989
3.75	2.59E-04	-3.75	3.75	-3.71	3.71	-0.989	0.989
5.00	3.45E-04	-5.00	5.00	-4.94	4.94	-0.989	0.989

Table O–47. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	2.17E-02	-2.50	2.50	-2.37	2.37	-0.955	0.938
3.75	3.25E-02	-3.75	3.75	-3.55	3.55	-0.955	0.938
5.00	4.34E-02	-5.00	5.00	-4.73	4.74	-0.955	0.938

Table O–48. Minimum and Maximum of Variables  $\theta$  and  $(\theta)^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle\theta\rangle$ Mean (deg)	Unfiltered $\theta$		Filtered $\theta$		Filtered $(\theta)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
1.00	-4.15E-08	-1.00	1.00	-0.990	0.990	-0.990	0.990
1.75	-1.24E-07	-1.75	1.75	-1.73	1.73	-0.990	0.990
2.50	-3.02E-07	-2.50	2.50	-2.47	2.47	-0.990	0.990
3.75	-2.18E-07	-3.75	3.75	-3.73	3.73	-0.994	0.994
5.00	6.54E-07	-5.00	5.00	-4.98	4.98	-0.997	0.997

# TASK 1/PITCH MOTION/MODEL 5613

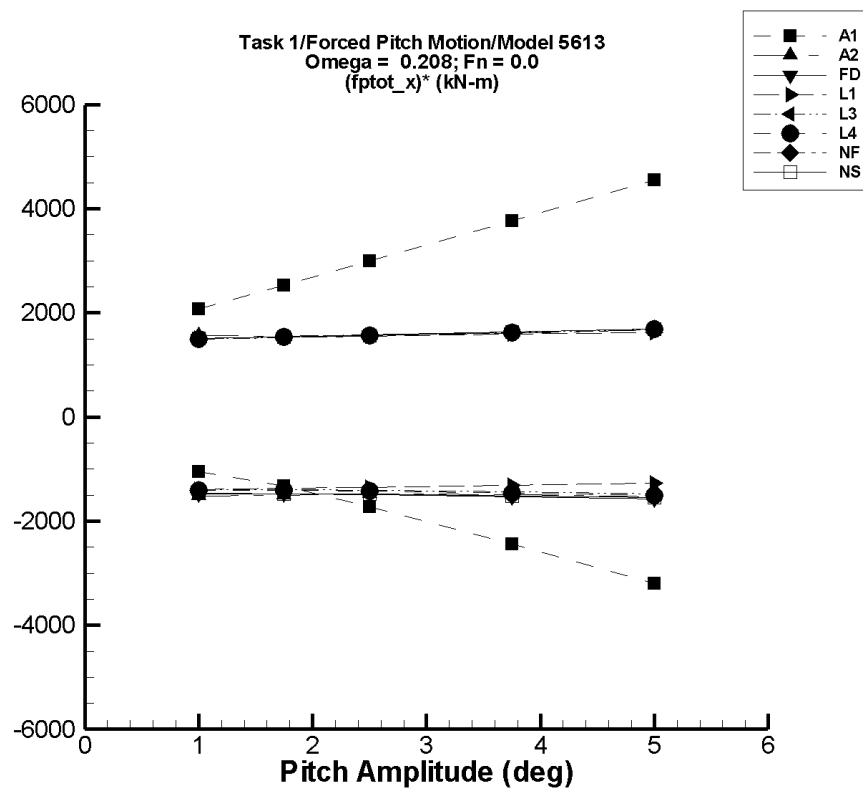


Figure O-7. Minimum and maximum of filtered  $(F_x^{\text{ptot}} - \langle F_x^{\text{ptot}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.



Table O–49. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

AEGIR-1							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	628.	-418.	2.71E+03	-416.	2.70E+03	-1.04E+03	2.07E+03
1.75	1.91E+03	-424.	6.34E+03	-414.	6.33E+03	-1.33E+03	2.53E+03
2.50	3.90E+03	-432.	1.14E+04	-406.	1.14E+04	-1.72E+03	3.00E+03
3.75	8.77E+03	-424.	2.30E+04	-386.	2.29E+04	-2.44E+03	3.77E+03
5.00	1.56E+04	-425.	3.85E+04	-357.	3.84E+04	-3.20E+03	4.55E+03

Table O–50. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

AEGIR-2							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	25.0	-1.95E+03	1.59E+03	-1.49E+03	1.59E+03	-1.52E+03	1.56E+03
1.75	63.1	-2.58E+03	2.79E+03	-2.58E+03	2.78E+03	-1.51E+03	1.56E+03
2.50	127.	-3.56E+03	4.07E+03	-3.57E+03	4.06E+03	-1.48E+03	1.57E+03
3.75	254.	-5.33E+03	6.27E+03	-5.33E+03	6.26E+03	-1.49E+03	1.60E+03
5.00	423.	-7.26E+03	8.82E+03	-7.26E+03	8.80E+03	-1.54E+03	1.68E+03

Table O–51. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

FREDYN							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	12.9	-1.46E+03	1.53E+03	-1.46E+03	1.53E+03	-1.47E+03	1.51E+03
1.75	51.6	-2.54E+03	2.75E+03	-2.54E+03	2.75E+03	-1.48E+03	1.54E+03
2.50	104.	-3.63E+03	4.04E+03	-3.63E+03	4.04E+03	-1.49E+03	1.57E+03
3.75	215.	-5.52E+03	6.33E+03	-5.52E+03	6.32E+03	-1.53E+03	1.63E+03
5.00	348.	-7.53E+03	8.80E+03	-7.52E+03	8.79E+03	-1.57E+03	1.69E+03

Table O–52. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	29.5	-1.39E+03	1.51E+03	-1.39E+03	1.51E+03	-1.42E+03	1.48E+03
1.75	90.2	-2.36E+03	2.72E+03	-2.36E+03	2.71E+03	-1.40E+03	1.50E+03
2.50	184.	-3.26E+03	3.99E+03	-3.26E+03	3.99E+03	-1.38E+03	1.52E+03
3.75	414.	-4.62E+03	6.25E+03	-4.62E+03	6.25E+03	-1.34E+03	1.56E+03
5.00	736.	-5.80E+03	8.69E+03	-5.80E+03	8.68E+03	-1.31E+03	1.59E+03

Table O–53. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	-12.9	-1.44E+03	1.46E+03	-1.44E+03	1.46E+03	-1.42E+03	1.47E+03
1.75	33.6	-2.47E+03	2.66E+03	-2.47E+03	2.66E+03	-1.43E+03	1.50E+03
2.50	97.7	-3.50E+03	3.93E+03	-3.50E+03	3.92E+03	-1.44E+03	1.53E+03
3.75	235.	-5.29E+03	6.18E+03	-5.28E+03	6.18E+03	-1.47E+03	1.59E+03
5.00	403.	-7.17E+03	8.64E+03	-7.16E+03	8.63E+03	-1.51E+03	1.65E+03

Table O–54. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	-13.5	-1.45E+03	1.46E+03	-1.45E+03	1.46E+03	-1.43E+03	1.47E+03
1.75	31.9	-2.49E+03	2.66E+03	-2.49E+03	2.66E+03	-1.44E+03	1.50E+03
2.50	94.5	-3.55E+03	3.93E+03	-3.55E+03	3.93E+03	-1.46E+03	1.54E+03
3.75	229.	-5.37E+03	6.21E+03	-5.37E+03	6.20E+03	-1.49E+03	1.59E+03
5.00	391.	-7.30E+03	8.67E+03	-7.30E+03	8.67E+03	-1.54E+03	1.66E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–55. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–56. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	22.4	-1.46E+03	1.55E+03	-1.45E+03	1.53E+03	-1.47E+03	1.51E+03
1.75	62.8	-2.54E+03	2.78E+03	-2.52E+03	2.75E+03	-1.47E+03	1.54E+03
2.50	119.	-3.63E+03	4.08E+03	-3.59E+03	4.04E+03	-1.48E+03	1.57E+03
3.75	242.	-5.47E+03	6.39E+03	-5.44E+03	6.35E+03	-1.52E+03	1.63E+03
5.00	396.	-7.39E+03	8.90E+03	-7.36E+03	8.87E+03	-1.55E+03	1.69E+03

# TASK 1/PITCH MOTION/MODEL 5613

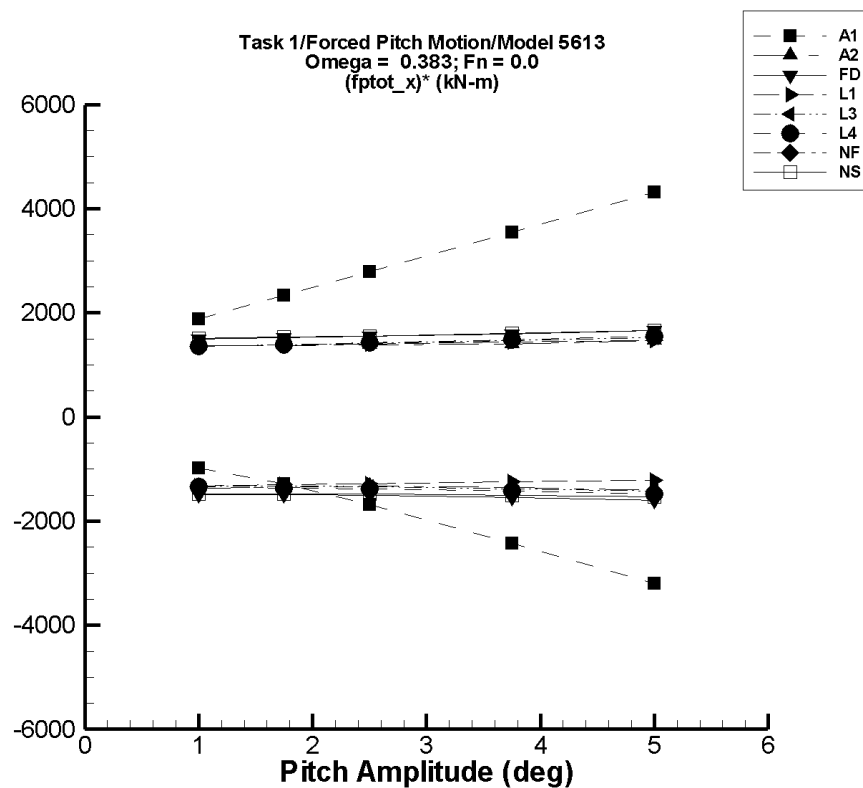


Figure O–8. Minimum and maximum of filtered  $(F_x^{\text{ptot}} - \langle F_x^{\text{ptot}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–57. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	621.	-365.	2.52E+03	-358.	2.51E+03	-979.	1.89E+03
1.75	1.89E+03	-401.	6.00E+03	-373.	5.97E+03	-1.29E+03	2.33E+03
2.50	3.85E+03	-434.	1.09E+04	-372.	1.08E+04	-1.69E+03	2.79E+03
3.75	8.67E+03	-484.	2.21E+04	-452.	2.20E+04	-2.43E+03	3.55E+03
5.00	1.54E+04	-537.	3.72E+04	-576.	3.70E+04	-3.20E+03	4.31E+03

Table O–58. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	26.6	-1.34E+03	1.41E+03	-1.34E+03	1.40E+03	-1.37E+03	1.37E+03
1.75	38.0	-2.67E+03	2.45E+03	-2.34E+03	2.44E+03	-1.36E+03	1.37E+03
2.50	82.4	-3.24E+03	3.56E+03	-3.25E+03	3.54E+03	-1.33E+03	1.38E+03
3.75	150.	-4.91E+03	5.44E+03	-4.92E+03	5.41E+03	-1.35E+03	1.40E+03
5.00	243.	-6.79E+03	7.62E+03	-6.80E+03	7.59E+03	-1.41E+03	1.47E+03

Table O–59. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

FREDYN							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	9.69	-1.47E+03	1.52E+03	-1.46E+03	1.52E+03	-1.47E+03	1.51E+03
1.75	41.8	-2.56E+03	2.73E+03	-2.55E+03	2.72E+03	-1.48E+03	1.53E+03
2.50	84.4	-3.67E+03	4.00E+03	-3.66E+03	3.98E+03	-1.50E+03	1.56E+03
3.75	170.	-5.62E+03	6.23E+03	-5.59E+03	6.21E+03	-1.54E+03	1.61E+03
5.00	268.	-7.69E+03	8.64E+03	-7.66E+03	8.60E+03	-1.59E+03	1.67E+03

Table O–60. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	30.7	-1.29E+03	1.40E+03	-1.28E+03	1.40E+03	-1.31E+03	1.37E+03
1.75	94.1	-2.17E+03	2.53E+03	-2.17E+03	2.52E+03	-1.29E+03	1.39E+03
2.50	192.	-3.00E+03	3.72E+03	-2.99E+03	3.71E+03	-1.27E+03	1.41E+03
3.75	432.	-4.22E+03	5.85E+03	-4.22E+03	5.84E+03	-1.24E+03	1.44E+03
5.00	768.	-5.26E+03	8.15E+03	-5.26E+03	8.14E+03	-1.21E+03	1.47E+03

Table O–61. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-11.7	-1.33E+03	1.35E+03	-1.33E+03	1.35E+03	-1.32E+03	1.36E+03
1.75	37.5	-2.28E+03	2.47E+03	-2.28E+03	2.47E+03	-1.32E+03	1.39E+03
2.50	106.	-3.24E+03	3.66E+03	-3.23E+03	3.65E+03	-1.34E+03	1.42E+03
3.75	254.	-4.88E+03	5.78E+03	-4.88E+03	5.77E+03	-1.37E+03	1.47E+03
5.00	437.	-6.63E+03	8.10E+03	-6.62E+03	8.09E+03	-1.41E+03	1.53E+03

Table O–62. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-13.4	-1.35E+03	1.35E+03	-1.35E+03	1.35E+03	-1.34E+03	1.37E+03
1.75	32.4	-2.34E+03	2.48E+03	-2.34E+03	2.48E+03	-1.35E+03	1.40E+03
2.50	95.5	-3.35E+03	3.68E+03	-3.35E+03	3.67E+03	-1.38E+03	1.43E+03
3.75	231.	-5.10E+03	5.83E+03	-5.09E+03	5.82E+03	-1.42E+03	1.49E+03
5.00	397.	-6.95E+03	8.19E+03	-6.94E+03	8.17E+03	-1.47E+03	1.56E+03



TASK 1/PITCH MOTION/MODEL 5613

Table O–63. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–64. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	19.4	-1.47E+03	1.54E+03	-1.45E+03	1.53E+03	-1.47E+03	1.51E+03
1.75	54.3	-2.55E+03	2.76E+03	-2.52E+03	2.73E+03	-1.47E+03	1.53E+03
2.50	103.	-3.64E+03	4.04E+03	-3.60E+03	3.99E+03	-1.48E+03	1.56E+03
3.75	212.	-5.48E+03	6.29E+03	-5.44E+03	6.25E+03	-1.51E+03	1.61E+03
5.00	346.	-7.36E+03	8.71E+03	-7.33E+03	8.68E+03	-1.54E+03	1.67E+03

# TASK 1/PITCH MOTION/MODEL 5613

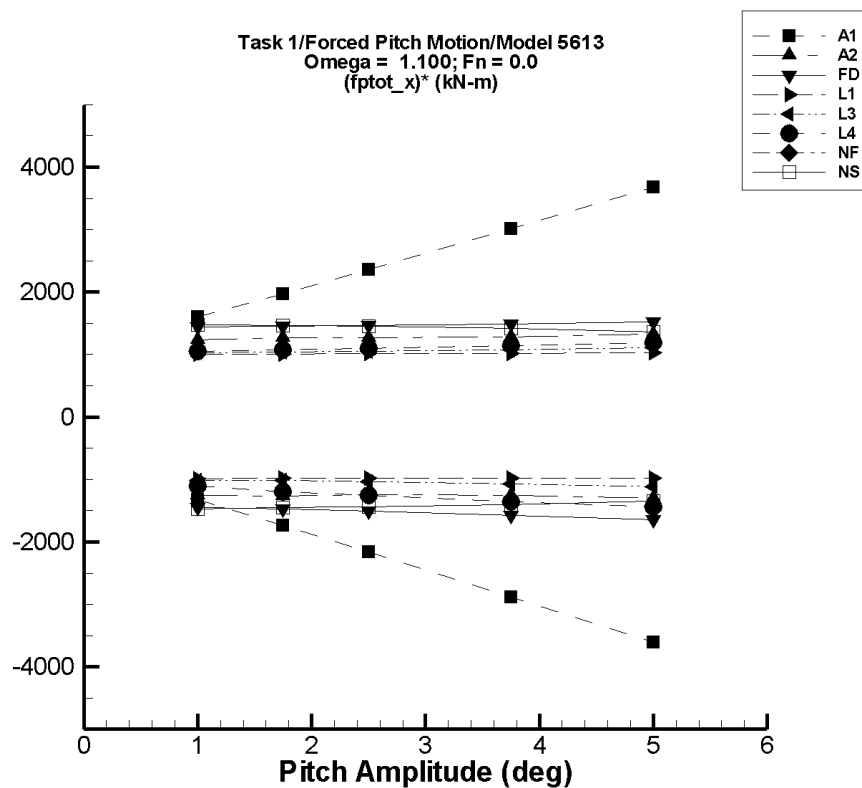


Figure O-9. Minimum and maximum of filtered  $(F_x^{\text{ptot}} - \langle F_x^{\text{ptot}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–65. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	607.	-780.	2.32E+03	-710.	2.21E+03	-1.32E+03	1.61E+03
1.75	1.84E+03	-1.24E+03	5.57E+03	-1.19E+03	5.29E+03	-1.73E+03	1.97E+03
2.50	3.77E+03	-1.70E+03	1.02E+04	-1.64E+03	9.67E+03	-2.16E+03	2.36E+03
3.75	8.48E+03	-2.44E+03	2.09E+04	-2.32E+03	1.98E+04	-2.88E+03	3.02E+03
5.00	1.51E+04	-3.17E+03	3.55E+04	-2.90E+03	3.35E+04	-3.60E+03	3.68E+03

Table O–66. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	12.6	-1.34E+03	1.29E+03	-1.24E+03	1.25E+03	-1.25E+03	1.24E+03
1.75	-2.03	-2.37E+03	2.30E+03	-2.22E+03	2.21E+03	-1.27E+03	1.27E+03
2.50	-3.30	-3.31E+03	3.26E+03	-3.11E+03	3.17E+03	-1.24E+03	1.27E+03
3.75	-42.3	-5.03E+03	4.94E+03	-4.73E+03	4.77E+03	-1.25E+03	1.28E+03
5.00	-94.9	-6.95E+03	6.77E+03	-6.59E+03	6.54E+03	-1.30E+03	1.33E+03

Table O-67. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

FREDYN							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	-11.6	-1.51E+03	1.48E+03	-1.46E+03	1.43E+03	-1.45E+03	1.45E+03
1.75	-23.5	-2.69E+03	2.61E+03	-2.60E+03	2.53E+03	-1.47E+03	1.46E+03
2.50	-48.7	-3.95E+03	3.74E+03	-3.81E+03	3.63E+03	-1.50E+03	1.47E+03
3.75	-129.	-6.24E+03	5.66E+03	-6.01E+03	5.48E+03	-1.57E+03	1.50E+03
5.00	-264.	-8.81E+03	7.65E+03	-8.46E+03	7.39E+03	-1.64E+03	1.53E+03

Table O-68. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	45.9	-957.	1.06E+03	-947.	1.05E+03	-992.	1.00E+03
1.75	141.	-1.61E+03	1.92E+03	-1.59E+03	1.90E+03	-990.	1.00E+03
2.50	287.	-2.21E+03	2.83E+03	-2.18E+03	2.80E+03	-988.	1.01E+03
3.75	647.	-3.09E+03	4.49E+03	-3.05E+03	4.44E+03	-986.	1.01E+03
5.00	1.15E+03	-3.83E+03	6.31E+03	-3.77E+03	6.24E+03	-985.	1.02E+03

Table O–69. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	3.51	-1.02E+03	1.04E+03	-1.01E+03	1.02E+03	-1.01E+03	1.02E+03
1.75	84.1	-1.73E+03	1.91E+03	-1.71E+03	1.89E+03	-1.02E+03	1.03E+03
2.50	201.	-2.42E+03	2.84E+03	-2.40E+03	2.81E+03	-1.04E+03	1.05E+03
3.75	468.	-3.61E+03	4.54E+03	-3.56E+03	4.49E+03	-1.07E+03	1.07E+03
5.00	817.	-4.85E+03	6.41E+03	-4.78E+03	6.34E+03	-1.12E+03	1.11E+03

Table O–70. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-18.1	-1.14E+03	1.04E+03	-1.13E+03	1.03E+03	-1.11E+03	1.05E+03
1.75	19.3	-2.12E+03	1.93E+03	-2.07E+03	1.90E+03	-1.19E+03	1.08E+03
2.50	74.2	-3.13E+03	2.87E+03	-3.05E+03	2.81E+03	-1.25E+03	1.10E+03
3.75	196.	-5.06E+03	4.56E+03	-4.88E+03	4.48E+03	-1.35E+03	1.14E+03
5.00	341.	-7.04E+03	6.40E+03	-6.83E+03	6.29E+03	-1.43E+03	1.19E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–71. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–72. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	1.90	-1.48E+03	1.49E+03	-1.47E+03	1.48E+03	-1.47E+03	1.48E+03
1.75	5.53	-2.56E+03	2.60E+03	-2.54E+03	2.58E+03	-1.45E+03	1.47E+03
2.50	7.27	-3.62E+03	3.69E+03	-3.59E+03	3.65E+03	-1.44E+03	1.46E+03
3.75	-2.80	-5.29E+03	5.36E+03	-5.27E+03	5.34E+03	-1.40E+03	1.42E+03
5.00	-51.7	-6.83E+03	6.79E+03	-6.81E+03	6.77E+03	-1.35E+03	1.36E+03

# TASK 1/PITCH MOTION/MODEL 5613

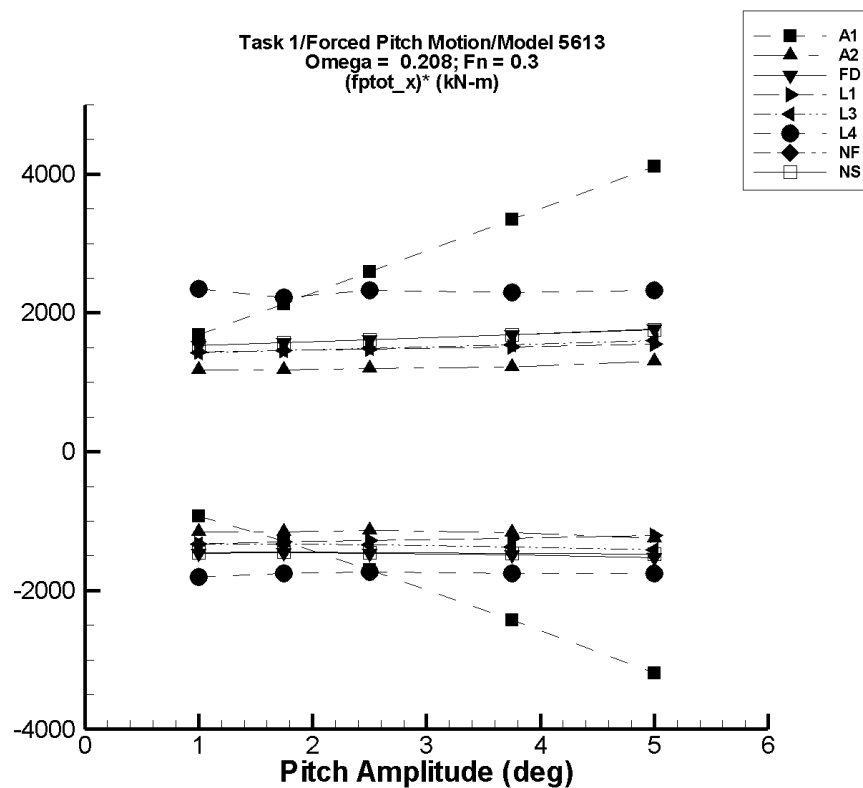


Figure O–10. Minimum and maximum of filtered  $(F_x^{ptot} - \langle F_x^{ptot} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–73. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	614.	-319.	2.30E+03	-317.	2.30E+03	-930.	1.68E+03
1.75	1.86E+03	-402.	5.60E+03	-385.	5.59E+03	-1.29E+03	2.13E+03
2.50	3.81E+03	-465.	1.03E+04	-449.	1.03E+04	-1.70E+03	2.59E+03
3.75	8.57E+03	-587.	2.12E+04	-550.	2.11E+04	-2.43E+03	3.35E+03
5.00	1.53E+04	-709.	3.59E+04	-698.	3.58E+04	-3.19E+03	4.11E+03

Table O–74. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	10.6	-1.97E+03	1.20E+03	-1.14E+03	1.19E+03	-1.15E+03	1.18E+03
1.75	19.0	-2.00E+03	2.11E+03	-2.00E+03	2.08E+03	-1.16E+03	1.18E+03
2.50	36.9	-2.79E+03	3.07E+03	-2.79E+03	3.02E+03	-1.13E+03	1.20E+03
3.75	50.0	-4.34E+03	4.80E+03	-4.34E+03	4.61E+03	-1.17E+03	1.22E+03
5.00	59.5	-6.19E+03	6.67E+03	-6.18E+03	6.55E+03	-1.25E+03	1.30E+03



Table O–75. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

FREDYN							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	25.9	-1.44E+03	1.56E+03	-1.44E+03	1.55E+03	-1.46E+03	1.53E+03
1.75	91.3	-2.47E+03	2.84E+03	-2.46E+03	2.83E+03	-1.46E+03	1.57E+03
2.50	185.	-3.48E+03	4.21E+03	-3.48E+03	4.21E+03	-1.47E+03	1.61E+03
3.75	398.	-5.20E+03	6.71E+03	-5.19E+03	6.72E+03	-1.49E+03	1.69E+03
5.00	672.	-6.97E+03	9.50E+03	-6.96E+03	9.51E+03	-1.53E+03	1.77E+03

Table O–76. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	-12.3	-1.37E+03	1.40E+03	-1.36E+03	1.40E+03	-1.35E+03	1.41E+03
1.75	48.1	-2.28E+03	2.55E+03	-2.28E+03	2.55E+03	-1.33E+03	1.43E+03
2.50	141.	-3.14E+03	3.76E+03	-3.14E+03	3.76E+03	-1.31E+03	1.45E+03
3.75	370.	-4.42E+03	5.93E+03	-4.42E+03	5.93E+03	-1.28E+03	1.48E+03
5.00	689.	-5.52E+03	8.27E+03	-5.52E+03	8.27E+03	-1.24E+03	1.52E+03

Table O-77. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-54.7	-1.41E+03	1.35E+03	-1.41E+03	1.35E+03	-1.36E+03	1.40E+03
1.75	-8.61	-2.39E+03	2.49E+03	-2.39E+03	2.49E+03	-1.36E+03	1.43E+03
2.50	54.9	-3.38E+03	3.70E+03	-3.37E+03	3.70E+03	-1.37E+03	1.46E+03
3.75	191.	-5.08E+03	5.87E+03	-5.07E+03	5.86E+03	-1.40E+03	1.51E+03
5.00	357.	-6.88E+03	8.22E+03	-6.87E+03	8.22E+03	-1.45E+03	1.57E+03

Table O-78. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	207.	-1.66E+03	2.56E+03	-1.65E+03	2.50E+03	-1.86E+03	2.30E+03
1.75	464.	-2.70E+03	4.26E+03	-2.69E+03	4.26E+03	-1.80E+03	2.17E+03
2.50	775.	-3.70E+03	6.46E+03	-3.68E+03	6.46E+03	-1.78E+03	2.27E+03
3.75	1.24E+03	-5.51E+03	9.68E+03	-5.51E+03	9.67E+03	-1.80E+03	2.25E+03
5.00	1.71E+03	-7.31E+03	1.31E+04	-7.31E+03	1.31E+04	-1.80E+03	2.27E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–79. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–80. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	40.6	-1.43E+03	1.59E+03	-1.41E+03	1.57E+03	-1.45E+03	1.53E+03
1.75	115.	-2.44E+03	2.90E+03	-2.42E+03	2.86E+03	-1.45E+03	1.57E+03
2.50	218.	-3.44E+03	4.29E+03	-3.41E+03	4.25E+03	-1.45E+03	1.61E+03
3.75	448.	-5.07E+03	6.82E+03	-5.04E+03	6.77E+03	-1.46E+03	1.69E+03
5.00	737.	-6.68E+03	9.57E+03	-6.65E+03	9.53E+03	-1.48E+03	1.76E+03

# TASK 1/PITCH MOTION/MODEL 5613

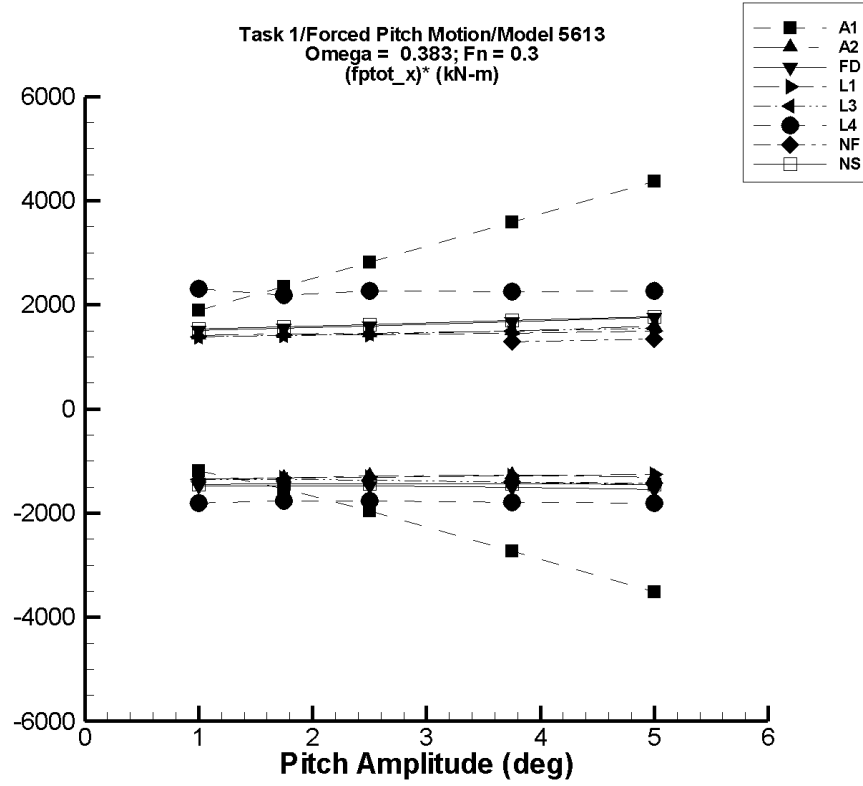


Figure O–11. Minimum and maximum of filtered  $(F_x^{ptot} - \langle F_x^{ptot} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–81. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	633.	-566.	2.55E+03	-559.	2.53E+03	-1.19E+03	1.90E+03
1.75	1.93E+03	-789.	6.07E+03	-756.	6.04E+03	-1.53E+03	2.35E+03
2.50	3.94E+03	-1.00E+03	1.10E+04	-948.	1.10E+04	-1.95E+03	2.81E+03
3.75	8.86E+03	-1.36E+03	2.25E+04	-1.37E+03	2.23E+04	-2.73E+03	3.59E+03
5.00	1.58E+04	-1.72E+03	3.79E+04	-1.78E+03	3.76E+04	-3.51E+03	4.37E+03

Table O–82. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	38.9	-1.33E+03	1.45E+03	-1.31E+03	1.45E+03	-1.35E+03	1.41E+03
1.75	77.8	-2.74E+03	2.60E+03	-2.25E+03	2.59E+03	-1.33E+03	1.43E+03
2.50	166.	-3.07E+03	3.83E+03	-3.04E+03	3.81E+03	-1.28E+03	1.46E+03
3.75	341.	-4.46E+03	5.98E+03	-4.44E+03	5.96E+03	-1.28E+03	1.50E+03
5.00	587.	-5.98E+03	8.61E+03	-5.97E+03	8.56E+03	-1.31E+03	1.60E+03

Table O–83. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

FREDYN							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered $(F_x^{\text{ptot}})^*$ Min. (kN/°)	Max. (kN/°)
1.00	25.0	-1.44E+03	1.55E+03	-1.43E+03	1.55E+03	-1.46E+03	1.52E+03
1.75	88.7	-2.48E+03	2.83E+03	-2.47E+03	2.82E+03	-1.46E+03	1.56E+03
2.50	180.	-3.50E+03	4.21E+03	-3.49E+03	4.19E+03	-1.47E+03	1.60E+03
3.75	386.	-5.25E+03	6.71E+03	-5.23E+03	6.68E+03	-1.50E+03	1.68E+03
5.00	652.	-7.09E+03	9.51E+03	-7.06E+03	9.46E+03	-1.54E+03	1.76E+03

Table O–84. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered $(F_x^{\text{ptot}})^*$ Min. (kN/°)	Max. (kN/°)
1.00	-11.0	-1.36E+03	1.38E+03	-1.35E+03	1.38E+03	-1.34E+03	1.39E+03
1.75	52.0	-2.27E+03	2.53E+03	-2.27E+03	2.52E+03	-1.33E+03	1.41E+03
2.50	149.	-3.12E+03	3.73E+03	-3.12E+03	3.73E+03	-1.31E+03	1.43E+03
3.75	388.	-4.40E+03	5.88E+03	-4.40E+03	5.87E+03	-1.28E+03	1.46E+03
5.00	721.	-5.52E+03	8.21E+03	-5.51E+03	8.19E+03	-1.25E+03	1.49E+03

Table O–85. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-53.4	-1.40E+03	1.34E+03	-1.40E+03	1.34E+03	-1.35E+03	1.39E+03
1.75	-4.61	-2.38E+03	2.48E+03	-2.37E+03	2.47E+03	-1.35E+03	1.42E+03
2.50	63.1	-3.36E+03	3.68E+03	-3.35E+03	3.67E+03	-1.37E+03	1.44E+03
3.75	210.	-5.04E+03	5.83E+03	-5.04E+03	5.82E+03	-1.40E+03	1.50E+03
5.00	390.	-6.83E+03	8.17E+03	-6.82E+03	8.16E+03	-1.44E+03	1.55E+03

Table O–86. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	192.	-1.62E+03	2.56E+03	-1.62E+03	2.50E+03	-1.81E+03	2.31E+03
1.75	436.	-2.65E+03	4.28E+03	-2.65E+03	4.27E+03	-1.76E+03	2.19E+03
2.50	745.	-3.65E+03	6.46E+03	-3.64E+03	6.45E+03	-1.75E+03	2.28E+03
3.75	1.18E+03	-5.60E+03	9.67E+03	-5.53E+03	9.65E+03	-1.79E+03	2.26E+03
5.00	1.63E+03	-7.43E+03	1.31E+04	-7.39E+03	1.30E+04	-1.80E+03	2.27E+03

Table O–87. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	-570.	-4.11E+03	2.92E+03	-4.09E+03	2.86E+03	-1.41E+03	1.37E+03
3.75	-693.	-6.00E+03	4.23E+03	-5.96E+03	4.13E+03	-1.40E+03	1.29E+03
5.00	-780.	-7.92E+03	6.04E+03	-7.87E+03	5.95E+03	-1.42E+03	1.35E+03

Table O–88. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	44.3	-1.42E+03	1.60E+03	-1.40E+03	1.58E+03	-1.45E+03	1.53E+03
1.75	128.	-2.41E+03	2.92E+03	-2.39E+03	2.88E+03	-1.44E+03	1.57E+03
2.50	247.	-3.37E+03	4.34E+03	-3.34E+03	4.29E+03	-1.43E+03	1.62E+03
3.75	512.	-4.91E+03	6.93E+03	-4.88E+03	6.88E+03	-1.44E+03	1.70E+03
5.00	849.	-6.40E+03	9.76E+03	-6.37E+03	9.72E+03	-1.44E+03	1.77E+03



# TASK 1/PITCH MOTION/MODEL 5613

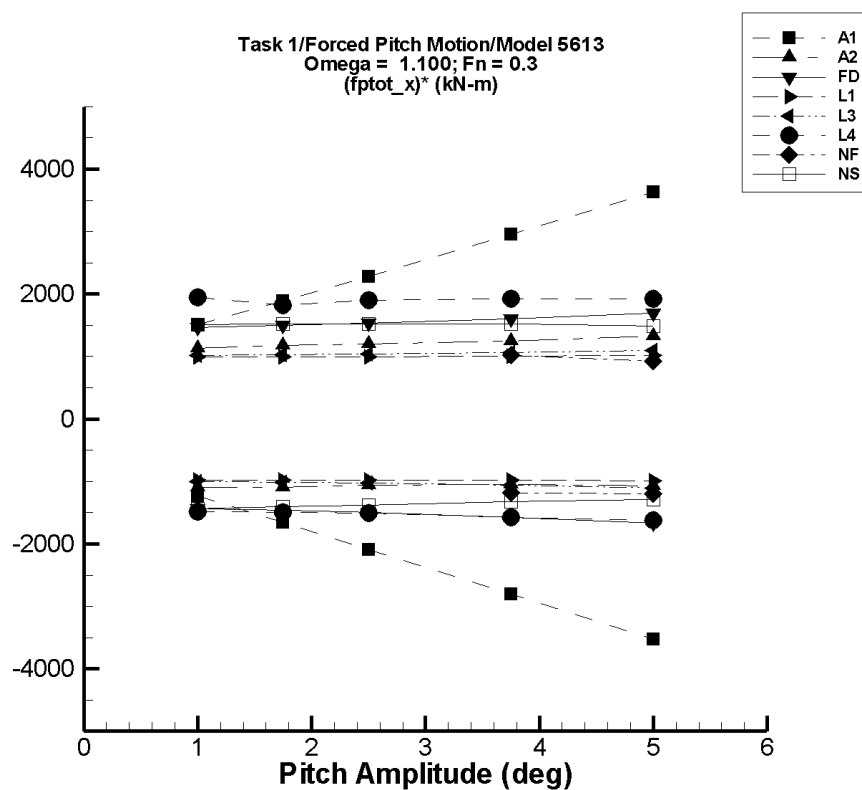


Figure O-12. Minimum and maximum of filtered  $(F_x^{ptot} - \langle F_x^{ptot} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–89. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	612.	-674.	2.23E+03	-620.	2.12E+03	-1.23E+03	1.51E+03
1.75	1.86E+03	-1.08E+03	5.45E+03	-1.03E+03	5.17E+03	-1.65E+03	1.89E+03
2.50	3.81E+03	-1.49E+03	1.01E+04	-1.40E+03	9.53E+03	-2.09E+03	2.29E+03
3.75	8.58E+03	-2.11E+03	2.08E+04	-1.93E+03	1.97E+04	-2.80E+03	2.96E+03
5.00	1.53E+04	-2.81E+03	3.55E+04	-2.34E+03	3.35E+04	-3.53E+03	3.64E+03

Table O–90. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	17.7	-1.11E+03	1.19E+03	-1.07E+03	1.15E+03	-1.09E+03	1.13E+03
1.75	17.3	-1.93E+03	2.18E+03	-1.89E+03	2.09E+03	-1.09E+03	1.18E+03
2.50	39.4	-2.66E+03	3.15E+03	-2.59E+03	3.05E+03	-1.05E+03	1.20E+03
3.75	59.5	-3.98E+03	4.95E+03	-3.85E+03	4.74E+03	-1.04E+03	1.25E+03
5.00	91.4	-5.50E+03	7.00E+03	-5.27E+03	6.70E+03	-1.07E+03	1.32E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–91. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

FREDYN							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	6.33	-1.48E+03	1.52E+03	-1.43E+03	1.47E+03	-1.44E+03	1.47E+03
1.75	31.4	-2.62E+03	2.75E+03	-2.53E+03	2.65E+03	-1.46E+03	1.50E+03
2.50	63.3	-3.82E+03	4.05E+03	-3.68E+03	3.90E+03	-1.50E+03	1.54E+03
3.75	123.	-6.00E+03	6.42E+03	-5.76E+03	6.16E+03	-1.57E+03	1.61E+03
5.00	184.	-8.49E+03	9.05E+03	-8.11E+03	8.66E+03	-1.66E+03	1.70E+03

Table O–92. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	1.51	-995.	1.00E+03	-984.	989.	-985.	988.
1.75	90.4	-1.66E+03	1.84E+03	-1.64E+03	1.82E+03	-986.	989.
2.50	228.	-2.27E+03	2.74E+03	-2.24E+03	2.71E+03	-987.	991.
3.75	565.	-3.19E+03	4.34E+03	-3.15E+03	4.30E+03	-991.	996.
5.00	1.04E+03	-4.00E+03	6.11E+03	-3.94E+03	6.05E+03	-995.	1.00E+03

Table O–93. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-40.9	-1.06E+03	978.	-1.05E+03	967.	-1.01E+03	1.01E+03
1.75	33.8	-1.77E+03	1.83E+03	-1.75E+03	1.81E+03	-1.02E+03	1.02E+03
2.50	141.	-2.47E+03	2.75E+03	-2.44E+03	2.72E+03	-1.03E+03	1.03E+03
3.75	386.	-3.67E+03	4.40E+03	-3.62E+03	4.35E+03	-1.07E+03	1.06E+03
5.00	703.	-4.93E+03	6.21E+03	-4.86E+03	6.15E+03	-1.11E+03	1.09E+03

Table O–94. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	153.	-1.38E+03	2.13E+03	-1.35E+03	2.08E+03	-1.50E+03	1.93E+03
1.75	359.	-2.36E+03	3.64E+03	-2.29E+03	3.52E+03	-1.51E+03	1.81E+03
2.50	621.	-3.29E+03	5.46E+03	-3.21E+03	5.33E+03	-1.53E+03	1.88E+03
3.75	948.	-5.27E+03	8.33E+03	-5.01E+03	8.11E+03	-1.59E+03	1.91E+03
5.00	1.38E+03	-7.08E+03	1.11E+04	-6.79E+03	1.09E+04	-1.64E+03	1.91E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–95. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	-429.	-3.63E+03	2.22E+03	-3.36E+03	2.18E+03	-1.17E+03	1.04E+03
3.75	-593.	-5.46E+03	3.23E+03	-5.05E+03	3.22E+03	-1.19E+03	1.02E+03
5.00	-767.	-7.29E+03	4.27E+03	-6.74E+03	3.88E+03	-1.19E+03	930.

Table O–96. Minimum and Maximum of Variables  $F_x^{\text{ptot}}$  and  $(F_x^{\text{ptot}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
1.00	31.4	-1.42E+03	1.56E+03	-1.41E+03	1.54E+03	-1.44E+03	1.51E+03
1.75	98.5	-2.39E+03	2.79E+03	-2.37E+03	2.76E+03	-1.41E+03	1.52E+03
2.50	191.	-3.29E+03	4.05E+03	-3.26E+03	4.00E+03	-1.38E+03	1.52E+03
3.75	370.	-4.62E+03	6.09E+03	-4.59E+03	6.06E+03	-1.32E+03	1.52E+03
5.00	547.	-5.98E+03	8.04E+03	-5.91E+03	8.00E+03	-1.29E+03	1.49E+03

# TASK 1/PITCH MOTION/MODEL 5613

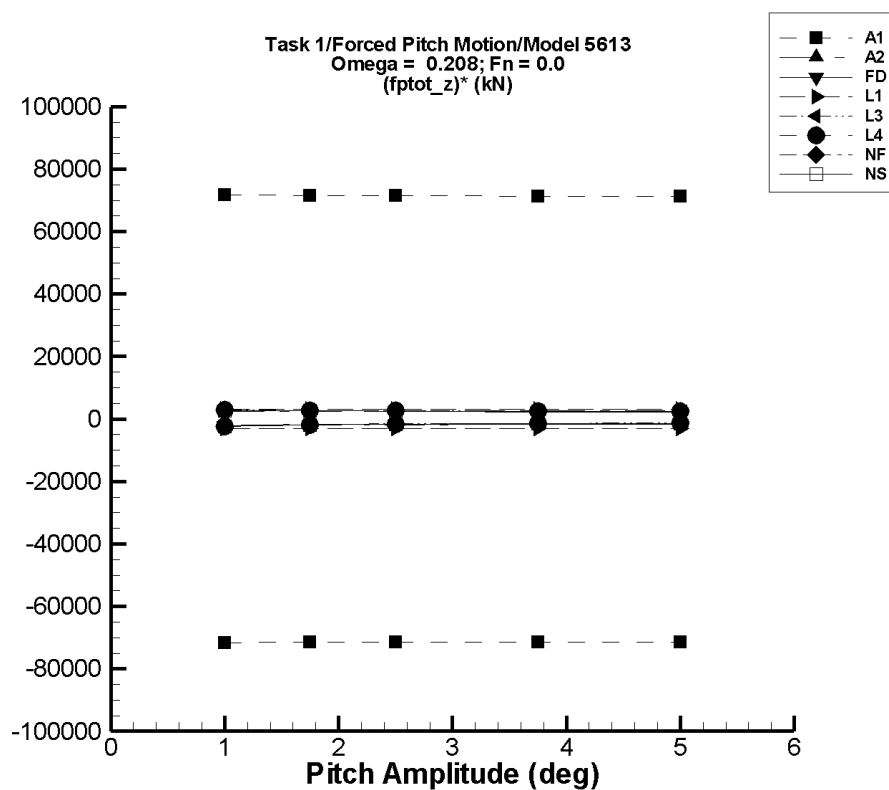


Figure O–13. Minimum and maximum of filtered  $(F_z^{ptot} - \langle F_z^{ptot} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–97. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{ptot}})^*$ Max. (kN/°)
1.00	8.59E+04	1.41E+04	1.58E+05	1.41E+04	1.58E+05	-7.18E+04	7.17E+04
1.75	8.59E+04	-3.92E+04	2.11E+05	-3.92E+04	2.11E+05	-7.15E+04	7.14E+04
2.50	8.59E+04	-9.29E+04	2.65E+05	-9.29E+04	2.64E+05	-7.15E+04	7.14E+04
3.75	8.58E+04	-1.82E+05	3.53E+05	-1.82E+05	3.53E+05	-7.14E+04	7.13E+04
5.00	8.57E+04	-2.71E+05	4.42E+05	-2.71E+05	4.42E+05	-7.14E+04	7.13E+04

Table O–98. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{ptot}})^*$ Max. (kN/°)
1.00	8.59E+04	8.37E+04	8.83E+04	8.37E+04	8.83E+04	-2.19E+03	2.44E+03
1.75	8.64E+04	8.34E+04	9.08E+04	8.35E+04	9.08E+04	-1.69E+03	2.51E+03
2.50	8.71E+04	8.25E+04	9.39E+04	8.25E+04	9.39E+04	-1.83E+03	2.71E+03
3.75	8.80E+04	8.21E+04	9.77E+04	8.21E+04	9.76E+04	-1.57E+03	2.57E+03
5.00	8.96E+04	8.21E+04	1.03E+05	8.21E+04	1.03E+05	-1.50E+03	2.66E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–99. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

FREDYN							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.55E+04	8.33E+04	8.82E+04	8.33E+04	8.82E+04	-2.23E+03	2.74E+03
1.75	8.60E+04	8.27E+04	9.05E+04	8.27E+04	9.05E+04	-1.86E+03	2.59E+03
2.50	8.66E+04	8.24E+04	9.28E+04	8.24E+04	9.28E+04	-1.69E+03	2.47E+03
3.75	8.80E+04	8.20E+04	9.67E+04	8.20E+04	9.67E+04	-1.59E+03	2.33E+03
5.00	8.96E+04	8.16E+04	1.01E+05	8.17E+04	1.01E+05	-1.58E+03	2.23E+03

Table O–100. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.56E+04	8.24E+04	8.87E+04	8.24E+04	8.87E+04	-3.12E+03	3.10E+03
1.75	8.56E+04	8.01E+04	9.10E+04	8.01E+04	9.10E+04	-3.12E+03	3.09E+03
2.50	8.55E+04	7.77E+04	9.32E+04	7.77E+04	9.32E+04	-3.13E+03	3.08E+03
3.75	8.55E+04	7.37E+04	9.70E+04	7.37E+04	9.70E+04	-3.14E+03	3.07E+03
5.00	8.55E+04	6.97E+04	1.01E+05	6.98E+04	1.01E+05	-3.14E+03	3.05E+03



Table O–101. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.57E+04	8.34E+04	8.86E+04	8.34E+04	8.86E+04	-2.36E+03	2.86E+03
1.75	8.62E+04	8.29E+04	9.09E+04	8.29E+04	9.09E+04	-1.92E+03	2.70E+03
2.50	8.69E+04	8.28E+04	9.33E+04	8.28E+04	9.33E+04	-1.62E+03	2.57E+03
3.75	8.82E+04	8.28E+04	9.72E+04	8.28E+04	9.72E+04	-1.43E+03	2.40E+03
5.00	8.97E+04	8.29E+04	1.01E+05	8.29E+04	1.01E+05	-1.37E+03	2.28E+03

Table O–102. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.57E+04	8.33E+04	8.86E+04	8.33E+04	8.86E+04	-2.44E+03	2.87E+03
1.75	8.62E+04	8.26E+04	9.09E+04	8.26E+04	9.09E+04	-2.03E+03	2.71E+03
2.50	8.68E+04	8.24E+04	9.33E+04	8.24E+04	9.33E+04	-1.75E+03	2.58E+03
3.75	8.81E+04	8.23E+04	9.71E+04	8.24E+04	9.71E+04	-1.50E+03	2.41E+03
5.00	8.95E+04	8.24E+04	1.01E+05	8.26E+04	1.01E+05	-1.38E+03	2.28E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–103. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–104. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.61E+04	8.38E+04	8.88E+04	8.38E+04	8.88E+04	-2.31E+03	2.71E+03
1.75	8.65E+04	8.31E+04	9.12E+04	8.32E+04	9.11E+04	-1.94E+03	2.60E+03
2.50	8.71E+04	8.29E+04	9.35E+04	8.30E+04	9.34E+04	-1.68E+03	2.52E+03
3.75	8.84E+04	8.28E+04	9.76E+04	8.29E+04	9.75E+04	-1.47E+03	2.43E+03
5.00	8.99E+04	8.26E+04	1.02E+05	8.29E+04	1.02E+05	-1.39E+03	2.37E+03

# TASK 1/PITCH MOTION/MODEL 5613

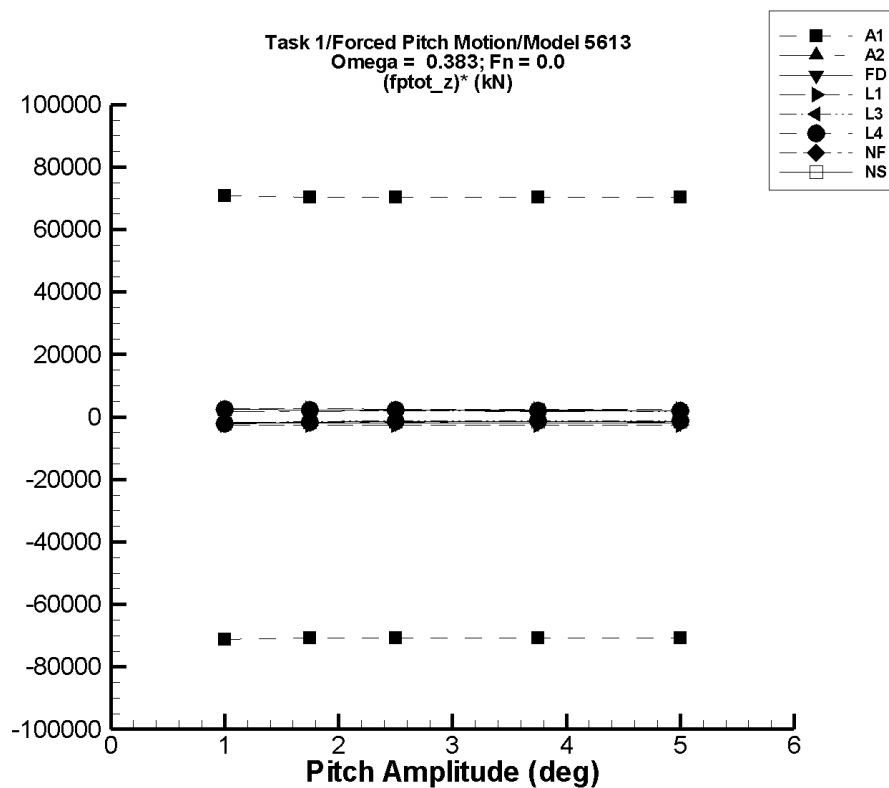


Figure O–14. Minimum and maximum of filtered  $(F_z^{\text{ptot}} - \langle F_z^{\text{ptot}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–105. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{ptot}})^*$ Max. (kN/°)
1.00	8.59E+04	1.49E+04	1.57E+05	1.47E+04	1.57E+05	-7.12E+04	7.07E+04
1.75	8.59E+04	-3.78E+04	2.10E+05	-3.82E+04	2.09E+05	-7.09E+04	7.04E+04
2.50	8.59E+04	-9.09E+04	2.62E+05	-9.14E+04	2.62E+05	-7.09E+04	7.04E+04
3.75	8.58E+04	-1.79E+05	3.50E+05	-1.80E+05	3.49E+05	-7.08E+04	7.03E+04
5.00	8.58E+04	-2.67E+05	4.38E+05	-2.68E+05	4.37E+05	-7.08E+04	7.03E+04

Table O–106. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{ptot}})^*$ Max. (kN/°)
1.00	8.59E+04	8.41E+04	8.76E+04	8.41E+04	8.75E+04	-1.73E+03	1.67E+03
1.75	8.64E+04	8.31E+04	8.96E+04	8.35E+04	8.95E+04	-1.67E+03	1.77E+03
2.50	8.71E+04	8.29E+04	9.20E+04	8.30E+04	9.20E+04	-1.64E+03	1.98E+03
3.75	8.80E+04	8.20E+04	9.48E+04	8.22E+04	9.47E+04	-1.56E+03	1.79E+03
5.00	8.96E+04	8.10E+04	9.93E+04	8.14E+04	9.91E+04	-1.65E+03	1.90E+03

Table O–107. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

FREDYN							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.55E+04	8.34E+04	8.80E+04	8.34E+04	8.80E+04	-2.13E+03	2.45E+03
1.75	8.60E+04	8.26E+04	9.00E+04	8.26E+04	9.00E+04	-1.94E+03	2.30E+03
2.50	8.66E+04	8.19E+04	9.21E+04	8.19E+04	9.21E+04	-1.89E+03	2.18E+03
3.75	8.80E+04	8.08E+04	9.57E+04	8.09E+04	9.56E+04	-1.89E+03	2.04E+03
5.00	8.96E+04	7.98E+04	9.93E+04	7.99E+04	9.92E+04	-1.93E+03	1.93E+03

Table O–108. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.56E+04	8.29E+04	8.82E+04	8.29E+04	8.82E+04	-2.63E+03	2.60E+03
1.75	8.56E+04	8.09E+04	9.01E+04	8.10E+04	9.01E+04	-2.64E+03	2.58E+03
2.50	8.56E+04	7.89E+04	9.20E+04	7.90E+04	9.20E+04	-2.65E+03	2.57E+03
3.75	8.56E+04	7.56E+04	9.52E+04	7.56E+04	9.52E+04	-2.67E+03	2.54E+03
5.00	8.57E+04	7.22E+04	9.83E+04	7.22E+04	9.82E+04	-2.69E+03	2.52E+03

Table O–109. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.58E+04	8.39E+04	8.81E+04	8.39E+04	8.81E+04	-1.88E+03	2.36E+03
1.75	8.62E+04	8.36E+04	9.01E+04	8.36E+04	9.01E+04	-1.50E+03	2.19E+03
2.50	8.69E+04	8.36E+04	9.21E+04	8.36E+04	9.21E+04	-1.33E+03	2.06E+03
3.75	8.83E+04	8.36E+04	9.53E+04	8.36E+04	9.53E+04	-1.25E+03	1.88E+03
5.00	8.99E+04	8.36E+04	9.87E+04	8.37E+04	9.87E+04	-1.24E+03	1.75E+03

Table O–110. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.57E+04	8.36E+04	8.82E+04	8.36E+04	8.82E+04	-2.09E+03	2.45E+03
1.75	8.61E+04	8.31E+04	9.02E+04	8.31E+04	9.02E+04	-1.75E+03	2.32E+03
2.50	8.67E+04	8.28E+04	9.23E+04	8.29E+04	9.23E+04	-1.51E+03	2.23E+03
3.75	8.79E+04	8.26E+04	9.57E+04	8.29E+04	9.57E+04	-1.32E+03	2.09E+03
5.00	8.92E+04	8.22E+04	9.92E+04	8.31E+04	9.91E+04	-1.22E+03	1.98E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–111. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–112. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.61E+04	8.39E+04	8.85E+04	8.40E+04	8.85E+04	-2.09E+03	2.40E+03
1.75	8.64E+04	8.33E+04	9.05E+04	8.34E+04	9.05E+04	-1.76E+03	2.31E+03
2.50	8.70E+04	8.29E+04	9.27E+04	8.30E+04	9.26E+04	-1.57E+03	2.25E+03
3.75	8.81E+04	8.27E+04	9.63E+04	8.29E+04	9.62E+04	-1.37E+03	2.17E+03
5.00	8.94E+04	8.14E+04	9.99E+04	8.25E+04	9.98E+04	-1.38E+03	2.09E+03

# TASK 1/PITCH MOTION/MODEL 5613

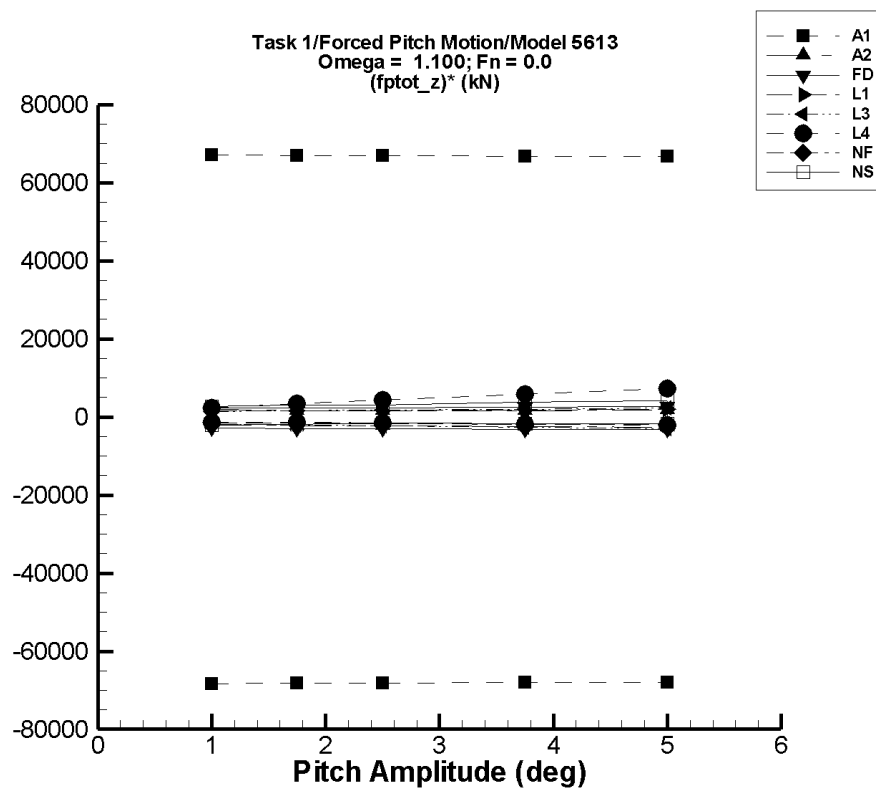


Figure O–15. Minimum and maximum of filtered  $(F_z^{ptot} - \langle F_z^{ptot} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.



Table O–113. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{ptot}})^*$ Max. (kN/°)
1.00	8.59E+04	1.64E+04	1.55E+05	1.76E+04	1.53E+05	-6.83E+04	6.72E+04
1.75	8.58E+04	-3.53E+04	2.07E+05	-3.32E+04	2.03E+05	-6.80E+04	6.69E+04
2.50	8.58E+04	-8.72E+04	2.59E+05	-8.43E+04	2.53E+05	-6.80E+04	6.70E+04
3.75	8.58E+04	-1.73E+05	3.44E+05	-1.69E+05	3.37E+05	-6.80E+04	6.69E+04
5.00	8.57E+04	-2.60E+05	4.30E+05	-2.54E+05	4.20E+05	-6.80E+04	6.69E+04

Table O–114. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{ptot}})^*$ Max. (kN/°)
1.00	8.59E+04	8.40E+04	8.78E+04	8.40E+04	8.77E+04	-1.83E+03	1.87E+03
1.75	8.64E+04	8.26E+04	8.92E+04	8.26E+04	8.91E+04	-2.18E+03	1.51E+03
2.50	8.70E+04	8.12E+04	9.14E+04	8.12E+04	9.10E+04	-2.33E+03	1.58E+03
3.75	8.80E+04	7.88E+04	9.44E+04	7.90E+04	9.41E+04	-2.39E+03	1.65E+03
5.00	8.95E+04	7.65E+04	9.84E+04	7.67E+04	9.81E+04	-2.57E+03	1.70E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–115. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

FREDYN							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.55E+04	8.27E+04	8.79E+04	8.27E+04	8.79E+04	-2.83E+03	2.38E+03
1.75	8.60E+04	8.07E+04	8.98E+04	8.08E+04	8.99E+04	-2.97E+03	2.22E+03
2.50	8.66E+04	7.88E+04	9.24E+04	7.90E+04	9.22E+04	-3.07E+03	2.25E+03
3.75	8.80E+04	7.55E+04	9.76E+04	7.60E+04	9.72E+04	-3.20E+03	2.46E+03
5.00	8.96E+04	7.23E+04	1.03E+05	7.31E+04	1.03E+05	-3.30E+03	2.65E+03

Table O–116. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.55E+04	8.40E+04	8.71E+04	8.40E+04	8.71E+04	-1.52E+03	1.54E+03
1.75	8.55E+04	8.27E+04	8.83E+04	8.27E+04	8.82E+04	-1.58E+03	1.57E+03
2.50	8.54E+04	8.12E+04	8.96E+04	8.13E+04	8.95E+04	-1.65E+03	1.64E+03
3.75	8.53E+04	7.84E+04	9.21E+04	7.85E+04	9.20E+04	-1.80E+03	1.78E+03
5.00	8.51E+04	7.50E+04	9.50E+04	7.52E+04	9.48E+04	-1.97E+03	1.95E+03

Table O–117. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.57E+04	8.38E+04	8.71E+04	8.39E+04	8.71E+04	-1.87E+03	1.42E+03
1.75	8.62E+04	8.24E+04	8.89E+04	8.25E+04	8.88E+04	-2.10E+03	1.52E+03
2.50	8.67E+04	8.09E+04	9.11E+04	8.09E+04	9.10E+04	-2.32E+03	1.71E+03
3.75	8.79E+04	7.78E+04	9.55E+04	7.80E+04	9.54E+04	-2.66E+03	1.99E+03
5.00	8.93E+04	7.42E+04	1.01E+05	7.45E+04	1.00E+05	-2.97E+03	2.22E+03

Table O–118. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.56E+04	8.40E+04	8.82E+04	8.43E+04	8.80E+04	-1.32E+03	2.46E+03
1.75	8.57E+04	8.32E+04	9.33E+04	8.34E+04	9.18E+04	-1.35E+03	3.45E+03
2.50	8.60E+04	8.20E+04	9.98E+04	8.23E+04	9.72E+04	-1.47E+03	4.49E+03
3.75	8.64E+04	7.86E+04	1.13E+05	7.96E+04	1.09E+05	-1.83E+03	5.91E+03
5.00	8.70E+04	7.59E+04	1.30E+05	7.71E+04	1.24E+05	-1.99E+03	7.40E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–119. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–120. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.57E+04	8.35E+04	8.86E+04	8.37E+04	8.85E+04	-2.04E+03	2.75E+03
1.75	8.57E+04	8.21E+04	9.34E+04	8.25E+04	9.09E+04	-1.82E+03	2.98E+03
2.50	8.59E+04	8.07E+04	9.87E+04	8.20E+04	9.33E+04	-1.55E+03	2.99E+03
3.75	8.61E+04	7.95E+04	1.06E+05	7.99E+04	1.00E+05	-1.65E+03	3.76E+03
5.00	8.59E+04	7.73E+04	1.18E+05	7.74E+04	1.06E+05	-1.70E+03	4.09E+03

# TASK 1/PITCH MOTION/MODEL 5613

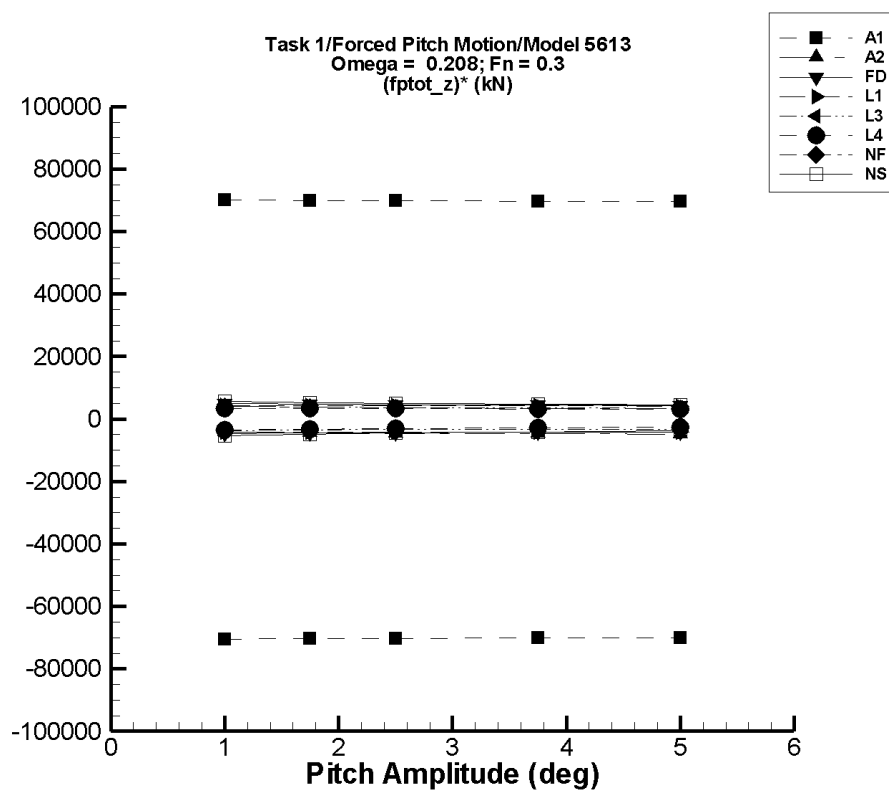


Figure O–16. Minimum and maximum of filtered  $(F_z^{\text{ptot}} - \langle F_z^{\text{ptot}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–121. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{ptot}})^*$ Max. (kN/°)
1.00	8.59E+04	1.55E+04	1.56E+05	1.54E+04	1.56E+05	-7.05E+04	7.01E+04
1.75	8.59E+04	-3.67E+04	2.08E+05	-3.70E+04	2.08E+05	-7.02E+04	6.98E+04
2.50	8.60E+04	-8.93E+04	2.61E+05	-8.97E+04	2.61E+05	-7.03E+04	6.98E+04
3.75	8.60E+04	-1.77E+05	3.48E+05	-1.77E+05	3.48E+05	-7.02E+04	6.98E+04
5.00	8.60E+04	-2.64E+05	4.35E+05	-2.65E+05	4.35E+05	-7.01E+04	6.97E+04

Table O–122. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{ptot}})^*$ Max. (kN/°)
1.00	8.59E+04	8.16E+04	9.01E+04	8.17E+04	9.00E+04	-4.22E+03	4.14E+03
1.75	8.65E+04	7.85E+04	9.31E+04	7.85E+04	9.31E+04	-4.55E+03	3.74E+03
2.50	8.72E+04	7.54E+04	9.61E+04	7.54E+04	9.61E+04	-4.70E+03	3.55E+03
3.75	8.82E+04	7.01E+04	1.01E+05	7.03E+04	1.01E+05	-4.77E+03	3.44E+03
5.00	8.98E+04	6.50E+04	1.07E+05	6.51E+04	1.07E+05	-4.94E+03	3.37E+03

Table O–123. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

FREDYN							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.55E+04	8.08E+04	9.04E+04	8.08E+04	9.04E+04	-4.71E+03	4.89E+03
1.75	8.60E+04	7.81E+04	9.43E+04	7.81E+04	9.43E+04	-4.52E+03	4.73E+03
2.50	8.66E+04	7.56E+04	9.82E+04	7.56E+04	9.82E+04	-4.41E+03	4.61E+03
3.75	8.80E+04	7.18E+04	1.05E+05	7.18E+04	1.05E+05	-4.32E+03	4.46E+03
5.00	8.96E+04	6.81E+04	1.11E+05	6.82E+04	1.11E+05	-4.28E+03	4.33E+03

Table O–124. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.18E+04	7.76E+04	8.60E+04	7.76E+04	8.60E+04	-4.20E+03	4.16E+03
1.75	8.17E+04	7.44E+04	8.90E+04	7.44E+04	8.90E+04	-4.22E+03	4.14E+03
2.50	8.17E+04	7.11E+04	9.20E+04	7.11E+04	9.20E+04	-4.24E+03	4.13E+03
3.75	8.14E+04	6.54E+04	9.68E+04	6.55E+04	9.68E+04	-4.26E+03	4.10E+03
5.00	8.11E+04	5.97E+04	1.02E+05	5.97E+04	1.02E+05	-4.29E+03	4.08E+03

Table O–125. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.20E+04	7.82E+04	8.59E+04	7.82E+04	8.59E+04	-3.75E+03	3.92E+03
1.75	8.24E+04	7.62E+04	8.90E+04	7.62E+04	8.90E+04	-3.55E+03	3.75E+03
2.50	8.30E+04	7.44E+04	9.20E+04	7.44E+04	9.20E+04	-3.44E+03	3.60E+03
3.75	8.41E+04	7.16E+04	9.70E+04	7.16E+04	9.70E+04	-3.35E+03	3.42E+03
5.00	8.54E+04	6.89E+04	1.02E+05	6.89E+04	1.02E+05	-3.29E+03	3.26E+03

Table O–126. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.16E+04	7.80E+04	8.50E+04	7.81E+04	8.50E+04	-3.53E+03	3.41E+03
1.75	8.19E+04	7.61E+04	8.78E+04	7.62E+04	8.78E+04	-3.25E+03	3.38E+03
2.50	8.23E+04	7.43E+04	9.05E+04	7.46E+04	9.04E+04	-3.08E+03	3.27E+03
3.75	8.32E+04	7.21E+04	9.49E+04	7.27E+04	9.48E+04	-2.79E+03	3.09E+03
5.00	8.44E+04	7.01E+04	9.94E+04	7.11E+04	9.93E+04	-2.67E+03	2.97E+03



TASK 1/PITCH MOTION/MODEL 5613

Table O–127. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–128. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.62E+04	8.08E+04	9.18E+04	8.10E+04	9.18E+04	-5.24E+03	5.55E+03
1.75	8.67E+04	7.80E+04	9.61E+04	7.81E+04	9.60E+04	-4.91E+03	5.30E+03
2.50	8.74E+04	7.60E+04	1.00E+05	7.62E+04	1.00E+05	-4.48E+03	5.05E+03
3.75	8.85E+04	7.30E+04	1.07E+05	7.31E+04	1.06E+05	-4.11E+03	4.78E+03
5.00	8.98E+04	7.02E+04	1.13E+05	7.06E+04	1.12E+05	-3.84E+03	4.52E+03

# TASK 1/PITCH MOTION/MODEL 5613

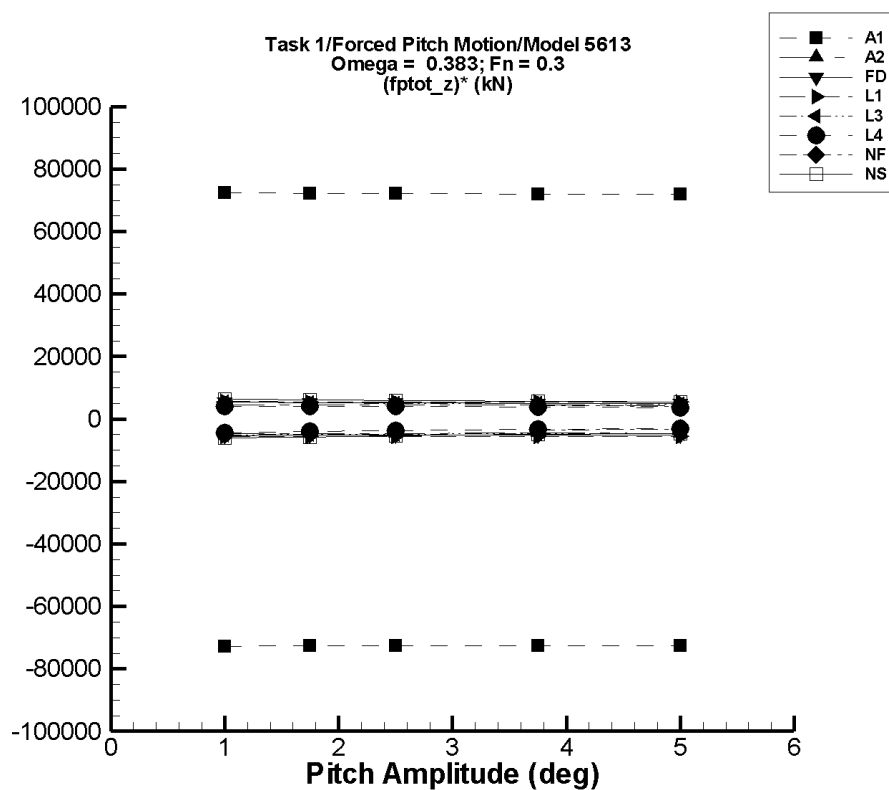


Figure O–17. Minimum and maximum of filtered  $(F_z^{ptot} - \langle F_z^{ptot} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–129. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{ptot}})^*$ Max. (kN/°)
1.00	8.59E+04	1.31E+04	1.58E+05	1.29E+04	1.58E+05	-7.30E+04	7.24E+04
1.75	8.58E+04	-4.09E+04	2.12E+05	-4.13E+04	2.12E+05	-7.26E+04	7.21E+04
2.50	8.58E+04	-9.53E+04	2.67E+05	-9.59E+04	2.66E+05	-7.27E+04	7.21E+04
3.75	8.57E+04	-1.86E+05	3.57E+05	-1.86E+05	3.56E+05	-7.26E+04	7.20E+04
5.00	8.56E+04	-2.76E+05	4.47E+05	-2.77E+05	4.45E+05	-7.25E+04	7.19E+04

Table O–130. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{ptot}})^*$ Max. (kN/°)
1.00	8.58E+04	8.12E+04	9.04E+04	8.12E+04	9.03E+04	-4.60E+03	4.49E+03
1.75	8.64E+04	7.82E+04	9.42E+04	7.83E+04	9.42E+04	-4.63E+03	4.45E+03
2.50	8.70E+04	7.54E+04	9.84E+04	7.55E+04	9.82E+04	-4.58E+03	4.50E+03
3.75	8.78E+04	7.09E+04	1.05E+05	7.11E+04	1.04E+05	-4.47E+03	4.39E+03
5.00	8.94E+04	6.65E+04	1.11E+05	6.66E+04	1.11E+05	-4.57E+03	4.39E+03

Table O–131. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

FREDYN							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.55E+04	8.01E+04	9.09E+04	8.01E+04	9.09E+04	-5.36E+03	5.38E+03
1.75	8.60E+04	7.68E+04	9.52E+04	7.68E+04	9.51E+04	-5.25E+03	5.22E+03
2.50	8.66E+04	7.36E+04	9.94E+04	7.36E+04	9.94E+04	-5.20E+03	5.09E+03
3.75	8.80E+04	6.85E+04	1.07E+05	6.86E+04	1.07E+05	-5.16E+03	4.94E+03
5.00	8.96E+04	6.36E+04	1.14E+05	6.38E+04	1.14E+05	-5.16E+03	4.81E+03

Table O–132. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.18E+04	7.62E+04	8.74E+04	7.62E+04	8.74E+04	-5.58E+03	5.56E+03
1.75	8.17E+04	7.19E+04	9.15E+04	7.20E+04	9.14E+04	-5.59E+03	5.54E+03
2.50	8.17E+04	6.76E+04	9.55E+04	6.76E+04	9.55E+04	-5.61E+03	5.53E+03
3.75	8.14E+04	6.03E+04	1.02E+05	6.03E+04	1.02E+05	-5.62E+03	5.52E+03
5.00	8.11E+04	5.29E+04	1.09E+05	5.29E+04	1.09E+05	-5.64E+03	5.50E+03

Table O–133. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.20E+04	7.68E+04	8.73E+04	7.68E+04	8.73E+04	-5.19E+03	5.34E+03
1.75	8.24E+04	7.37E+04	9.15E+04	7.37E+04	9.14E+04	-4.98E+03	5.17E+03
2.50	8.30E+04	7.08E+04	9.56E+04	7.08E+04	9.55E+04	-4.85E+03	5.03E+03
3.75	8.41E+04	6.64E+04	1.02E+05	6.64E+04	1.02E+05	-4.71E+03	4.86E+03
5.00	8.53E+04	6.22E+04	1.09E+05	6.22E+04	1.09E+05	-4.63E+03	4.71E+03

Table O–134. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.16E+04	7.70E+04	8.57E+04	7.71E+04	8.56E+04	-4.48E+03	4.04E+03
1.75	8.18E+04	7.46E+04	8.90E+04	7.48E+04	8.89E+04	-3.98E+03	4.05E+03
2.50	8.22E+04	7.24E+04	9.22E+04	7.28E+04	9.20E+04	-3.73E+03	3.94E+03
3.75	8.30E+04	6.98E+04	9.71E+04	7.06E+04	9.70E+04	-3.31E+03	3.73E+03
5.00	8.41E+04	6.76E+04	1.02E+05	6.90E+04	1.02E+05	-3.02E+03	3.58E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–135. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{ptot}})^*$ Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	7.99E+04	6.97E+04	9.12E+04	6.97E+04	9.11E+04	-4.08E+03	4.47E+03
3.75	8.09E+04	6.72E+04	9.69E+04	6.73E+04	9.67E+04	-3.61E+03	4.23E+03
5.00	8.22E+04	6.56E+04	1.03E+05	6.57E+04	1.03E+05	-3.30E+03	4.15E+03

Table O–136. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{ptot}})^*$ Max. (kN/°)
1.00	8.62E+04	7.99E+04	9.26E+04	8.02E+04	9.26E+04	-6.02E+03	6.38E+03
1.75	8.66E+04	7.64E+04	9.74E+04	7.66E+04	9.73E+04	-5.70E+03	6.16E+03
2.50	8.71E+04	7.38E+04	1.02E+05	7.40E+04	1.02E+05	-5.26E+03	5.93E+03
3.75	8.82E+04	6.98E+04	1.10E+05	7.02E+04	1.09E+05	-4.80E+03	5.65E+03
5.00	8.95E+04	6.52E+04	1.17E+05	6.67E+04	1.16E+05	-4.56E+03	5.36E+03

# TASK 1/PITCH MOTION/MODEL 5613

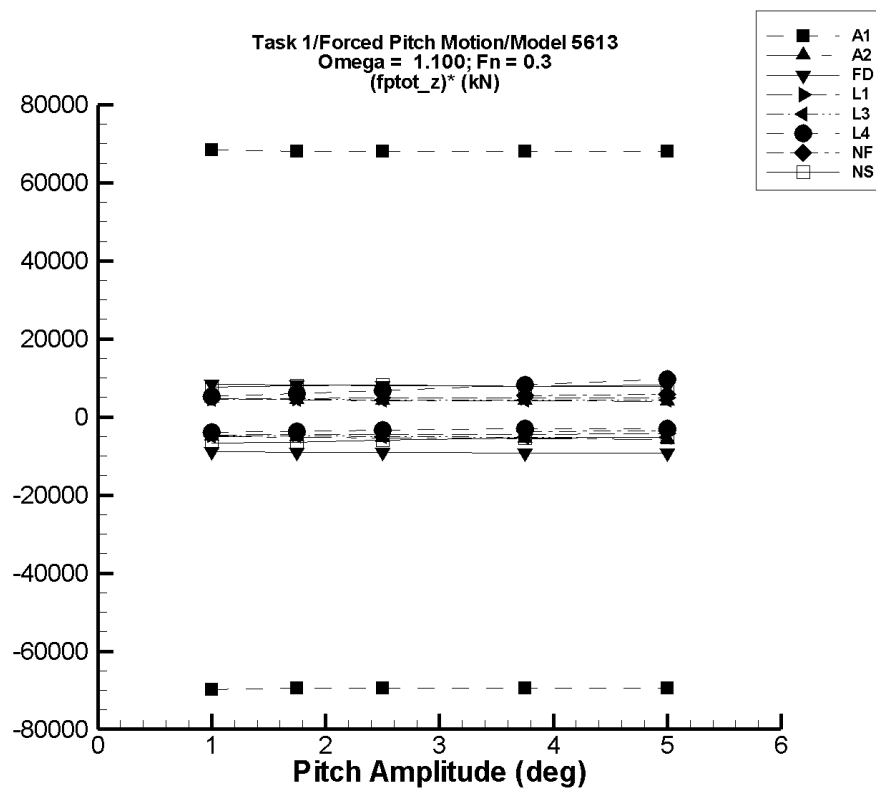


Figure O–18. Minimum and maximum of filtered  $(F_z^{ptot} - \langle F_z^{ptot} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–137. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered $(F_z^{\text{ptot}})^*$ Min. (kN/°)	Max. (kN/°)
1.00	8.59E+04	1.50E+04	1.57E+05	1.61E+04	1.54E+05	-6.98E+04	6.85E+04
1.75	8.59E+04	-3.76E+04	2.09E+05	-3.56E+04	2.05E+05	-6.95E+04	6.82E+04
2.50	8.59E+04	-9.05E+04	2.62E+05	-8.78E+04	2.56E+05	-6.95E+04	6.82E+04
3.75	8.59E+04	-1.78E+05	3.49E+05	-1.74E+05	3.41E+05	-6.94E+04	6.81E+04
5.00	8.59E+04	-2.66E+05	4.37E+05	-2.61E+05	4.26E+05	-6.94E+04	6.81E+04

Table O–138. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered $(F_z^{\text{ptot}})^*$ Min. (kN/°)	Max. (kN/°)
1.00	8.59E+04	8.08E+04	9.08E+04	8.10E+04	9.06E+04	-4.94E+03	4.71E+03
1.75	8.65E+04	7.70E+04	9.44E+04	7.73E+04	9.40E+04	-5.27E+03	4.29E+03
2.50	8.71E+04	7.32E+04	9.80E+04	7.36E+04	9.75E+04	-5.42E+03	4.15E+03
3.75	8.81E+04	6.69E+04	1.04E+05	6.75E+04	1.04E+05	-5.48E+03	4.14E+03
5.00	8.98E+04	6.06E+04	1.10E+05	6.14E+04	1.10E+05	-5.67E+03	3.98E+03



Table O–139. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

FREDYN							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.55E+04	7.67E+04	9.38E+04	7.66E+04	9.38E+04	-8.87E+03	8.31E+03
1.75	8.60E+04	7.04E+04	1.00E+05	7.02E+04	1.00E+05	-9.00E+03	8.15E+03
2.50	8.66E+04	6.40E+04	1.07E+05	6.39E+04	1.07E+05	-9.10E+03	8.02E+03
3.75	8.80E+04	5.35E+04	1.17E+05	5.33E+04	1.17E+05	-9.24E+03	7.85E+03
5.00	8.96E+04	4.30E+04	1.28E+05	4.29E+04	1.28E+05	-9.33E+03	7.73E+03

Table O–140. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.18E+04	7.71E+04	8.65E+04	7.72E+04	8.65E+04	-4.59E+03	4.71E+03
1.75	8.16E+04	7.36E+04	9.01E+04	7.37E+04	9.00E+04	-4.54E+03	4.76E+03
2.50	8.14E+04	7.01E+04	9.36E+04	7.02E+04	9.34E+04	-4.50E+03	4.80E+03
3.75	8.09E+04	6.42E+04	9.95E+04	6.43E+04	9.92E+04	-4.43E+03	4.88E+03
5.00	8.02E+04	5.83E+04	1.05E+05	5.84E+04	1.05E+05	-4.35E+03	4.96E+03

Table O–141. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.20E+04	7.70E+04	8.66E+04	7.71E+04	8.65E+04	-4.83E+03	4.57E+03
1.75	8.23E+04	7.35E+04	9.02E+04	7.36E+04	9.01E+04	-4.95E+03	4.46E+03
2.50	8.27E+04	7.01E+04	9.38E+04	7.01E+04	9.37E+04	-5.06E+03	4.38E+03
3.75	8.36E+04	6.42E+04	9.99E+04	6.42E+04	9.97E+04	-5.17E+03	4.30E+03
5.00	8.44E+04	5.82E+04	1.06E+05	5.82E+04	1.06E+05	-5.25E+03	4.26E+03

Table O–142. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.14E+04	7.72E+04	8.68E+04	7.76E+04	8.67E+04	-3.86E+03	5.27E+03
1.75	8.13E+04	7.39E+04	9.27E+04	7.49E+04	9.19E+04	-3.64E+03	6.11E+03
2.50	8.12E+04	7.11E+04	1.01E+05	7.30E+04	9.84E+04	-3.28E+03	6.88E+03
3.75	8.09E+04	6.75E+04	1.16E+05	6.98E+04	1.12E+05	-2.97E+03	8.37E+03
5.00	8.11E+04	6.48E+04	1.38E+05	6.71E+04	1.30E+05	-2.79E+03	9.77E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–143. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{ptot}})^*$ Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	8.12E+04	7.02E+04	9.67E+04	7.09E+04	9.47E+04	-4.09E+03	5.44E+03
3.75	8.14E+04	6.67E+04	1.05E+05	6.77E+04	1.02E+05	-3.65E+03	5.51E+03
5.00	8.17E+04	6.29E+04	1.16E+05	6.41E+04	1.11E+05	-3.53E+03	5.87E+03

Table O–144. Minimum and Maximum of Variables  $F_z^{\text{ptot}}$  and  $(F_z^{\text{ptot}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{ptot}})^*$ Max. (kN/°)
1.00	8.59E+04	7.92E+04	9.37E+04	7.93E+04	9.35E+04	-6.58E+03	7.61E+03
1.75	8.56E+04	7.39E+04	9.97E+04	7.43E+04	9.95E+04	-6.46E+03	7.96E+03
2.50	8.54E+04	7.03E+04	1.10E+05	7.05E+04	1.06E+05	-5.95E+03	8.17E+03
3.75	8.54E+04	6.42E+04	1.20E+05	6.53E+04	1.15E+05	-5.35E+03	7.91E+03
5.00	8.57E+04	5.85E+04	1.37E+05	5.96E+04	1.27E+05	-5.22E+03	8.18E+03

# TASK 1/PITCH MOTION/MODEL 5613

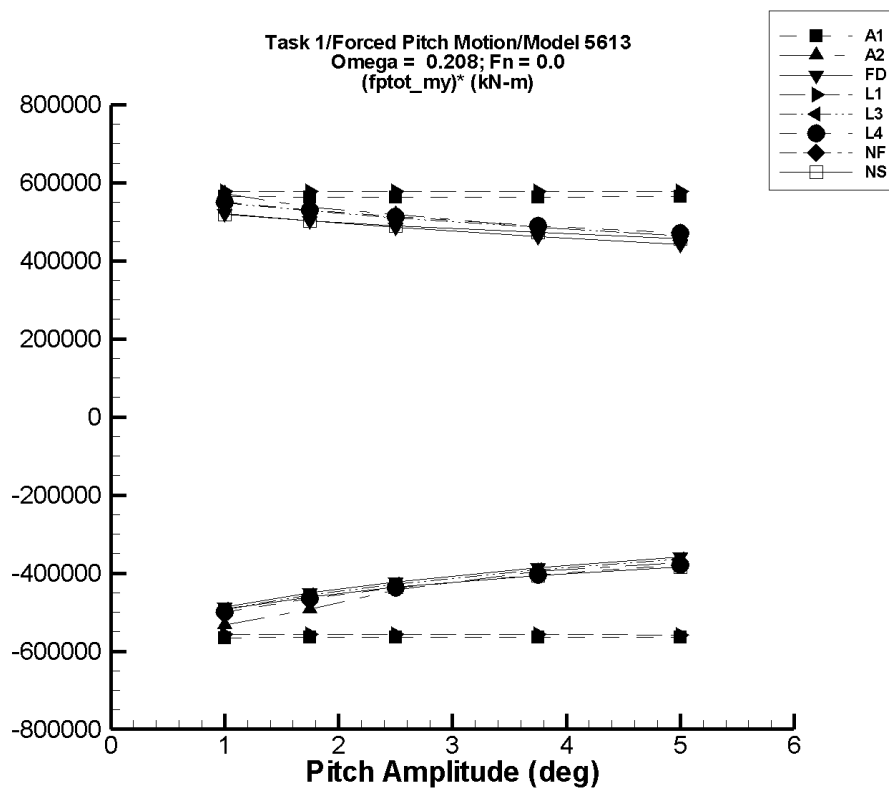


Figure O-19. Minimum and maximum of filtered  $(M_y^{ptot} - \langle M_y^{ptot} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–145. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-13.5	-5.66E+05	5.66E+05	-5.66E+05	5.65E+05	-5.66E+05	5.65E+05
1.75	-23.4	-9.86E+05	9.86E+05	-9.87E+05	9.85E+05	-5.64E+05	5.63E+05
2.50	-33.4	-1.41E+06	1.41E+06	-1.41E+06	1.41E+06	-5.64E+05	5.63E+05
3.75	-50.4	-2.11E+06	2.11E+06	-2.12E+06	2.11E+06	-5.64E+05	5.63E+05
5.00	-67.4	-2.82E+06	2.82E+06	-2.83E+06	2.82E+06	-5.65E+05	5.64E+05

Table O–146. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.16E+04	-5.11E+05	5.94E+05	-5.12E+05	5.93E+05	-5.33E+05	5.71E+05
1.75	5.25E+04	-8.10E+05	9.94E+05	-8.11E+05	9.93E+05	-4.93E+05	5.37E+05
2.50	1.02E+05	-1.00E+06	1.40E+06	-1.00E+06	1.40E+06	-4.42E+05	5.18E+05
3.75	1.88E+05	-1.29E+06	2.01E+06	-1.30E+06	2.01E+06	-3.96E+05	4.86E+05
5.00	2.99E+05	-1.57E+06	2.62E+06	-1.57E+06	2.62E+06	-3.74E+05	4.64E+05

Table O–147. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>FREDYN</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.02E+04	-4.67E+05	5.42E+05	-4.67E+05	5.42E+05	-4.87E+05	5.22E+05
1.75	5.06E+04	-7.38E+05	9.29E+05	-7.37E+05	9.29E+05	-4.50E+05	5.02E+05
2.50	8.99E+04	-9.66E+05	1.30E+06	-9.66E+05	1.30E+06	-4.22E+05	4.85E+05
3.75	1.67E+05	-1.28E+06	1.90E+06	-1.28E+06	1.90E+06	-3.87E+05	4.61E+05
5.00	2.56E+05	-1.54E+06	2.46E+06	-1.54E+06	2.46E+06	-3.59E+05	4.41E+05

Table O–148. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	119.	-5.68E+05	5.68E+05	-5.68E+05	5.68E+05	-5.68E+05	5.67E+05
1.75	362.	-9.94E+05	9.94E+05	-9.93E+05	9.93E+05	-5.68E+05	5.67E+05
2.50	744.	-1.42E+06	1.42E+06	-1.42E+06	1.42E+06	-5.68E+05	5.67E+05
3.75	1.67E+03	-2.13E+06	2.13E+06	-2.13E+06	2.13E+06	-5.68E+05	5.67E+05
5.00	2.97E+03	-2.84E+06	2.84E+06	-2.84E+06	2.84E+06	-5.68E+05	5.67E+05

Table O–149. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.40E+04	-4.90E+05	5.52E+05	-4.90E+05	5.52E+05	-5.04E+05	5.38E+05
1.75	4.41E+04	-7.73E+05	9.50E+05	-7.73E+05	9.49E+05	-4.67E+05	5.17E+05
2.50	8.28E+04	-1.01E+06	1.33E+06	-1.01E+06	1.33E+06	-4.38E+05	4.99E+05
3.75	1.60E+05	-1.35E+06	1.94E+06	-1.35E+06	1.94E+06	-4.02E+05	4.75E+05
5.00	2.47E+05	-1.63E+06	2.52E+06	-1.63E+06	2.52E+06	-3.75E+05	4.54E+05

Table O–150. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.34E+04	-4.96E+05	5.53E+05	-4.96E+05	5.53E+05	-5.10E+05	5.39E+05
1.75	4.24E+04	-7.89E+05	9.53E+05	-7.88E+05	9.52E+05	-4.75E+05	5.20E+05
2.50	7.99E+04	-1.04E+06	1.34E+06	-1.04E+06	1.34E+06	-4.48E+05	5.03E+05
3.75	1.54E+05	-1.40E+06	1.96E+06	-1.40E+06	1.96E+06	-4.14E+05	4.80E+05
5.00	2.39E+05	-1.70E+06	2.54E+06	-1.70E+06	2.54E+06	-3.88E+05	4.61E+05

TASK 1/PITCH MOTION/MODEL 5613

Table O–151. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–152. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.47E+04	-4.81E+05	5.39E+05	-4.77E+05	5.33E+05	-4.92E+05	5.18E+05
1.75	4.33E+04	-7.70E+05	9.33E+05	-7.63E+05	9.24E+05	-4.61E+05	5.03E+05
2.50	8.02E+04	-1.02E+06	1.32E+06	-1.01E+06	1.30E+06	-4.36E+05	4.89E+05
3.75	1.55E+05	-1.38E+06	1.94E+06	-1.37E+06	1.93E+06	-4.07E+05	4.73E+05
5.00	2.41E+05	-1.69E+06	2.53E+06	-1.68E+06	2.52E+06	-3.84E+05	4.57E+05



# TASK 1/PITCH MOTION/MODEL 5613

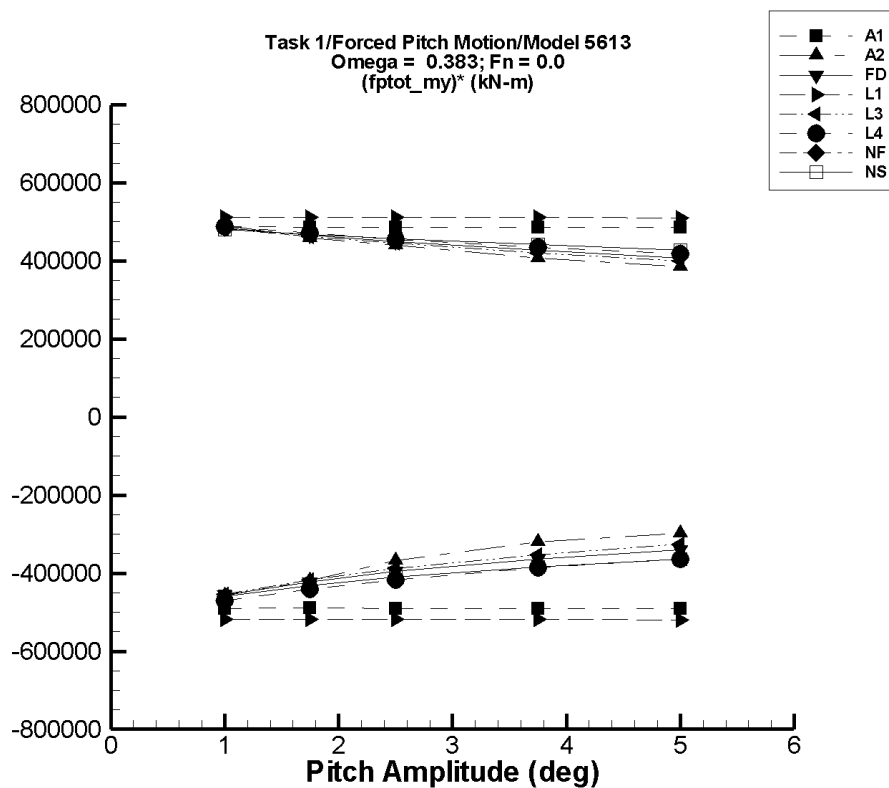


Figure O-20. Minimum and maximum of filtered  $(M_y^{ptot} - \langle M_y^{ptot} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–153. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-57.0	-4.91E+05	4.88E+05	-4.92E+05	4.87E+05	-4.92E+05	4.87E+05
1.75	-99.4	-8.56E+05	8.51E+05	-8.58E+05	8.48E+05	-4.90E+05	4.85E+05
2.50	-142.	-1.22E+06	1.22E+06	-1.23E+06	1.21E+06	-4.90E+05	4.85E+05
3.75	-213.	-1.83E+06	1.83E+06	-1.84E+06	1.82E+06	-4.90E+05	4.85E+05
5.00	-284.	-2.45E+06	2.44E+06	-2.45E+06	2.43E+06	-4.91E+05	4.86E+05

Table O–154. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.14E+04	-4.36E+05	5.15E+05	-4.36E+05	5.13E+05	-4.58E+05	4.91E+05
1.75	5.22E+04	-6.79E+05	8.57E+05	-6.81E+05	8.55E+05	-4.19E+05	4.59E+05
2.50	1.02E+05	-8.15E+05	1.20E+06	-8.18E+05	1.20E+06	-3.68E+05	4.39E+05
3.75	1.88E+05	-1.01E+06	1.72E+06	-1.02E+06	1.71E+06	-3.21E+05	4.07E+05
5.00	2.99E+05	-1.20E+06	2.23E+06	-1.20E+06	2.23E+06	-2.99E+05	3.85E+05

Table O–155. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>FREDYN</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.01E+04	-4.36E+05	5.08E+05	-4.35E+05	5.06E+05	-4.55E+05	4.86E+05
1.75	5.04E+04	-6.88E+05	8.71E+05	-6.86E+05	8.68E+05	-4.21E+05	4.67E+05
2.50	8.96E+04	-9.01E+05	1.22E+06	-8.98E+05	1.22E+06	-3.95E+05	4.50E+05
3.75	1.67E+05	-1.20E+06	1.77E+06	-1.19E+06	1.77E+06	-3.63E+05	4.27E+05
5.00	2.55E+05	-1.45E+06	2.30E+06	-1.44E+06	2.29E+06	-3.40E+05	4.08E+05

Table O–156. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	401.	-5.15E+05	5.15E+05	-5.15E+05	5.15E+05	-5.15E+05	5.14E+05
1.75	1.23E+03	-9.02E+05	9.02E+05	-9.01E+05	9.01E+05	-5.15E+05	5.14E+05
2.50	2.52E+03	-1.29E+06	1.29E+06	-1.29E+06	1.29E+06	-5.16E+05	5.14E+05
3.75	5.67E+03	-1.93E+06	1.93E+06	-1.93E+06	1.93E+06	-5.16E+05	5.13E+05
5.00	1.01E+04	-2.58E+06	2.58E+06	-2.57E+06	2.57E+06	-5.17E+05	5.13E+05

Table O–157. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.42E+04	-4.38E+05	5.00E+05	-4.37E+05	4.99E+05	-4.51E+05	4.85E+05
1.75	4.44E+04	-6.81E+05	8.58E+05	-6.81E+05	8.57E+05	-4.14E+05	4.64E+05
2.50	8.35E+04	-8.83E+05	1.20E+06	-8.82E+05	1.20E+06	-3.86E+05	4.47E+05
3.75	1.61E+05	-1.15E+06	1.75E+06	-1.15E+06	1.75E+06	-3.50E+05	4.22E+05
5.00	2.51E+05	-1.37E+06	2.26E+06	-1.36E+06	2.25E+06	-3.23E+05	4.01E+05

Table O–158. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.20E+04	-4.56E+05	5.03E+05	-4.56E+05	5.02E+05	-4.68E+05	4.90E+05
1.75	3.88E+04	-7.29E+05	8.67E+05	-7.28E+05	8.66E+05	-4.38E+05	4.73E+05
2.50	7.36E+04	-9.65E+05	1.22E+06	-9.64E+05	1.22E+06	-4.15E+05	4.57E+05
3.75	1.44E+05	-1.30E+06	1.78E+06	-1.30E+06	1.78E+06	-3.85E+05	4.36E+05
5.00	2.24E+05	-1.59E+06	2.32E+06	-1.58E+06	2.32E+06	-3.62E+05	4.19E+05

TASK 1/PITCH MOTION/MODEL 5613

Table O–159. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–160. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.09E+04	-4.52E+05	4.97E+05	-4.48E+05	4.92E+05	-4.59E+05	4.81E+05
1.75	3.59E+04	-7.26E+05	8.63E+05	-7.19E+05	8.54E+05	-4.31E+05	4.68E+05
2.50	6.87E+04	-9.64E+05	1.22E+06	-9.56E+05	1.21E+06	-4.10E+05	4.56E+05
3.75	1.35E+05	-1.31E+06	1.80E+06	-1.30E+06	1.79E+06	-3.84E+05	4.41E+05
5.00	2.13E+05	-1.61E+06	2.36E+06	-1.61E+06	2.35E+06	-3.64E+05	4.27E+05

# TASK 1/PITCH MOTION/MODEL 5613

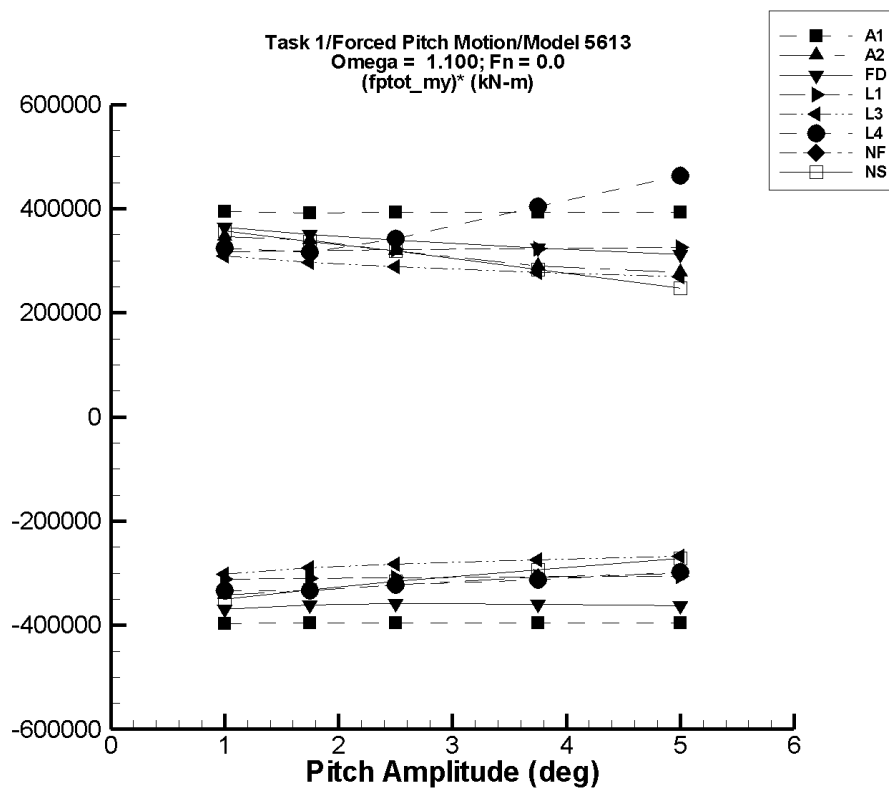


Figure O-21. Minimum and maximum of filtered  $(M_y^{ptot} - \langle M_y^{ptot} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–161. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-464.	-4.33E+05	4.06E+05	-3.97E+05	3.94E+05	-3.96E+05	3.95E+05
1.75	-809.	-7.55E+05	7.08E+05	-6.92E+05	6.87E+05	-3.95E+05	3.93E+05
2.50	-1.16E+03	-1.08E+06	1.01E+06	-9.89E+05	9.82E+05	-3.95E+05	3.93E+05
3.75	-1.73E+03	-1.62E+06	1.52E+06	-1.48E+06	1.47E+06	-3.95E+05	3.93E+05
5.00	-2.31E+03	-2.16E+06	2.03E+06	-1.98E+06	1.97E+06	-3.96E+05	3.94E+05

Table O–162. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.10E+04	-3.53E+05	3.78E+05	-3.21E+05	3.68E+05	-3.42E+05	3.47E+05
1.75	5.14E+04	-6.08E+05	6.83E+05	-5.31E+05	6.47E+05	-3.33E+05	3.40E+05
2.50	1.00E+05	-8.24E+05	9.21E+05	-7.07E+05	8.99E+05	-3.23E+05	3.19E+05
3.75	1.86E+05	-1.08E+06	1.34E+06	-9.65E+05	1.28E+06	-3.07E+05	2.91E+05
5.00	2.97E+05	-1.35E+06	1.73E+06	-1.20E+06	1.69E+06	-3.00E+05	2.78E+05

Table O–163. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>FREDYN</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.01E+04	-3.65E+05	3.96E+05	-3.50E+05	3.84E+05	-3.71E+05	3.64E+05
1.75	5.03E+04	-6.14E+05	6.83E+05	-5.85E+05	6.62E+05	-3.63E+05	3.49E+05
2.50	8.94E+04	-8.53E+05	9.64E+05	-8.10E+05	9.33E+05	-3.60E+05	3.37E+05
3.75	1.66E+05	-1.24E+06	1.42E+06	-1.19E+06	1.37E+06	-3.62E+05	3.22E+05
5.00	2.54E+05	-1.62E+06	1.87E+06	-1.57E+06	1.80E+06	-3.66E+05	3.10E+05

Table O–164. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.83E+03	-3.15E+05	3.22E+05	-3.11E+05	3.19E+05	-3.13E+05	3.17E+05
1.75	5.67E+03	-5.46E+05	5.69E+05	-5.40E+05	5.63E+05	-3.12E+05	3.18E+05
2.50	1.16E+04	-7.73E+05	8.21E+05	-7.64E+05	8.12E+05	-3.10E+05	3.20E+05
3.75	2.62E+04	-1.14E+06	1.25E+06	-1.13E+06	1.24E+06	-3.09E+05	3.23E+05
5.00	4.67E+04	-1.50E+06	1.70E+06	-1.49E+06	1.68E+06	-3.07E+05	3.26E+05



Table O–165. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.57E+04	-2.92E+05	3.27E+05	-2.89E+05	3.23E+05	-3.04E+05	3.07E+05
1.75	4.90E+04	-4.71E+05	5.72E+05	-4.63E+05	5.65E+05	-2.93E+05	2.95E+05
2.50	9.29E+04	-6.32E+05	8.17E+05	-6.20E+05	8.07E+05	-2.85E+05	2.85E+05
3.75	1.82E+05	-8.77E+05	1.23E+06	-8.55E+05	1.21E+06	-2.77E+05	2.74E+05
5.00	2.88E+05	-1.10E+06	1.65E+06	-1.06E+06	1.62E+06	-2.70E+05	2.67E+05

Table O–166. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	5.44E+03	-3.39E+05	3.43E+05	-3.29E+05	3.30E+05	-3.34E+05	3.25E+05
1.75	2.57E+04	-5.81E+05	6.01E+05	-5.57E+05	5.80E+05	-3.33E+05	3.17E+05
2.50	5.32E+04	-7.78E+05	1.05E+06	-7.49E+05	9.14E+05	-3.21E+05	3.44E+05
3.75	1.17E+05	-1.07E+06	1.90E+06	-1.05E+06	1.64E+06	-3.12E+05	4.06E+05
5.00	1.90E+05	-1.34E+06	3.07E+06	-1.29E+06	2.52E+06	-2.96E+05	4.66E+05

TASK 1/PITCH MOTION/MODEL 5613

Table O–167. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–168. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-9.55E+03	-3.67E+05	3.54E+05	-3.60E+05	3.47E+05	-3.50E+05	3.57E+05
1.75	-5.17E+03	-5.92E+05	5.98E+05	-5.87E+05	5.83E+05	-3.33E+05	3.36E+05
2.50	9.99E+03	-7.91E+05	8.92E+05	-7.80E+05	8.09E+05	-3.16E+05	3.20E+05
3.75	4.45E+04	-1.07E+06	1.21E+06	-1.06E+06	1.11E+06	-2.94E+05	2.83E+05
5.00	6.86E+04	-1.30E+06	2.04E+06	-1.29E+06	1.30E+06	-2.71E+05	2.47E+05

# TASK 1/PITCH MOTION/MODEL 5613

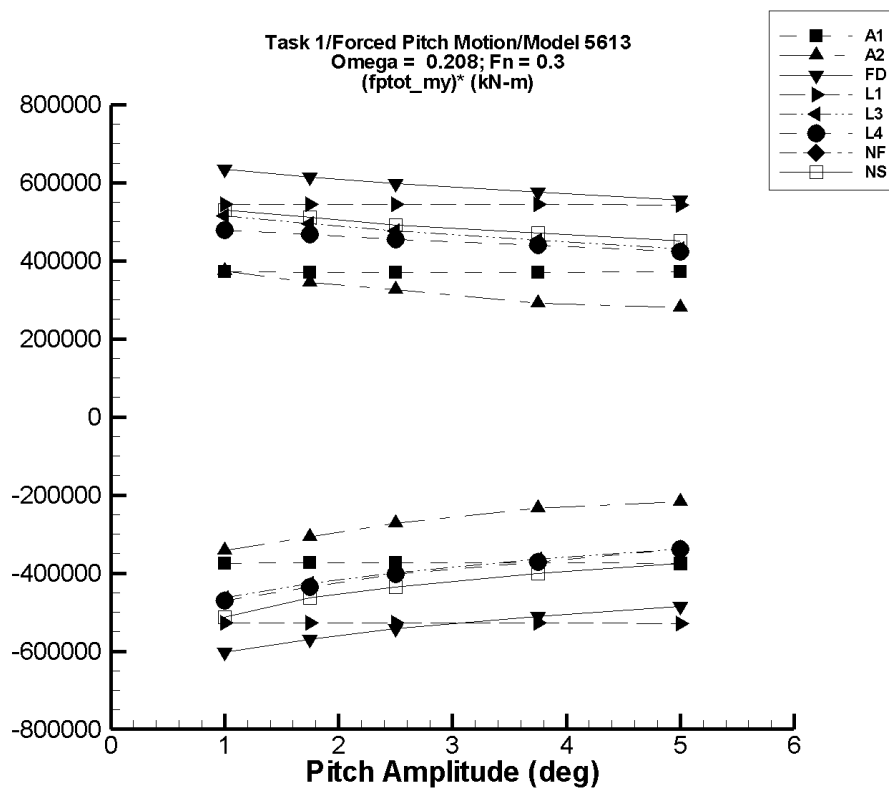


Figure O–22. Minimum and maximum of filtered  $(M_y^{ptot} - \langle M_y^{ptot} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–169. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	229.	-3.84E+05	3.80E+05	-3.75E+05	3.72E+05	-3.75E+05	3.72E+05
1.75	400.	-6.69E+05	6.63E+05	-6.54E+05	6.49E+05	-3.74E+05	3.71E+05
2.50	571.	-9.57E+05	9.47E+05	-9.34E+05	9.28E+05	-3.74E+05	3.71E+05
3.75	857.	-1.44E+06	1.42E+06	-1.40E+06	1.39E+06	-3.74E+05	3.71E+05
5.00	1.14E+03	-1.92E+06	1.90E+06	-1.87E+06	1.86E+06	-3.74E+05	3.71E+05

Table O–170. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.18E+04	-3.29E+05	4.00E+05	-3.20E+05	3.96E+05	-3.42E+05	3.75E+05
1.75	5.29E+04	-5.01E+05	6.71E+05	-4.86E+05	6.56E+05	-3.08E+05	3.45E+05
2.50	1.02E+05	-5.77E+05	9.36E+05	-5.76E+05	9.16E+05	-2.72E+05	3.25E+05
3.75	1.89E+05	-6.86E+05	1.31E+06	-6.85E+05	1.28E+06	-2.33E+05	2.92E+05
5.00	3.00E+05	-7.89E+05	1.74E+06	-7.85E+05	1.70E+06	-2.17E+05	2.79E+05

Table O–171. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>FREDYN</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.02E+04	-5.84E+05	6.55E+05	-5.83E+05	6.54E+05	-6.03E+05	6.34E+05
1.75	5.06E+04	-9.46E+05	1.13E+06	-9.45E+05	1.13E+06	-5.69E+05	6.15E+05
2.50	8.99E+04	-1.27E+06	1.59E+06	-1.27E+06	1.59E+06	-5.43E+05	5.98E+05
3.75	1.67E+05	-1.75E+06	2.33E+06	-1.75E+06	2.32E+06	-5.10E+05	5.75E+05
5.00	2.56E+05	-2.17E+06	3.04E+06	-2.17E+06	3.03E+06	-4.85E+05	5.56E+05

Table O–172. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-1.08E+04	-5.48E+05	5.25E+05	-5.47E+05	5.25E+05	-5.37E+05	5.35E+05
1.75	-1.11E+04	-9.51E+05	9.26E+05	-9.51E+05	9.25E+05	-5.37E+05	5.35E+05
2.50	-1.16E+04	-1.36E+06	1.33E+06	-1.35E+06	1.33E+06	-5.37E+05	5.35E+05
3.75	-1.27E+04	-2.03E+06	1.99E+06	-2.03E+06	1.99E+06	-5.38E+05	5.34E+05
5.00	-1.42E+04	-2.71E+06	2.65E+06	-2.71E+06	2.65E+06	-5.39E+05	5.33E+05

Table O–173. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	3.10E+03	-4.70E+05	5.09E+05	-4.70E+05	5.09E+05	-4.73E+05	5.06E+05
1.75	3.26E+04	-7.32E+05	8.82E+05	-7.32E+05	8.81E+05	-4.37E+05	4.85E+05
2.50	7.05E+04	-9.53E+05	1.24E+06	-9.52E+05	1.24E+06	-4.09E+05	4.67E+05
3.75	1.45E+05	-1.26E+06	1.81E+06	-1.26E+06	1.80E+06	-3.74E+05	4.43E+05
5.00	2.30E+05	-1.51E+06	2.34E+06	-1.51E+06	2.33E+06	-3.48E+05	4.21E+05

Table O–174. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-2.18E+04	-5.03E+05	4.50E+05	-5.02E+05	4.48E+05	-4.80E+05	4.70E+05
1.75	-5.37E+03	-7.86E+05	8.00E+05	-7.85E+05	7.99E+05	-4.45E+05	4.59E+05
2.50	2.08E+04	-1.01E+06	1.14E+06	-1.01E+06	1.13E+06	-4.11E+05	4.45E+05
3.75	8.56E+04	-1.34E+06	1.70E+06	-1.34E+06	1.70E+06	-3.80E+05	4.31E+05
5.00	1.63E+05	-1.61E+06	2.24E+06	-1.58E+06	2.24E+06	-3.48E+05	4.15E+05

TASK 1/PITCH MOTION/MODEL 5613

Table O–175. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–176. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	3.44E+04	-4.82E+05	5.71E+05	-4.78E+05	5.65E+05	-5.13E+05	5.31E+05
1.75	7.40E+04	-7.43E+05	9.79E+05	-7.37E+05	9.70E+05	-4.64E+05	5.12E+05
2.50	1.27E+05	-9.67E+05	1.37E+06	-9.61E+05	1.36E+06	-4.35E+05	4.92E+05
3.75	2.19E+05	-1.29E+06	2.00E+06	-1.29E+06	1.98E+06	-4.01E+05	4.71E+05
5.00	3.21E+05	-1.56E+06	2.59E+06	-1.55E+06	2.58E+06	-3.75E+05	4.51E+05

# TASK 1/PITCH MOTION/MODEL 5613

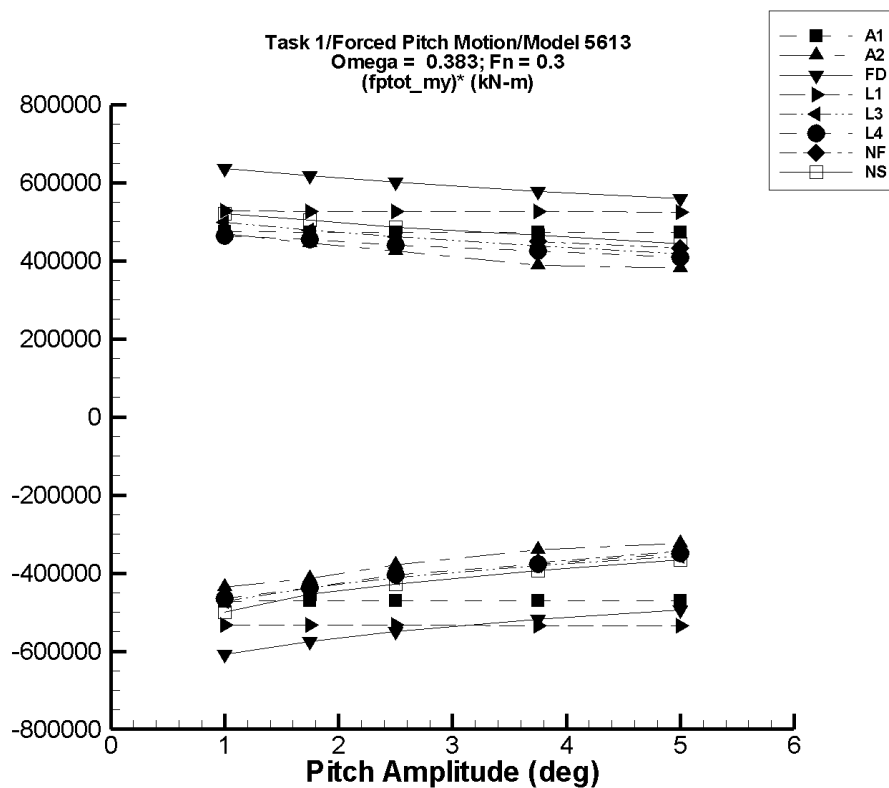


Figure O–23. Minimum and maximum of filtered  $(M_y^{ptot} - \langle M_y^{ptot} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.



Table O–177. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{ptot}})^*$ Max. (kN-m/°)
1.00	-1.07E+03	-4.87E+05	4.74E+05	-4.73E+05	4.72E+05	-4.72E+05	4.74E+05
1.75	-1.87E+03	-8.49E+05	8.27E+05	-8.25E+05	8.23E+05	-4.70E+05	4.72E+05
2.50	-2.67E+03	-1.21E+06	1.18E+06	-1.18E+06	1.18E+06	-4.71E+05	4.72E+05
3.75	-4.00E+03	-1.82E+06	1.77E+06	-1.77E+06	1.77E+06	-4.71E+05	4.72E+05
5.00	-5.34E+03	-2.43E+06	2.37E+06	-2.36E+06	2.36E+06	-4.71E+05	4.72E+05

Table O–178. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{ptot}})^*$ Max. (kN-m/°)
1.00	2.04E+04	-4.30E+05	4.91E+05	-4.16E+05	4.89E+05	-4.36E+05	4.69E+05
1.75	5.05E+04	-7.21E+05	8.32E+05	-6.73E+05	8.31E+05	-4.13E+05	4.46E+05
2.50	9.93E+04	-8.54E+05	1.16E+06	-8.49E+05	1.16E+06	-3.79E+05	4.25E+05
3.75	1.84E+05	-1.09E+06	1.64E+06	-1.09E+06	1.64E+06	-3.40E+05	3.88E+05
5.00	2.94E+05	-1.33E+06	2.22E+06	-1.32E+06	2.20E+06	-3.23E+05	3.81E+05

Table O–179. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>FREDYN</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.01E+04	-5.89E+05	6.60E+05	-5.87E+05	6.57E+05	-6.08E+05	6.37E+05
1.75	5.04E+04	-9.58E+05	1.14E+06	-9.55E+05	1.13E+06	-5.74E+05	6.18E+05
2.50	8.96E+04	-1.29E+06	1.60E+06	-1.28E+06	1.59E+06	-5.49E+05	6.02E+05
3.75	1.67E+05	-1.78E+06	2.34E+06	-1.77E+06	2.34E+06	-5.18E+05	5.79E+05
5.00	2.55E+05	-2.22E+06	3.07E+06	-2.22E+06	3.05E+06	-4.94E+05	5.60E+05

Table O–180. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-1.07E+04	-5.42E+05	5.19E+05	-5.41E+05	5.19E+05	-5.31E+05	5.29E+05
1.75	-1.06E+04	-9.41E+05	9.16E+05	-9.40E+05	9.15E+05	-5.31E+05	5.29E+05
2.50	-1.05E+04	-1.34E+06	1.31E+06	-1.34E+06	1.31E+06	-5.32E+05	5.28E+05
3.75	-1.03E+04	-2.01E+06	1.97E+06	-2.01E+06	1.97E+06	-5.32E+05	5.27E+05
5.00	-1.01E+04	-2.68E+06	2.63E+06	-2.68E+06	2.62E+06	-5.33E+05	5.27E+05

Table O–181. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	3.10E+03	-4.68E+05	5.05E+05	-4.68E+05	5.04E+05	-4.71E+05	5.01E+05
1.75	3.25E+04	-7.32E+05	8.75E+05	-7.31E+05	8.74E+05	-4.36E+05	4.81E+05
2.50	7.04E+04	-9.57E+05	1.23E+06	-9.56E+05	1.23E+06	-4.11E+05	4.63E+05
3.75	1.45E+05	-1.28E+06	1.79E+06	-1.28E+06	1.79E+06	-3.79E+05	4.39E+05
5.00	2.30E+05	-1.55E+06	2.33E+06	-1.55E+06	2.32E+06	-3.56E+05	4.18E+05

Table O–182. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-2.27E+04	-4.88E+05	4.45E+05	-4.86E+05	4.43E+05	-4.64E+05	4.66E+05
1.75	-8.98E+03	-7.76E+05	7.94E+05	-7.71E+05	7.91E+05	-4.35E+05	4.57E+05
2.50	1.61E+04	-1.00E+06	1.12E+06	-9.93E+05	1.12E+06	-4.04E+05	4.41E+05
3.75	8.01E+04	-1.36E+06	1.68E+06	-1.33E+06	1.68E+06	-3.76E+05	4.26E+05
5.00	1.55E+05	-1.64E+06	2.21E+06	-1.58E+06	2.21E+06	-3.48E+05	4.10E+05

Table O–183. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{ptot}})^*$ Max. (kN-m/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	-2.74E+04	-1.07E+06	1.17E+06	-1.06E+06	1.16E+06	-4.13E+05	4.75E+05
3.75	3.65E+04	-1.37E+06	1.74E+06	-1.36E+06	1.72E+06	-3.73E+05	4.50E+05
5.00	1.19E+05	-1.61E+06	2.31E+06	-1.60E+06	2.29E+06	-3.44E+05	4.33E+05

Table O–184. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{ptot}})^*$ Max. (kN-m/°)
1.00	2.89E+04	-4.76E+05	5.54E+05	-4.72E+05	5.49E+05	-5.01E+05	5.20E+05
1.75	6.15E+04	-7.40E+05	9.53E+05	-7.34E+05	9.44E+05	-4.55E+05	5.04E+05
2.50	1.07E+05	-9.68E+05	1.34E+06	-9.62E+05	1.32E+06	-4.28E+05	4.87E+05
3.75	1.90E+05	-1.29E+06	1.95E+06	-1.29E+06	1.94E+06	-3.94E+05	4.65E+05
5.00	2.87E+05	-1.55E+06	2.52E+06	-1.54E+06	2.51E+06	-3.66E+05	4.44E+05

# TASK 1/PITCH MOTION/MODEL 5613

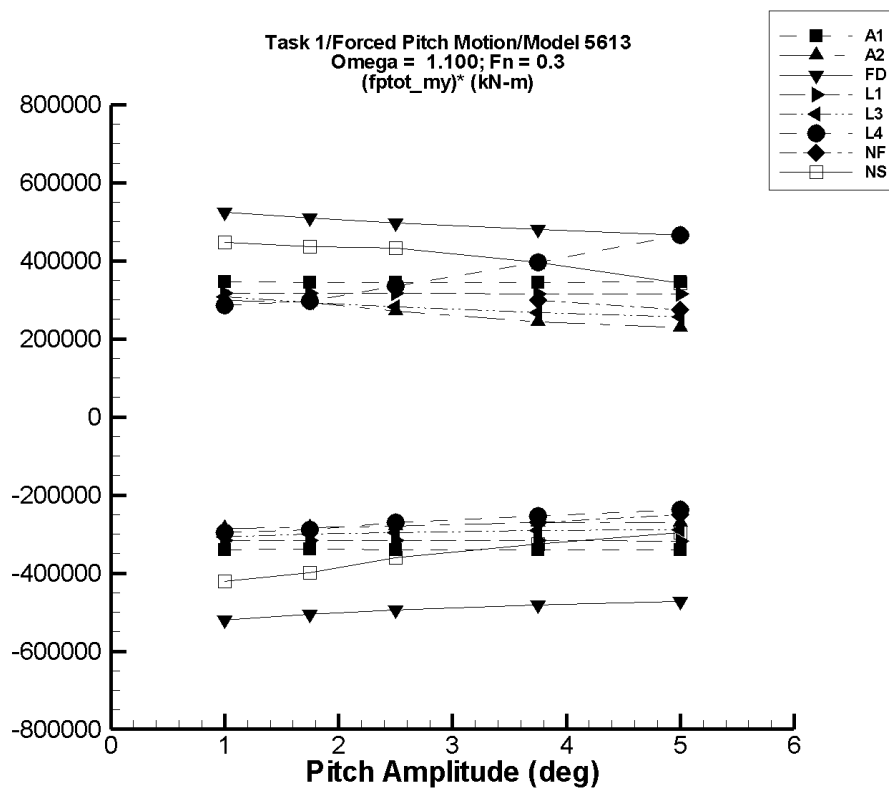


Figure O-24. Minimum and maximum of filtered  $(M_y^{ptot} - \langle M_y^{ptot} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000 \text{ rad/s}$ ,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154 \text{ m}$ .

Table O–185. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{ptot}})^*$ Max. (kN-m/°)
1.00	-1.89E+03	-3.94E+05	3.56E+05	-3.42E+05	3.45E+05	-3.40E+05	3.47E+05
1.75	-3.29E+03	-6.86E+05	6.20E+05	-5.96E+05	6.01E+05	-3.39E+05	3.45E+05
2.50	-4.71E+03	-9.81E+05	8.86E+05	-8.52E+05	8.59E+05	-3.39E+05	3.45E+05
3.75	-7.06E+03	-1.47E+06	1.33E+06	-1.28E+06	1.29E+06	-3.39E+05	3.45E+05
5.00	-9.42E+03	-1.96E+06	1.77E+06	-1.71E+06	1.72E+06	-3.39E+05	3.46E+05

Table O–186. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{ptot}})^*$ Max. (kN-m/°)
1.00	1.96E+04	-3.14E+05	3.29E+05	-2.65E+05	3.19E+05	-2.85E+05	2.99E+05
1.75	4.89E+04	-5.39E+05	5.95E+05	-4.45E+05	5.62E+05	-2.82E+05	2.93E+05
2.50	9.68E+04	-7.26E+05	7.97E+05	-6.01E+05	7.76E+05	-2.79E+05	2.72E+05
3.75	1.81E+05	-9.39E+05	1.15E+06	-8.34E+05	1.09E+06	-2.71E+05	2.43E+05
5.00	2.90E+05	-1.21E+06	1.48E+06	-1.06E+06	1.44E+06	-2.70E+05	2.30E+05

Table O–187. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

FREDYN							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.01E+04	-5.17E+05	5.61E+05	-5.00E+05	5.44E+05	-5.20E+05	5.24E+05
1.75	5.03E+04	-8.65E+05	9.69E+05	-8.34E+05	9.40E+05	-5.06E+05	5.08E+05
2.50	8.94E+04	-1.19E+06	1.37E+06	-1.15E+06	1.33E+06	-4.95E+05	4.95E+05
3.75	1.66E+05	-1.71E+06	2.02E+06	-1.64E+06	1.96E+06	-4.83E+05	4.78E+05
5.00	2.54E+05	-2.22E+06	2.65E+06	-2.12E+06	2.57E+06	-4.74E+05	4.64E+05

Table O–188. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

LAMP-1							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-1.04E+04	-3.31E+05	3.09E+05	-3.27E+05	3.06E+05	-3.17E+05	3.16E+05
1.75	-9.64E+03	-5.71E+05	5.49E+05	-5.65E+05	5.43E+05	-3.17E+05	3.16E+05
2.50	-8.53E+03	-8.11E+05	7.88E+05	-8.02E+05	7.79E+05	-3.17E+05	3.15E+05
3.75	-5.77E+03	-1.21E+06	1.19E+06	-1.20E+06	1.17E+06	-3.18E+05	3.15E+05
5.00	-1.90E+03	-1.61E+06	1.59E+06	-1.60E+06	1.57E+06	-3.19E+05	3.14E+05

Table O–189. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	3.49E+03	-3.11E+05	3.13E+05	-3.07E+05	3.09E+05	-3.10E+05	3.06E+05
1.75	3.37E+04	-5.04E+05	5.49E+05	-4.96E+05	5.43E+05	-3.03E+05	2.91E+05
2.50	7.28E+04	-6.87E+05	7.80E+05	-6.74E+05	7.71E+05	-2.99E+05	2.79E+05
3.75	1.51E+05	-9.79E+05	1.16E+06	-9.55E+05	1.14E+06	-2.95E+05	2.64E+05
5.00	2.39E+05	-1.26E+06	1.52E+06	-1.22E+06	1.50E+06	-2.93E+05	2.52E+05

Table O–190. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-3.12E+04	-3.39E+05	2.60E+05	-3.27E+05	2.56E+05	-2.95E+05	2.87E+05
1.75	-2.94E+04	-5.57E+05	5.19E+05	-5.31E+05	4.93E+05	-2.87E+05	2.98E+05
2.50	-1.61E+04	-7.13E+05	9.41E+05	-6.86E+05	8.25E+05	-2.68E+05	3.37E+05
3.75	3.86E+04	-9.41E+05	1.80E+06	-9.09E+05	1.53E+06	-2.53E+05	3.97E+05
5.00	1.03E+05	-1.14E+06	3.06E+06	-1.07E+06	2.44E+06	-2.36E+05	4.67E+05



Table O–191. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{ptot}})^*$ Max. (kN-m/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	-3.68E+03	-7.97E+05	8.02E+05	-7.60E+05	7.93E+05	-3.03E+05	3.19E+05
3.75	4.86E+04	-1.02E+06	1.16E+06	-9.67E+05	1.17E+06	-2.71E+05	2.99E+05
5.00	9.33E+04	-1.19E+06	1.53E+06	-1.15E+06	1.47E+06	-2.49E+05	2.75E+05

Table O–192. Minimum and Maximum of Variables  $M_y^{\text{ptot}}$  and  $(M_y^{\text{ptot}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{ptot}})^*$ Max. (kN-m/°)
1.00	1.01E+04	-4.29E+05	4.67E+05	-4.12E+05	4.58E+05	-4.22E+05	4.48E+05
1.75	7.83E+03	-6.97E+05	7.90E+05	-6.90E+05	7.73E+05	-3.99E+05	4.37E+05
2.50	2.22E+04	-8.94E+05	1.24E+06	-8.80E+05	1.10E+06	-3.61E+05	4.33E+05
3.75	7.68E+04	-1.25E+06	1.79E+06	-1.14E+06	1.56E+06	-3.25E+05	3.96E+05
5.00	1.60E+05	-1.59E+06	2.60E+06	-1.32E+06	1.87E+06	-2.96E+05	3.42E+05

# TASK 1/PITCH MOTION/MODEL 5613

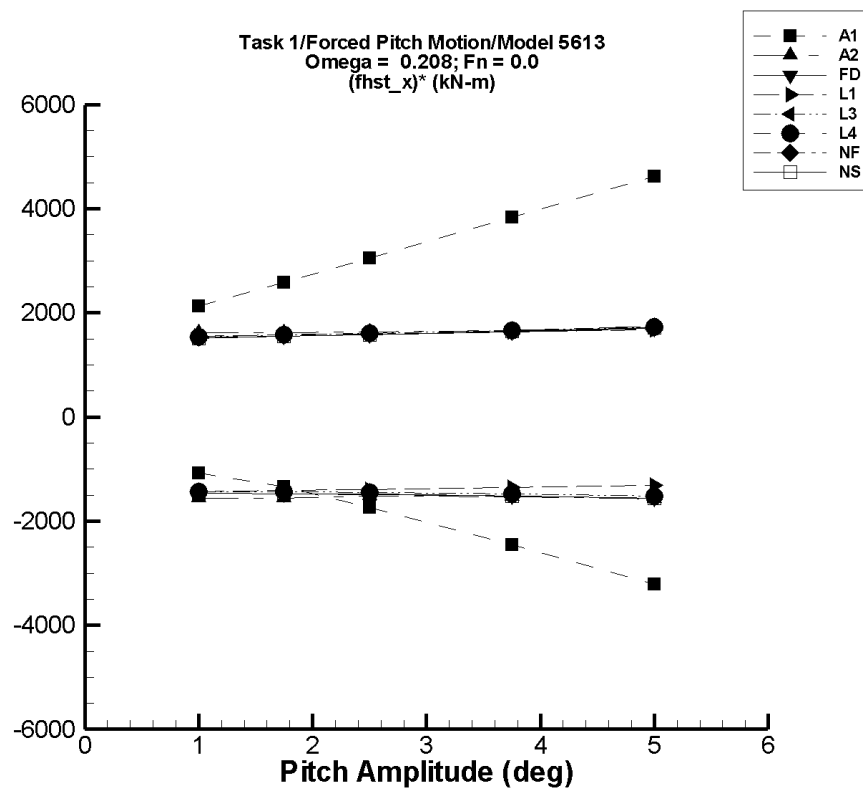


Figure O-25. Minimum and maximum of filtered  $(F_x^{hst} - \langle F_x^{hst} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–193. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	632.	-447.	2.77E+03	-446.	2.76E+03	-1.08E+03	2.13E+03
1.75	1.92E+03	-447.	6.46E+03	-440.	6.44E+03	-1.35E+03	2.59E+03
2.50	3.92E+03	-447.	1.16E+04	-433.	1.16E+04	-1.74E+03	3.06E+03
3.75	8.82E+03	-447.	2.32E+04	-409.	2.32E+04	-2.46E+03	3.84E+03
5.00	1.57E+04	-447.	3.89E+04	-379.	3.88E+04	-3.22E+03	4.62E+03

Table O–194. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	28.3	-1.95E+03	1.65E+03	-1.54E+03	1.65E+03	-1.57E+03	1.62E+03
1.75	73.3	-2.65E+03	2.90E+03	-2.65E+03	2.90E+03	-1.56E+03	1.61E+03
2.50	148.	-3.65E+03	4.24E+03	-3.65E+03	4.24E+03	-1.52E+03	1.64E+03
3.75	300.	-5.43E+03	6.56E+03	-5.43E+03	6.55E+03	-1.53E+03	1.67E+03
5.00	505.	-7.35E+03	9.24E+03	-7.35E+03	9.23E+03	-1.57E+03	1.75E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–195. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

FREDYN							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	16.0	-1.46E+03	1.54E+03	-1.45E+03	1.53E+03	-1.47E+03	1.52E+03
1.75	61.1	-2.52E+03	2.77E+03	-2.52E+03	2.77E+03	-1.47E+03	1.55E+03
2.50	124.	-3.59E+03	4.08E+03	-3.59E+03	4.07E+03	-1.49E+03	1.58E+03
3.75	259.	-5.44E+03	6.41E+03	-5.43E+03	6.40E+03	-1.52E+03	1.64E+03
5.00	426.	-7.37E+03	8.95E+03	-7.36E+03	8.94E+03	-1.56E+03	1.70E+03

Table O–196. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	28.9	-1.44E+03	1.55E+03	-1.44E+03	1.55E+03	-1.46E+03	1.52E+03
1.75	88.5	-2.44E+03	2.79E+03	-2.44E+03	2.79E+03	-1.44E+03	1.54E+03
2.50	181.	-3.37E+03	4.09E+03	-3.37E+03	4.09E+03	-1.42E+03	1.56E+03
3.75	406.	-4.78E+03	6.41E+03	-4.78E+03	6.41E+03	-1.38E+03	1.60E+03
5.00	722.	-6.01E+03	8.90E+03	-6.01E+03	8.90E+03	-1.35E+03	1.64E+03

Table O–197. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-13.5	-1.48E+03	1.50E+03	-1.48E+03	1.50E+03	-1.47E+03	1.51E+03
1.75	31.9	-2.54E+03	2.73E+03	-2.54E+03	2.73E+03	-1.47E+03	1.54E+03
2.50	94.3	-3.61E+03	4.03E+03	-3.61E+03	4.03E+03	-1.48E+03	1.57E+03
3.75	228.	-5.45E+03	6.34E+03	-5.44E+03	6.34E+03	-1.51E+03	1.63E+03
5.00	389.	-7.38E+03	8.85E+03	-7.38E+03	8.85E+03	-1.55E+03	1.69E+03

Table O–198. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-13.5	-1.48E+03	1.50E+03	-1.48E+03	1.50E+03	-1.47E+03	1.51E+03
1.75	31.9	-2.54E+03	2.73E+03	-2.54E+03	2.73E+03	-1.47E+03	1.54E+03
2.50	94.3	-3.61E+03	4.03E+03	-3.61E+03	4.03E+03	-1.48E+03	1.57E+03
3.75	228.	-5.45E+03	6.34E+03	-5.44E+03	6.34E+03	-1.51E+03	1.63E+03
5.00	389.	-7.38E+03	8.85E+03	-7.38E+03	8.85E+03	-1.55E+03	1.69E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–199. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–200. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	25.2	-1.46E+03	1.56E+03	-1.44E+03	1.54E+03	-1.47E+03	1.52E+03
1.75	70.2	-2.53E+03	2.80E+03	-2.51E+03	2.77E+03	-1.47E+03	1.54E+03
2.50	133.	-3.61E+03	4.12E+03	-3.58E+03	4.08E+03	-1.48E+03	1.58E+03
3.75	269.	-5.47E+03	6.48E+03	-5.43E+03	6.44E+03	-1.52E+03	1.64E+03
5.00	439.	-7.41E+03	9.06E+03	-7.38E+03	9.02E+03	-1.56E+03	1.72E+03

# TASK 1/PITCH MOTION/MODEL 5613

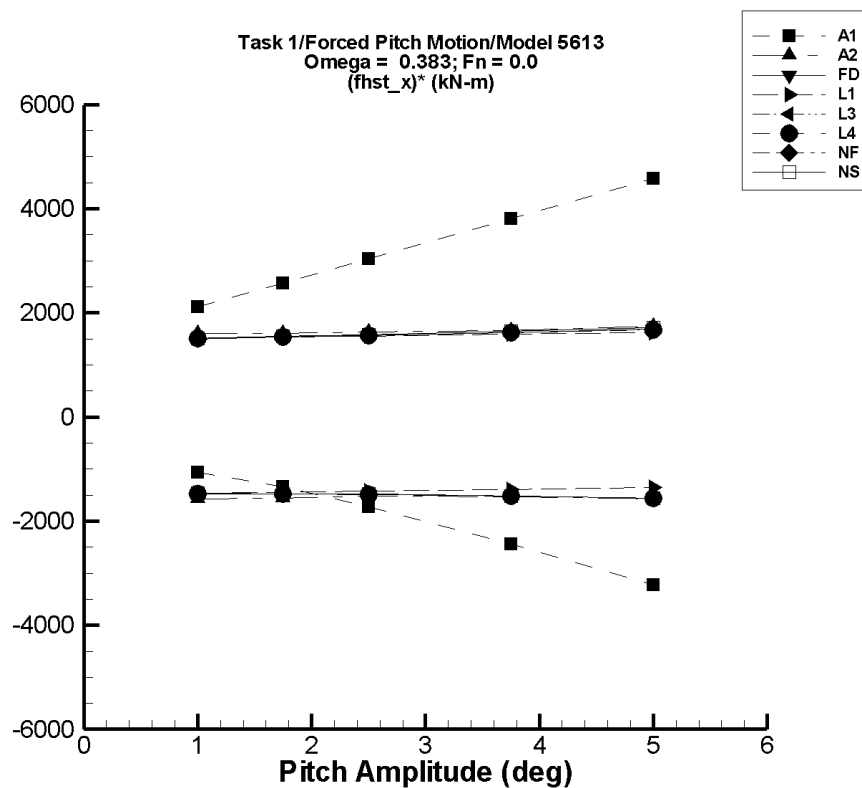


Figure O-26. Minimum and maximum of filtered  $(F_x^{hst} - \langle F_x^{hst} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–201. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	632.	-447.	2.77E+03	-441.	2.75E+03	-1.07E+03	2.12E+03
1.75	1.92E+03	-447.	6.46E+03	-422.	6.42E+03	-1.34E+03	2.57E+03
2.50	3.92E+03	-447.	1.16E+04	-391.	1.15E+04	-1.72E+03	3.04E+03
3.75	8.82E+03	-447.	2.32E+04	-341.	2.31E+04	-2.44E+03	3.81E+03
5.00	1.57E+04	-447.	3.89E+04	-429.	3.86E+04	-3.23E+03	4.58E+03

Table O–202. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	37.2	-1.54E+03	1.65E+03	-1.54E+03	1.64E+03	-1.58E+03	1.61E+03
1.75	70.0	-2.94E+03	2.90E+03	-2.66E+03	2.89E+03	-1.56E+03	1.61E+03
2.50	148.	-3.65E+03	4.24E+03	-3.66E+03	4.23E+03	-1.53E+03	1.63E+03
3.75	297.	-5.43E+03	6.56E+03	-5.45E+03	6.53E+03	-1.53E+03	1.66E+03
5.00	504.	-7.35E+03	9.24E+03	-7.37E+03	9.20E+03	-1.58E+03	1.74E+03



Table O–203. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

FREDYN							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered $(F_x^{\text{hst}})^*$ Min. (kN/°)	Max. (kN/°)
1.00	16.0	-1.46E+03	1.54E+03	-1.45E+03	1.53E+03	-1.47E+03	1.51E+03
1.75	61.2	-2.52E+03	2.77E+03	-2.51E+03	2.76E+03	-1.47E+03	1.54E+03
2.50	124.	-3.59E+03	4.08E+03	-3.58E+03	4.06E+03	-1.48E+03	1.58E+03
3.75	260.	-5.44E+03	6.41E+03	-5.41E+03	6.38E+03	-1.51E+03	1.63E+03
5.00	427.	-7.37E+03	8.95E+03	-7.34E+03	8.91E+03	-1.55E+03	1.70E+03

Table O–204. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered $(F_x^{\text{hst}})^*$ Min. (kN/°)	Max. (kN/°)
1.00	28.9	-1.44E+03	1.55E+03	-1.43E+03	1.55E+03	-1.46E+03	1.52E+03
1.75	88.5	-2.44E+03	2.79E+03	-2.43E+03	2.79E+03	-1.44E+03	1.54E+03
2.50	181.	-3.37E+03	4.09E+03	-3.37E+03	4.09E+03	-1.42E+03	1.56E+03
3.75	406.	-4.78E+03	6.41E+03	-4.78E+03	6.40E+03	-1.38E+03	1.60E+03
5.00	722.	-6.01E+03	8.90E+03	-6.01E+03	8.89E+03	-1.35E+03	1.63E+03

Table O–205. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{hst}})^*$ Max. (kN/°)
1.00	-13.5	-1.48E+03	1.50E+03	-1.48E+03	1.50E+03	-1.47E+03	1.51E+03
1.75	32.0	-2.54E+03	2.73E+03	-2.54E+03	2.73E+03	-1.47E+03	1.54E+03
2.50	94.5	-3.61E+03	4.03E+03	-3.61E+03	4.03E+03	-1.48E+03	1.57E+03
3.75	228.	-5.45E+03	6.34E+03	-5.44E+03	6.33E+03	-1.51E+03	1.63E+03
5.00	391.	-7.38E+03	8.85E+03	-7.37E+03	8.84E+03	-1.55E+03	1.69E+03

Table O–206. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{hst}})^*$ Max. (kN/°)
1.00	-13.5	-1.48E+03	1.50E+03	-1.48E+03	1.50E+03	-1.47E+03	1.51E+03
1.75	32.0	-2.54E+03	2.73E+03	-2.54E+03	2.73E+03	-1.47E+03	1.54E+03
2.50	94.5	-3.61E+03	4.03E+03	-3.61E+03	4.03E+03	-1.48E+03	1.57E+03
3.75	228.	-5.45E+03	6.34E+03	-5.44E+03	6.33E+03	-1.51E+03	1.63E+03
5.00	391.	-7.38E+03	8.85E+03	-7.37E+03	8.84E+03	-1.55E+03	1.69E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–207. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–208. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	25.2	-1.46E+03	1.56E+03	-1.44E+03	1.54E+03	-1.47E+03	1.52E+03
1.75	70.2	-2.53E+03	2.80E+03	-2.51E+03	2.77E+03	-1.47E+03	1.54E+03
2.50	133.	-3.61E+03	4.12E+03	-3.58E+03	4.07E+03	-1.48E+03	1.58E+03
3.75	269.	-5.47E+03	6.48E+03	-5.43E+03	6.44E+03	-1.52E+03	1.64E+03
5.00	439.	-7.41E+03	9.06E+03	-7.38E+03	9.02E+03	-1.56E+03	1.72E+03

# TASK 1/PITCH MOTION/MODEL 5613

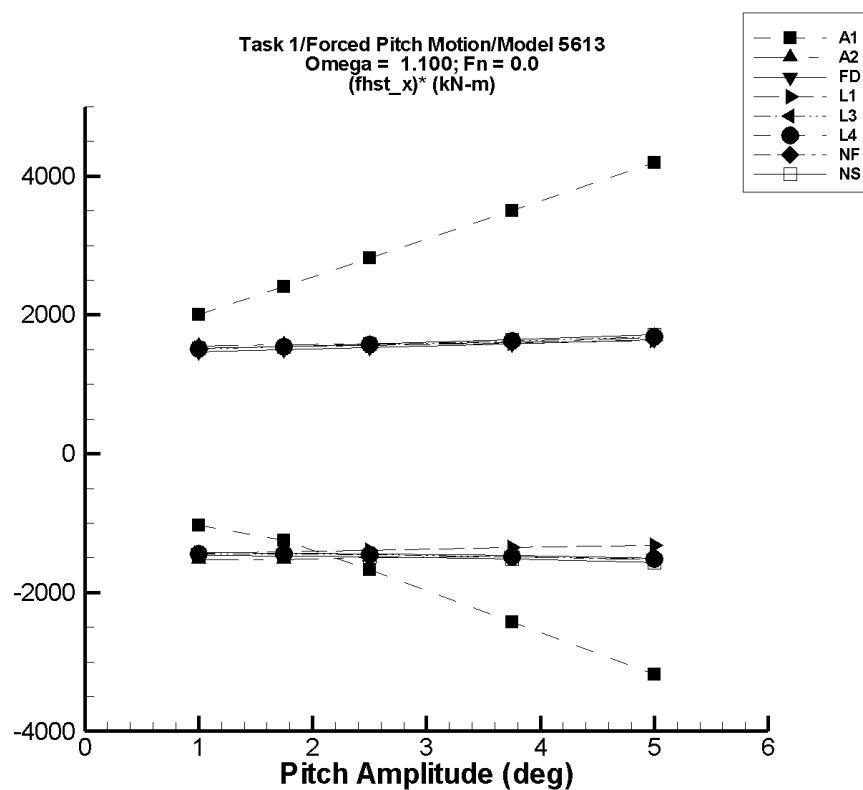


Figure O-27. Minimum and maximum of filtered  $(F_x^{hst} - \langle F_x^{hst} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–209. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	632.	-446.	2.76E+03	-402.	2.64E+03	-1.03E+03	2.01E+03
1.75	1.92E+03	-447.	6.45E+03	-264.	6.13E+03	-1.25E+03	2.41E+03
2.50	3.92E+03	-447.	1.16E+04	-268.	1.10E+04	-1.67E+03	2.82E+03
3.75	8.82E+03	-445.	2.32E+04	-274.	2.20E+04	-2.42E+03	3.51E+03
5.00	1.57E+04	-447.	3.88E+04	-195.	3.67E+04	-3.18E+03	4.20E+03

Table O–210. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	37.2	-1.54E+03	1.65E+03	-1.49E+03	1.59E+03	-1.52E+03	1.55E+03
1.75	71.9	-2.65E+03	2.90E+03	-2.60E+03	2.81E+03	-1.53E+03	1.57E+03
2.50	147.	-3.65E+03	4.24E+03	-3.58E+03	4.10E+03	-1.49E+03	1.58E+03
3.75	295.	-5.43E+03	6.55E+03	-5.29E+03	6.31E+03	-1.49E+03	1.60E+03
5.00	504.	-7.35E+03	9.23E+03	-7.12E+03	8.90E+03	-1.53E+03	1.68E+03

Table O–211. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

FREDYN							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{hst}})^*$ Max. (kN/°)
1.00	16.0	-1.46E+03	1.53E+03	-1.41E+03	1.48E+03	-1.43E+03	1.47E+03
1.75	61.1	-2.52E+03	2.77E+03	-2.44E+03	2.68E+03	-1.43E+03	1.50E+03
2.50	124.	-3.59E+03	4.07E+03	-3.48E+03	3.94E+03	-1.44E+03	1.53E+03
3.75	259.	-5.44E+03	6.40E+03	-5.26E+03	6.18E+03	-1.47E+03	1.58E+03
5.00	426.	-7.37E+03	8.94E+03	-7.12E+03	8.62E+03	-1.51E+03	1.64E+03

Table O–212. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{hst}})^*$ Max. (kN/°)
1.00	28.8	-1.44E+03	1.55E+03	-1.42E+03	1.53E+03	-1.45E+03	1.50E+03
1.75	88.3	-2.44E+03	2.79E+03	-2.41E+03	2.76E+03	-1.43E+03	1.52E+03
2.50	180.	-3.37E+03	4.09E+03	-3.34E+03	4.04E+03	-1.41E+03	1.54E+03
3.75	406.	-4.78E+03	6.41E+03	-4.74E+03	6.33E+03	-1.37E+03	1.58E+03
5.00	721.	-6.01E+03	8.90E+03	-5.96E+03	8.78E+03	-1.34E+03	1.61E+03

Table O–213. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{hst}})^*$ Max. (kN/°)
1.00	-13.6	-1.48E+03	1.50E+03	-1.46E+03	1.48E+03	-1.45E+03	1.50E+03
1.75	31.6	-2.54E+03	2.73E+03	-2.51E+03	2.70E+03	-1.45E+03	1.52E+03
2.50	93.8	-3.61E+03	4.03E+03	-3.57E+03	3.98E+03	-1.47E+03	1.55E+03
3.75	227.	-5.44E+03	6.34E+03	-5.38E+03	6.26E+03	-1.50E+03	1.61E+03
5.00	388.	-7.38E+03	8.85E+03	-7.29E+03	8.73E+03	-1.54E+03	1.67E+03

Table O–214. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{hst}})^*$ Max. (kN/°)
1.00	-13.6	-1.48E+03	1.50E+03	-1.46E+03	1.48E+03	-1.45E+03	1.50E+03
1.75	31.6	-2.54E+03	2.73E+03	-2.51E+03	2.70E+03	-1.45E+03	1.52E+03
2.50	93.8	-3.61E+03	4.03E+03	-3.57E+03	3.98E+03	-1.47E+03	1.55E+03
3.75	227.	-5.44E+03	6.34E+03	-5.38E+03	6.26E+03	-1.50E+03	1.61E+03
5.00	388.	-7.38E+03	8.85E+03	-7.29E+03	8.73E+03	-1.54E+03	1.67E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–215. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–216. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	25.2	-1.46E+03	1.56E+03	-1.44E+03	1.54E+03	-1.47E+03	1.52E+03
1.75	70.2	-2.53E+03	2.80E+03	-2.51E+03	2.77E+03	-1.47E+03	1.54E+03
2.50	133.	-3.61E+03	4.12E+03	-3.58E+03	4.07E+03	-1.48E+03	1.58E+03
3.75	269.	-5.47E+03	6.48E+03	-5.43E+03	6.44E+03	-1.52E+03	1.64E+03
5.00	439.	-7.41E+03	9.06E+03	-7.38E+03	9.02E+03	-1.56E+03	1.72E+03



# TASK 1/PITCH MOTION/MODEL 5613

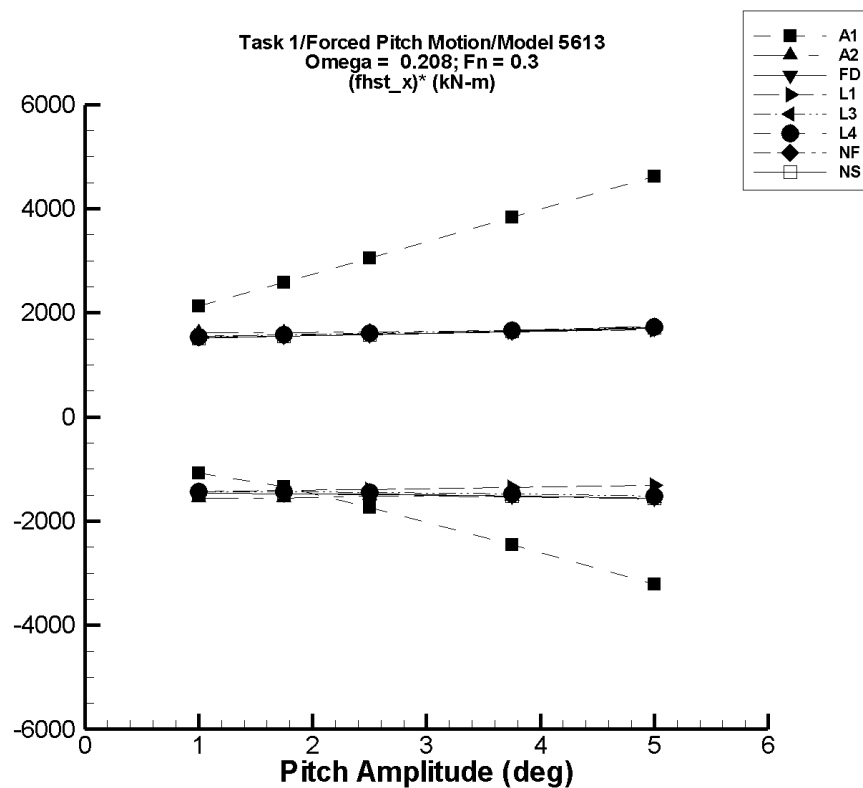


Figure O-28. Minimum and maximum of filtered  $(F_x^{hst} - \langle F_x^{hst} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–217. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	632.	-447.	2.77E+03	-446.	2.76E+03	-1.08E+03	2.13E+03
1.75	1.92E+03	-447.	6.46E+03	-440.	6.44E+03	-1.35E+03	2.59E+03
2.50	3.92E+03	-447.	1.16E+04	-433.	1.16E+04	-1.74E+03	3.06E+03
3.75	8.82E+03	-447.	2.32E+04	-409.	2.32E+04	-2.46E+03	3.84E+03
5.00	1.57E+04	-447.	3.89E+04	-379.	3.88E+04	-3.22E+03	4.62E+03

Table O–218. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	28.4	-1.98E+03	1.65E+03	-1.54E+03	1.65E+03	-1.57E+03	1.62E+03
1.75	73.3	-2.65E+03	2.90E+03	-2.65E+03	2.90E+03	-1.56E+03	1.61E+03
2.50	148.	-3.65E+03	4.24E+03	-3.65E+03	4.24E+03	-1.52E+03	1.64E+03
3.75	300.	-5.43E+03	6.56E+03	-5.43E+03	6.55E+03	-1.53E+03	1.67E+03
5.00	505.	-7.35E+03	9.24E+03	-7.35E+03	9.23E+03	-1.57E+03	1.75E+03

Table O–219. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

FREDYN							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	16.0	-1.46E+03	1.54E+03	-1.45E+03	1.53E+03	-1.47E+03	1.52E+03
1.75	61.1	-2.52E+03	2.77E+03	-2.52E+03	2.77E+03	-1.47E+03	1.55E+03
2.50	124.	-3.59E+03	4.08E+03	-3.59E+03	4.07E+03	-1.49E+03	1.58E+03
3.75	259.	-5.44E+03	6.41E+03	-5.43E+03	6.40E+03	-1.52E+03	1.64E+03
5.00	426.	-7.37E+03	8.95E+03	-7.36E+03	8.94E+03	-1.56E+03	1.70E+03

Table O–220. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	28.9	-1.44E+03	1.55E+03	-1.44E+03	1.55E+03	-1.46E+03	1.52E+03
1.75	88.5	-2.44E+03	2.79E+03	-2.44E+03	2.79E+03	-1.44E+03	1.54E+03
2.50	181.	-3.37E+03	4.09E+03	-3.37E+03	4.09E+03	-1.42E+03	1.56E+03
3.75	406.	-4.78E+03	6.41E+03	-4.78E+03	6.41E+03	-1.38E+03	1.60E+03
5.00	722.	-6.01E+03	8.90E+03	-6.01E+03	8.90E+03	-1.35E+03	1.64E+03

Table O–221. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-13.5	-1.48E+03	1.50E+03	-1.48E+03	1.50E+03	-1.47E+03	1.51E+03
1.75	31.9	-2.54E+03	2.73E+03	-2.54E+03	2.73E+03	-1.47E+03	1.54E+03
2.50	94.3	-3.61E+03	4.03E+03	-3.61E+03	4.03E+03	-1.48E+03	1.57E+03
3.75	228.	-5.45E+03	6.34E+03	-5.44E+03	6.34E+03	-1.51E+03	1.63E+03
5.00	389.	-7.38E+03	8.85E+03	-7.38E+03	8.85E+03	-1.55E+03	1.69E+03

Table O–222. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-13.5	-1.48E+03	1.50E+03	-1.48E+03	1.50E+03	-1.47E+03	1.51E+03
1.75	31.9	-2.54E+03	2.73E+03	-2.54E+03	2.73E+03	-1.47E+03	1.54E+03
2.50	94.3	-3.61E+03	4.03E+03	-3.61E+03	4.03E+03	-1.48E+03	1.57E+03
3.75	228.	-5.45E+03	6.34E+03	-5.44E+03	6.34E+03	-1.51E+03	1.63E+03
5.00	389.	-7.38E+03	8.85E+03	-7.38E+03	8.85E+03	-1.55E+03	1.69E+03

Table O–223. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–224. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	25.2	-1.46E+03	1.56E+03	-1.44E+03	1.54E+03	-1.47E+03	1.52E+03
1.75	70.2	-2.53E+03	2.80E+03	-2.51E+03	2.77E+03	-1.47E+03	1.54E+03
2.50	133.	-3.61E+03	4.12E+03	-3.58E+03	4.08E+03	-1.48E+03	1.58E+03
3.75	269.	-5.47E+03	6.48E+03	-5.43E+03	6.44E+03	-1.52E+03	1.64E+03
5.00	439.	-7.41E+03	9.06E+03	-7.38E+03	9.02E+03	-1.56E+03	1.72E+03

# TASK 1/PITCH MOTION/MODEL 5613

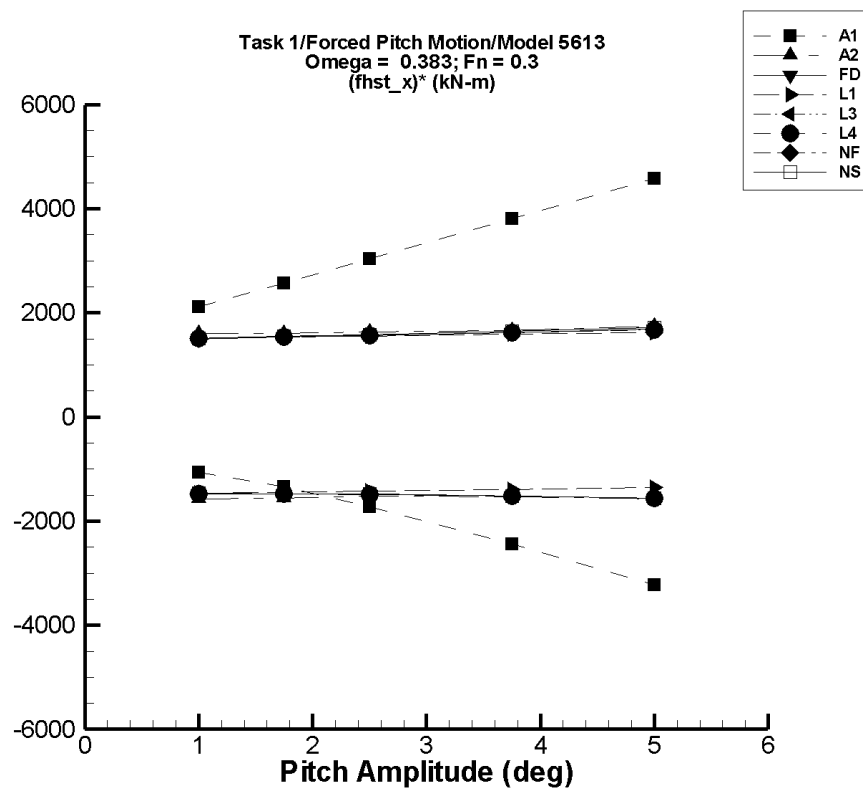


Figure O-29. Minimum and maximum of filtered  $(F_x^{hst} - \langle F_x^{hst} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–225. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	632.	-447.	2.77E+03	-441.	2.75E+03	-1.07E+03	2.12E+03
1.75	1.92E+03	-447.	6.46E+03	-422.	6.42E+03	-1.34E+03	2.57E+03
2.50	3.92E+03	-447.	1.16E+04	-391.	1.15E+04	-1.72E+03	3.04E+03
3.75	8.82E+03	-447.	2.32E+04	-341.	2.31E+04	-2.44E+03	3.81E+03
5.00	1.57E+04	-447.	3.89E+04	-429.	3.86E+04	-3.23E+03	4.58E+03

Table O–226. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	37.2	-1.54E+03	1.65E+03	-1.54E+03	1.64E+03	-1.58E+03	1.61E+03
1.75	70.0	-2.94E+03	2.90E+03	-2.66E+03	2.89E+03	-1.56E+03	1.61E+03
2.50	148.	-3.65E+03	4.24E+03	-3.66E+03	4.23E+03	-1.53E+03	1.63E+03
3.75	297.	-5.43E+03	6.56E+03	-5.45E+03	6.53E+03	-1.53E+03	1.66E+03
5.00	504.	-7.35E+03	9.24E+03	-7.37E+03	9.20E+03	-1.58E+03	1.74E+03

Table O–227. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

FREDYN							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{hst}})^*$ Max. (kN/°)
1.00	16.0	-1.46E+03	1.54E+03	-1.45E+03	1.53E+03	-1.47E+03	1.51E+03
1.75	61.2	-2.52E+03	2.77E+03	-2.51E+03	2.76E+03	-1.47E+03	1.54E+03
2.50	124.	-3.59E+03	4.08E+03	-3.58E+03	4.06E+03	-1.48E+03	1.58E+03
3.75	260.	-5.44E+03	6.41E+03	-5.41E+03	6.38E+03	-1.51E+03	1.63E+03
5.00	427.	-7.37E+03	8.95E+03	-7.34E+03	8.91E+03	-1.55E+03	1.70E+03

Table O–228. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{hst}})^*$ Max. (kN/°)
1.00	28.9	-1.44E+03	1.55E+03	-1.43E+03	1.55E+03	-1.46E+03	1.52E+03
1.75	88.5	-2.44E+03	2.79E+03	-2.43E+03	2.79E+03	-1.44E+03	1.54E+03
2.50	181.	-3.37E+03	4.09E+03	-3.37E+03	4.09E+03	-1.42E+03	1.56E+03
3.75	406.	-4.78E+03	6.41E+03	-4.78E+03	6.40E+03	-1.38E+03	1.60E+03
5.00	722.	-6.01E+03	8.90E+03	-6.01E+03	8.89E+03	-1.35E+03	1.63E+03



Table O–229. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-13.5	-1.48E+03	1.50E+03	-1.48E+03	1.50E+03	-1.47E+03	1.51E+03
1.75	32.0	-2.54E+03	2.73E+03	-2.54E+03	2.73E+03	-1.47E+03	1.54E+03
2.50	94.5	-3.61E+03	4.03E+03	-3.61E+03	4.03E+03	-1.48E+03	1.57E+03
3.75	228.	-5.45E+03	6.34E+03	-5.44E+03	6.33E+03	-1.51E+03	1.63E+03
5.00	391.	-7.38E+03	8.85E+03	-7.37E+03	8.84E+03	-1.55E+03	1.69E+03

Table O–230. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-13.5	-1.48E+03	1.50E+03	-1.48E+03	1.50E+03	-1.47E+03	1.51E+03
1.75	32.0	-2.54E+03	2.73E+03	-2.54E+03	2.73E+03	-1.47E+03	1.54E+03
2.50	94.5	-3.61E+03	4.03E+03	-3.61E+03	4.03E+03	-1.48E+03	1.57E+03
3.75	228.	-5.45E+03	6.34E+03	-5.44E+03	6.33E+03	-1.51E+03	1.63E+03
5.00	391.	-7.38E+03	8.85E+03	-7.37E+03	8.84E+03	-1.55E+03	1.69E+03

Table O–231. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–232. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	25.2	-1.46E+03	1.56E+03	-1.44E+03	1.54E+03	-1.47E+03	1.52E+03
1.75	70.2	-2.53E+03	2.80E+03	-2.51E+03	2.77E+03	-1.47E+03	1.54E+03
2.50	133.	-3.61E+03	4.12E+03	-3.58E+03	4.07E+03	-1.48E+03	1.58E+03
3.75	269.	-5.47E+03	6.48E+03	-5.43E+03	6.44E+03	-1.52E+03	1.64E+03
5.00	439.	-7.41E+03	9.06E+03	-7.38E+03	9.02E+03	-1.56E+03	1.72E+03

# TASK 1/PITCH MOTION/MODEL 5613

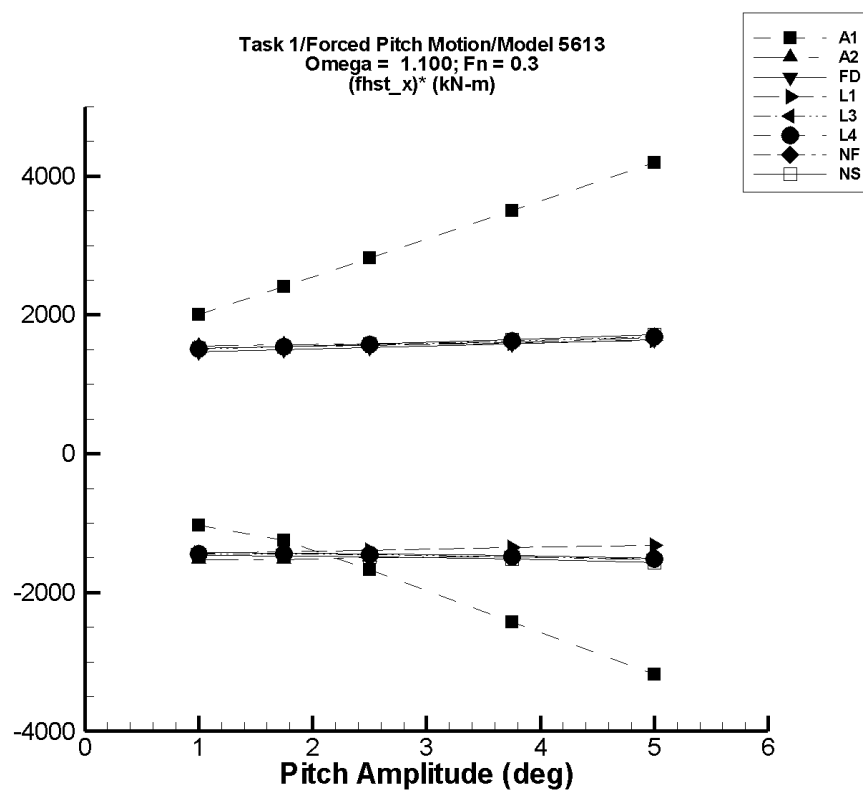


Figure O-30. Minimum and maximum of filtered  $(F_x^{hst} - \langle F_x^{hst} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–233. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	632.	-446.	2.76E+03	-402.	2.64E+03	-1.03E+03	2.01E+03
1.75	1.92E+03	-447.	6.45E+03	-264.	6.13E+03	-1.25E+03	2.41E+03
2.50	3.92E+03	-447.	1.16E+04	-268.	1.10E+04	-1.67E+03	2.82E+03
3.75	8.82E+03	-445.	2.32E+04	-274.	2.20E+04	-2.42E+03	3.51E+03
5.00	1.57E+04	-447.	3.88E+04	-195.	3.67E+04	-3.18E+03	4.20E+03

Table O–234. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	37.2	-1.54E+03	1.65E+03	-1.49E+03	1.59E+03	-1.52E+03	1.55E+03
1.75	71.9	-2.65E+03	2.90E+03	-2.60E+03	2.81E+03	-1.53E+03	1.57E+03
2.50	147.	-3.65E+03	4.24E+03	-3.58E+03	4.10E+03	-1.49E+03	1.58E+03
3.75	295.	-5.43E+03	6.55E+03	-5.29E+03	6.31E+03	-1.49E+03	1.60E+03
5.00	504.	-7.35E+03	9.23E+03	-7.12E+03	8.90E+03	-1.53E+03	1.68E+03

Table O–235. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

FREDYN							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{hst}})^*$ Max. (kN/°)
1.00	16.0	-1.46E+03	1.53E+03	-1.41E+03	1.48E+03	-1.43E+03	1.47E+03
1.75	61.1	-2.52E+03	2.77E+03	-2.44E+03	2.68E+03	-1.43E+03	1.50E+03
2.50	124.	-3.59E+03	4.07E+03	-3.48E+03	3.94E+03	-1.44E+03	1.53E+03
3.75	259.	-5.44E+03	6.40E+03	-5.26E+03	6.18E+03	-1.47E+03	1.58E+03
5.00	426.	-7.37E+03	8.94E+03	-7.12E+03	8.62E+03	-1.51E+03	1.64E+03

Table O–236. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{hst}})^*$ Max. (kN/°)
1.00	28.8	-1.44E+03	1.55E+03	-1.42E+03	1.53E+03	-1.45E+03	1.50E+03
1.75	88.3	-2.44E+03	2.79E+03	-2.41E+03	2.76E+03	-1.43E+03	1.52E+03
2.50	180.	-3.37E+03	4.09E+03	-3.34E+03	4.04E+03	-1.41E+03	1.54E+03
3.75	406.	-4.78E+03	6.41E+03	-4.74E+03	6.33E+03	-1.37E+03	1.58E+03
5.00	721.	-6.01E+03	8.90E+03	-5.96E+03	8.78E+03	-1.34E+03	1.61E+03

Table O-237. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{hst}})^*$ Max. (kN/°)
1.00	-13.6	-1.48E+03	1.50E+03	-1.46E+03	1.48E+03	-1.45E+03	1.50E+03
1.75	31.6	-2.54E+03	2.73E+03	-2.51E+03	2.70E+03	-1.45E+03	1.52E+03
2.50	93.8	-3.61E+03	4.03E+03	-3.57E+03	3.98E+03	-1.47E+03	1.55E+03
3.75	227.	-5.44E+03	6.34E+03	-5.38E+03	6.26E+03	-1.50E+03	1.61E+03
5.00	388.	-7.38E+03	8.85E+03	-7.29E+03	8.73E+03	-1.54E+03	1.67E+03

Table O-238. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{hst}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{hst}})^*$ Max. (kN/°)
1.00	-13.6	-1.48E+03	1.50E+03	-1.46E+03	1.48E+03	-1.45E+03	1.50E+03
1.75	31.6	-2.54E+03	2.73E+03	-2.51E+03	2.70E+03	-1.45E+03	1.52E+03
2.50	93.8	-3.61E+03	4.03E+03	-3.57E+03	3.98E+03	-1.47E+03	1.55E+03
3.75	227.	-5.44E+03	6.34E+03	-5.38E+03	6.26E+03	-1.50E+03	1.61E+03
5.00	388.	-7.38E+03	8.85E+03	-7.29E+03	8.73E+03	-1.54E+03	1.67E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–239. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–240. Minimum and Maximum of Variables  $F_x^{\text{hst}}$  and  $(F_x^{\text{hst}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	25.2	-1.46E+03	1.56E+03	-1.44E+03	1.54E+03	-1.47E+03	1.52E+03
1.75	70.2	-2.53E+03	2.80E+03	-2.51E+03	2.77E+03	-1.47E+03	1.54E+03
2.50	133.	-3.61E+03	4.12E+03	-3.58E+03	4.07E+03	-1.48E+03	1.58E+03
3.75	269.	-5.47E+03	6.48E+03	-5.43E+03	6.44E+03	-1.52E+03	1.64E+03
5.00	439.	-7.41E+03	9.06E+03	-7.38E+03	9.02E+03	-1.56E+03	1.72E+03

# TASK 1/PITCH MOTION/MODEL 5613

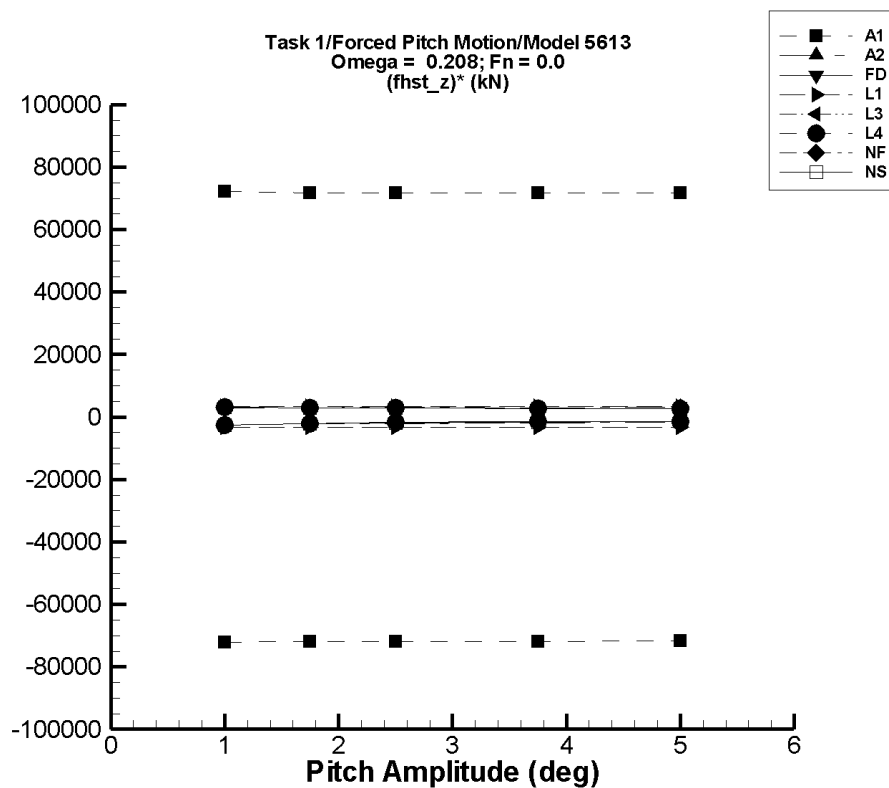


Figure O–31. Minimum and maximum of filtered  $(F_z^{\text{hst}} - \langle F_z^{\text{hst}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.



Table O–241. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.59E+04	1.37E+04	1.58E+05	1.37E+04	1.58E+05	-7.22E+04	7.21E+04
1.75	8.59E+04	-3.99E+04	2.12E+05	-3.99E+04	2.11E+05	-7.19E+04	7.18E+04
2.50	8.59E+04	-9.38E+04	2.65E+05	-9.38E+04	2.65E+05	-7.19E+04	7.18E+04
3.75	8.58E+04	-1.83E+05	3.55E+05	-1.83E+05	3.55E+05	-7.18E+04	7.17E+04
5.00	8.57E+04	-2.73E+05	4.44E+05	-2.73E+05	4.44E+05	-7.18E+04	7.16E+04

Table O–242. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.59E+04	8.33E+04	8.87E+04	8.33E+04	8.87E+04	-2.57E+03	2.82E+03
1.75	8.64E+04	8.28E+04	9.15E+04	8.28E+04	9.15E+04	-2.06E+03	2.89E+03
2.50	8.71E+04	8.16E+04	9.48E+04	8.16E+04	9.48E+04	-2.21E+03	3.09E+03
3.75	8.80E+04	8.07E+04	9.91E+04	8.07E+04	9.91E+04	-1.94E+03	2.95E+03
5.00	8.96E+04	8.07E+04	1.05E+05	8.07E+04	1.05E+05	-1.78E+03	3.03E+03

Table O–243. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>FREDYN</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.55E+04	8.30E+04	8.86E+04	8.30E+04	8.86E+04	-2.55E+03	3.07E+03
1.75	8.60E+04	8.23E+04	9.11E+04	8.23E+04	9.11E+04	-2.11E+03	2.92E+03
2.50	8.66E+04	8.22E+04	9.37E+04	8.22E+04	9.37E+04	-1.79E+03	2.81E+03
3.75	8.80E+04	8.22E+04	9.80E+04	8.22E+04	9.80E+04	-1.55E+03	2.66E+03
5.00	8.96E+04	8.22E+04	1.02E+05	8.22E+04	1.02E+05	-1.48E+03	2.57E+03

Table O–244. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.56E+04	8.22E+04	8.89E+04	8.22E+04	8.89E+04	-3.32E+03	3.30E+03
1.75	8.55E+04	7.97E+04	9.13E+04	7.97E+04	9.13E+04	-3.32E+03	3.30E+03
2.50	8.55E+04	7.72E+04	9.38E+04	7.72E+04	9.38E+04	-3.32E+03	3.29E+03
3.75	8.55E+04	7.30E+04	9.78E+04	7.30E+04	9.78E+04	-3.33E+03	3.28E+03
5.00	8.54E+04	6.87E+04	1.02E+05	6.87E+04	1.02E+05	-3.33E+03	3.27E+03

Table O–245. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.57E+04	8.32E+04	8.88E+04	8.32E+04	8.88E+04	-2.56E+03	3.07E+03
1.75	8.62E+04	8.25E+04	9.13E+04	8.25E+04	9.13E+04	-2.11E+03	2.90E+03
2.50	8.68E+04	8.24E+04	9.38E+04	8.24E+04	9.38E+04	-1.79E+03	2.78E+03
3.75	8.81E+04	8.24E+04	9.79E+04	8.24E+04	9.79E+04	-1.54E+03	2.61E+03
5.00	8.97E+04	8.24E+04	1.02E+05	8.24E+04	1.02E+05	-1.46E+03	2.49E+03

Table O–246. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.57E+04	8.32E+04	8.88E+04	8.32E+04	8.88E+04	-2.56E+03	3.07E+03
1.75	8.62E+04	8.25E+04	9.13E+04	8.25E+04	9.13E+04	-2.11E+03	2.90E+03
2.50	8.68E+04	8.24E+04	9.38E+04	8.24E+04	9.38E+04	-1.79E+03	2.78E+03
3.75	8.81E+04	8.24E+04	9.79E+04	8.24E+04	9.79E+04	-1.54E+03	2.61E+03
5.00	8.97E+04	8.24E+04	1.02E+05	8.24E+04	1.02E+05	-1.46E+03	2.49E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–247. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–248. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.61E+04	8.36E+04	8.92E+04	8.36E+04	8.92E+04	-2.55E+03	3.03E+03
1.75	8.66E+04	8.29E+04	9.18E+04	8.29E+04	9.17E+04	-2.14E+03	2.90E+03
2.50	8.73E+04	8.28E+04	9.44E+04	8.28E+04	9.43E+04	-1.81E+03	2.80E+03
3.75	8.87E+04	8.28E+04	9.89E+04	8.28E+04	9.88E+04	-1.57E+03	2.69E+03
5.00	9.04E+04	8.28E+04	1.04E+05	8.28E+04	1.04E+05	-1.51E+03	2.63E+03

# TASK 1/PITCH MOTION/MODEL 5613

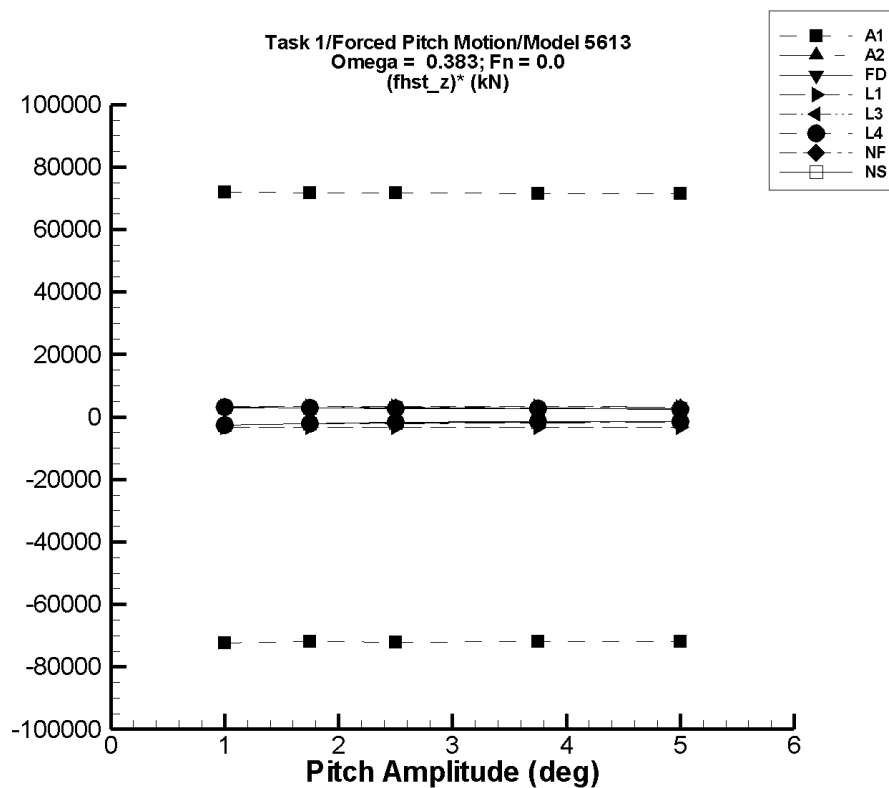


Figure O–32. Minimum and maximum of filtered  $(F_z^{\text{hst}} - \langle F_z^{\text{hst}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–249. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.59E+04	1.37E+04	1.58E+05	1.35E+04	1.58E+05	-7.24E+04	7.19E+04
1.75	8.59E+04	-3.99E+04	2.12E+05	-4.02E+04	2.11E+05	-7.21E+04	7.16E+04
2.50	8.59E+04	-9.38E+04	2.65E+05	-9.43E+04	2.65E+05	-7.21E+04	7.16E+04
3.75	8.58E+04	-1.83E+05	3.55E+05	-1.84E+05	3.54E+05	-7.20E+04	7.15E+04
5.00	8.57E+04	-2.73E+05	4.44E+05	-2.74E+05	4.43E+05	-7.20E+04	7.14E+04

Table O–250. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.59E+04	8.33E+04	8.87E+04	8.33E+04	8.87E+04	-2.57E+03	2.81E+03
1.75	8.64E+04	8.19E+04	9.15E+04	8.28E+04	9.15E+04	-2.07E+03	2.88E+03
2.50	8.71E+04	8.16E+04	9.48E+04	8.16E+04	9.48E+04	-2.21E+03	3.08E+03
3.75	8.80E+04	8.07E+04	9.91E+04	8.07E+04	9.90E+04	-1.94E+03	2.94E+03
5.00	8.96E+04	8.07E+04	1.05E+05	8.07E+04	1.05E+05	-1.77E+03	3.03E+03

Table O–251. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>FREDYN</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.55E+04	8.30E+04	8.86E+04	8.30E+04	8.86E+04	-2.55E+03	3.06E+03
1.75	8.60E+04	8.23E+04	9.11E+04	8.23E+04	9.11E+04	-2.11E+03	2.91E+03
2.50	8.66E+04	8.22E+04	9.37E+04	8.22E+04	9.36E+04	-1.79E+03	2.80E+03
3.75	8.80E+04	8.22E+04	9.80E+04	8.22E+04	9.79E+04	-1.55E+03	2.65E+03
5.00	8.96E+04	8.22E+04	1.02E+05	8.22E+04	1.02E+05	-1.47E+03	2.56E+03

Table O–252. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.56E+04	8.22E+04	8.89E+04	8.22E+04	8.89E+04	-3.31E+03	3.30E+03
1.75	8.55E+04	7.97E+04	9.13E+04	7.97E+04	9.13E+04	-3.32E+03	3.30E+03
2.50	8.55E+04	7.72E+04	9.38E+04	7.72E+04	9.37E+04	-3.32E+03	3.29E+03
3.75	8.55E+04	7.30E+04	9.78E+04	7.30E+04	9.78E+04	-3.33E+03	3.28E+03
5.00	8.54E+04	6.87E+04	1.02E+05	6.88E+04	1.02E+05	-3.33E+03	3.26E+03

Table O–253. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.57E+04	8.32E+04	8.88E+04	8.32E+04	8.88E+04	-2.56E+03	3.07E+03
1.75	8.62E+04	8.25E+04	9.13E+04	8.25E+04	9.13E+04	-2.11E+03	2.91E+03
2.50	8.68E+04	8.24E+04	9.38E+04	8.24E+04	9.38E+04	-1.78E+03	2.78E+03
3.75	8.81E+04	8.24E+04	9.79E+04	8.24E+04	9.79E+04	-1.53E+03	2.61E+03
5.00	8.96E+04	8.24E+04	1.02E+05	8.24E+04	1.02E+05	-1.45E+03	2.50E+03

Table O–254. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.57E+04	8.32E+04	8.88E+04	8.32E+04	8.88E+04	-2.56E+03	3.07E+03
1.75	8.62E+04	8.25E+04	9.13E+04	8.25E+04	9.13E+04	-2.11E+03	2.91E+03
2.50	8.68E+04	8.24E+04	9.38E+04	8.24E+04	9.38E+04	-1.78E+03	2.78E+03
3.75	8.81E+04	8.24E+04	9.79E+04	8.24E+04	9.79E+04	-1.53E+03	2.61E+03
5.00	8.96E+04	8.24E+04	1.02E+05	8.24E+04	1.02E+05	-1.45E+03	2.50E+03



TASK 1/PITCH MOTION/MODEL 5613

Table O–255. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–256. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.61E+04	8.36E+04	8.92E+04	8.36E+04	8.92E+04	-2.55E+03	3.03E+03
1.75	8.66E+04	8.29E+04	9.18E+04	8.29E+04	9.17E+04	-2.14E+03	2.90E+03
2.50	8.73E+04	8.28E+04	9.44E+04	8.28E+04	9.43E+04	-1.81E+03	2.80E+03
3.75	8.87E+04	8.28E+04	9.89E+04	8.28E+04	9.88E+04	-1.57E+03	2.69E+03
5.00	9.04E+04	8.28E+04	1.04E+05	8.28E+04	1.04E+05	-1.51E+03	2.63E+03

# TASK 1/PITCH MOTION/MODEL 5613

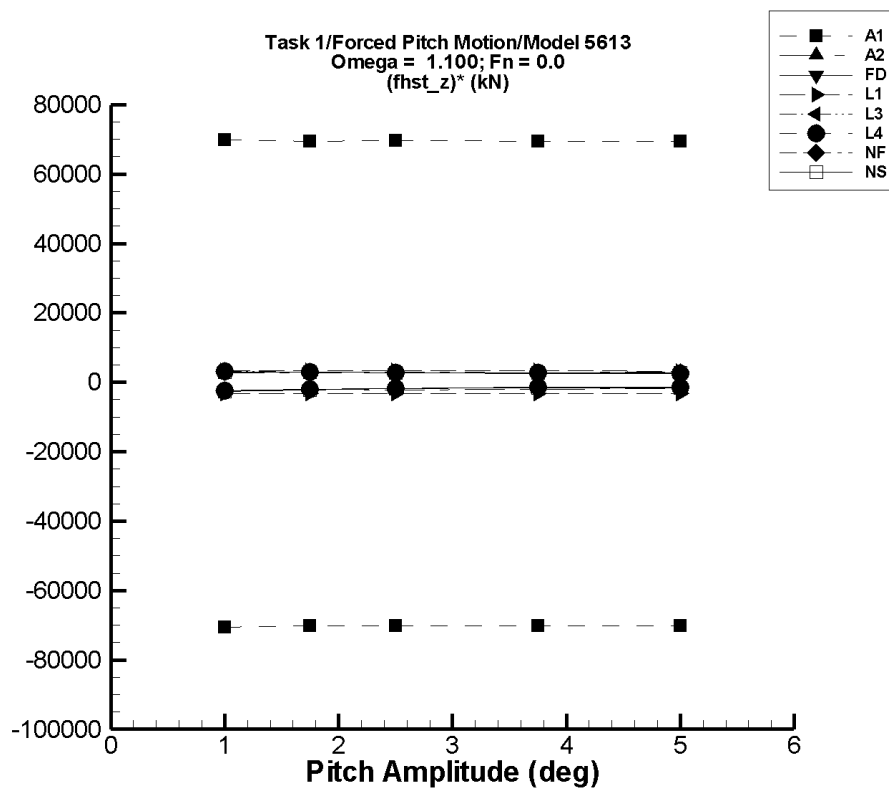


Figure O-33. Minimum and maximum of filtered  $(F_z^{\text{hst}} - \langle F_z^{\text{hst}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–257. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.59E+04	1.37E+04	1.58E+05	1.55E+04	1.56E+05	-7.04E+04	6.99E+04
1.75	8.59E+04	-3.99E+04	2.12E+05	-3.68E+04	2.08E+05	-7.01E+04	6.96E+04
2.50	8.59E+04	-9.38E+04	2.65E+05	-8.95E+04	2.60E+05	-7.01E+04	6.96E+04
3.75	8.58E+04	-1.83E+05	3.55E+05	-1.77E+05	3.46E+05	-7.01E+04	6.95E+04
5.00	8.57E+04	-2.73E+05	4.44E+05	-2.64E+05	4.33E+05	-7.00E+04	6.95E+04

Table O–258. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.59E+04	8.33E+04	8.87E+04	8.33E+04	8.86E+04	-2.53E+03	2.68E+03
1.75	8.64E+04	8.28E+04	9.15E+04	8.29E+04	9.13E+04	-2.03E+03	2.80E+03
2.50	8.71E+04	8.16E+04	9.48E+04	8.17E+04	9.46E+04	-2.15E+03	2.99E+03
3.75	8.80E+04	8.07E+04	9.91E+04	8.08E+04	9.84E+04	-1.93E+03	2.78E+03
5.00	8.96E+04	8.07E+04	1.05E+05	8.09E+04	1.04E+05	-1.73E+03	2.92E+03

Table O–259. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>FREDYN</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.55E+04	8.30E+04	8.86E+04	8.30E+04	8.85E+04	-2.51E+03	2.97E+03
1.75	8.60E+04	8.23E+04	9.11E+04	8.23E+04	9.09E+04	-2.09E+03	2.82E+03
2.50	8.66E+04	8.22E+04	9.37E+04	8.22E+04	9.34E+04	-1.79E+03	2.70E+03
3.75	8.80E+04	8.22E+04	9.80E+04	8.23E+04	9.76E+04	-1.52E+03	2.56E+03
5.00	8.96E+04	8.22E+04	1.02E+05	8.26E+04	1.02E+05	-1.40E+03	2.45E+03

Table O–260. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.56E+04	8.22E+04	8.89E+04	8.23E+04	8.88E+04	-3.28E+03	3.27E+03
1.75	8.55E+04	7.97E+04	9.13E+04	7.98E+04	9.13E+04	-3.28E+03	3.26E+03
2.50	8.55E+04	7.72E+04	9.38E+04	7.73E+04	9.37E+04	-3.29E+03	3.26E+03
3.75	8.55E+04	7.30E+04	9.78E+04	7.31E+04	9.76E+04	-3.29E+03	3.25E+03
5.00	8.54E+04	6.87E+04	1.02E+05	6.89E+04	1.02E+05	-3.29E+03	3.23E+03

Table O–261. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.57E+04	8.32E+04	8.88E+04	8.32E+04	8.88E+04	-2.54E+03	3.03E+03
1.75	8.62E+04	8.25E+04	9.13E+04	8.25E+04	9.12E+04	-2.10E+03	2.87E+03
2.50	8.68E+04	8.24E+04	9.38E+04	8.24E+04	9.37E+04	-1.78E+03	2.75E+03
3.75	8.81E+04	8.24E+04	9.79E+04	8.24E+04	9.78E+04	-1.52E+03	2.58E+03
5.00	8.96E+04	8.24E+04	1.02E+05	8.25E+04	1.02E+05	-1.43E+03	2.46E+03

Table O–262. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.57E+04	8.32E+04	8.88E+04	8.32E+04	8.88E+04	-2.54E+03	3.03E+03
1.75	8.62E+04	8.25E+04	9.13E+04	8.25E+04	9.12E+04	-2.10E+03	2.87E+03
2.50	8.68E+04	8.24E+04	9.38E+04	8.24E+04	9.37E+04	-1.78E+03	2.75E+03
3.75	8.81E+04	8.24E+04	9.79E+04	8.24E+04	9.78E+04	-1.52E+03	2.58E+03
5.00	8.96E+04	8.24E+04	1.02E+05	8.25E+04	1.02E+05	-1.43E+03	2.46E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–263. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–264. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.61E+04	8.36E+04	8.92E+04	8.36E+04	8.92E+04	-2.55E+03	3.03E+03
1.75	8.66E+04	8.29E+04	9.18E+04	8.29E+04	9.17E+04	-2.14E+03	2.90E+03
2.50	8.73E+04	8.28E+04	9.44E+04	8.28E+04	9.43E+04	-1.81E+03	2.80E+03
3.75	8.87E+04	8.28E+04	9.89E+04	8.28E+04	9.88E+04	-1.57E+03	2.69E+03
5.00	9.04E+04	8.28E+04	1.04E+05	8.28E+04	1.04E+05	-1.51E+03	2.63E+03

# TASK 1/PITCH MOTION/MODEL 5613

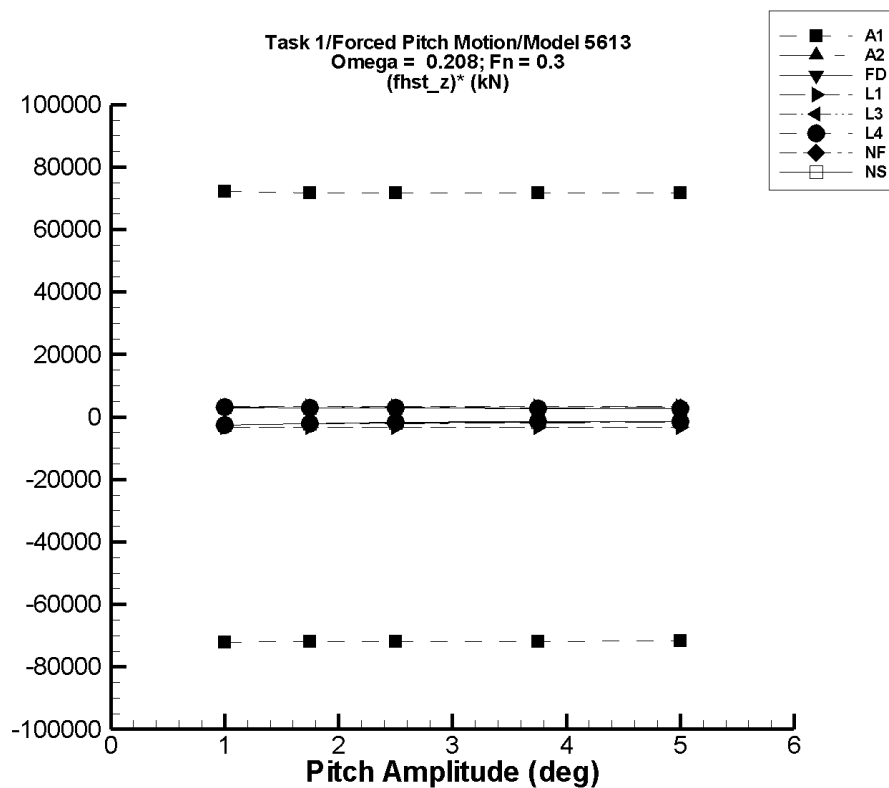


Figure O–34. Minimum and maximum of filtered  $(F_z^{\text{hst}} - \langle F_z^{\text{hst}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O-265. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.59E+04	1.37E+04	1.58E+05	1.37E+04	1.58E+05	-7.22E+04	7.21E+04
1.75	8.59E+04	-3.99E+04	2.12E+05	-3.99E+04	2.11E+05	-7.19E+04	7.18E+04
2.50	8.59E+04	-9.38E+04	2.65E+05	-9.38E+04	2.65E+05	-7.19E+04	7.18E+04
3.75	8.58E+04	-1.83E+05	3.55E+05	-1.83E+05	3.55E+05	-7.18E+04	7.17E+04
5.00	8.57E+04	-2.73E+05	4.44E+05	-2.73E+05	4.44E+05	-7.18E+04	7.16E+04

Table O-266. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.59E+04	8.33E+04	8.87E+04	8.33E+04	8.87E+04	-2.57E+03	2.82E+03
1.75	8.64E+04	8.28E+04	9.15E+04	8.28E+04	9.15E+04	-2.06E+03	2.89E+03
2.50	8.71E+04	8.16E+04	9.48E+04	8.16E+04	9.48E+04	-2.21E+03	3.09E+03
3.75	8.80E+04	8.07E+04	9.91E+04	8.07E+04	9.91E+04	-1.94E+03	2.95E+03
5.00	8.96E+04	8.07E+04	1.05E+05	8.07E+04	1.05E+05	-1.78E+03	3.03E+03



Table O-267. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>FREDYN</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.55E+04	8.30E+04	8.86E+04	8.30E+04	8.86E+04	-2.55E+03	3.07E+03
1.75	8.60E+04	8.23E+04	9.11E+04	8.23E+04	9.11E+04	-2.11E+03	2.92E+03
2.50	8.66E+04	8.22E+04	9.37E+04	8.22E+04	9.37E+04	-1.79E+03	2.81E+03
3.75	8.80E+04	8.22E+04	9.80E+04	8.22E+04	9.80E+04	-1.55E+03	2.66E+03
5.00	8.96E+04	8.22E+04	1.02E+05	8.22E+04	1.02E+05	-1.48E+03	2.57E+03

Table O-268. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.56E+04	8.22E+04	8.89E+04	8.22E+04	8.89E+04	-3.32E+03	3.30E+03
1.75	8.55E+04	7.97E+04	9.13E+04	7.97E+04	9.13E+04	-3.32E+03	3.30E+03
2.50	8.55E+04	7.72E+04	9.38E+04	7.72E+04	9.38E+04	-3.32E+03	3.29E+03
3.75	8.55E+04	7.30E+04	9.78E+04	7.30E+04	9.78E+04	-3.33E+03	3.28E+03
5.00	8.54E+04	6.87E+04	1.02E+05	6.87E+04	1.02E+05	-3.33E+03	3.27E+03

Table O–269. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.57E+04	8.32E+04	8.88E+04	8.32E+04	8.88E+04	-2.56E+03	3.07E+03
1.75	8.62E+04	8.25E+04	9.13E+04	8.25E+04	9.13E+04	-2.11E+03	2.90E+03
2.50	8.68E+04	8.24E+04	9.38E+04	8.24E+04	9.38E+04	-1.79E+03	2.78E+03
3.75	8.81E+04	8.24E+04	9.79E+04	8.24E+04	9.79E+04	-1.54E+03	2.61E+03
5.00	8.97E+04	8.24E+04	1.02E+05	8.24E+04	1.02E+05	-1.46E+03	2.49E+03

Table O–270. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.57E+04	8.32E+04	8.88E+04	8.32E+04	8.88E+04	-2.56E+03	3.07E+03
1.75	8.62E+04	8.25E+04	9.13E+04	8.25E+04	9.13E+04	-2.11E+03	2.90E+03
2.50	8.68E+04	8.24E+04	9.38E+04	8.24E+04	9.38E+04	-1.79E+03	2.78E+03
3.75	8.81E+04	8.24E+04	9.79E+04	8.24E+04	9.79E+04	-1.54E+03	2.61E+03
5.00	8.97E+04	8.24E+04	1.02E+05	8.24E+04	1.02E+05	-1.46E+03	2.49E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–271. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–272. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.61E+04	8.36E+04	8.92E+04	8.36E+04	8.92E+04	-2.55E+03	3.03E+03
1.75	8.66E+04	8.29E+04	9.18E+04	8.29E+04	9.17E+04	-2.14E+03	2.90E+03
2.50	8.73E+04	8.28E+04	9.44E+04	8.28E+04	9.43E+04	-1.81E+03	2.80E+03
3.75	8.87E+04	8.28E+04	9.89E+04	8.28E+04	9.88E+04	-1.57E+03	2.69E+03
5.00	9.04E+04	8.28E+04	1.04E+05	8.28E+04	1.04E+05	-1.51E+03	2.63E+03

# TASK 1/PITCH MOTION/MODEL 5613

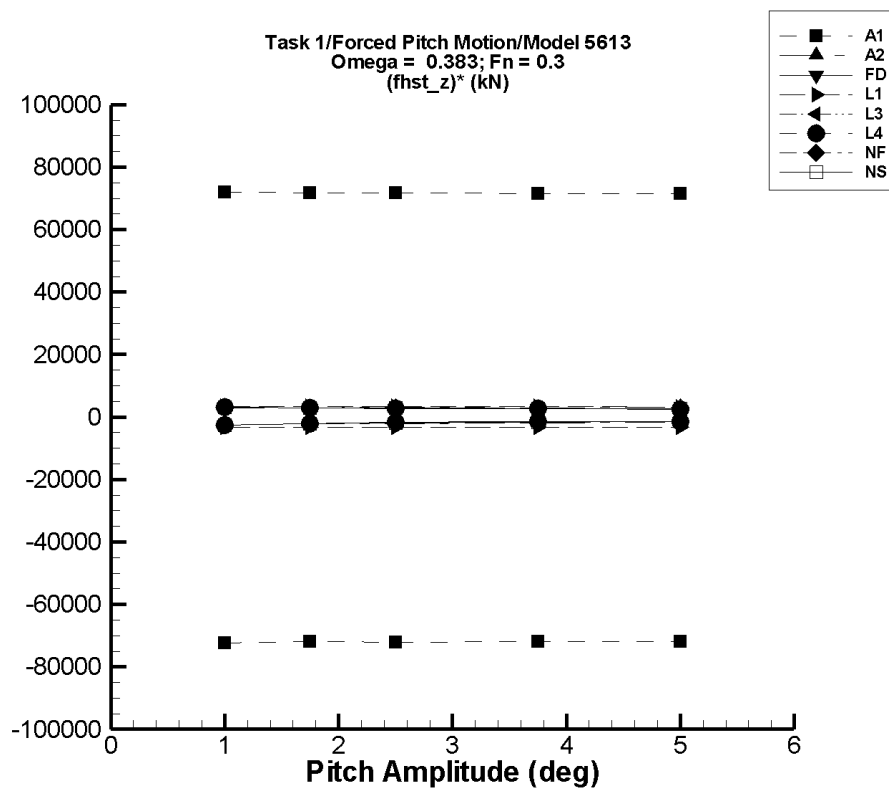


Figure O–35. Minimum and maximum of filtered  $(F_z^{\text{hst}} - \langle F_z^{\text{hst}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O-273. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.59E+04	1.37E+04	1.58E+05	1.35E+04	1.58E+05	-7.24E+04	7.19E+04
1.75	8.59E+04	-3.99E+04	2.12E+05	-4.02E+04	2.11E+05	-7.21E+04	7.16E+04
2.50	8.59E+04	-9.38E+04	2.65E+05	-9.43E+04	2.65E+05	-7.21E+04	7.16E+04
3.75	8.58E+04	-1.83E+05	3.55E+05	-1.84E+05	3.54E+05	-7.20E+04	7.15E+04
5.00	8.57E+04	-2.73E+05	4.44E+05	-2.74E+05	4.43E+05	-7.20E+04	7.14E+04

Table O-274. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.59E+04	8.33E+04	8.87E+04	8.33E+04	8.87E+04	-2.57E+03	2.81E+03
1.75	8.64E+04	8.19E+04	9.15E+04	8.28E+04	9.15E+04	-2.07E+03	2.88E+03
2.50	8.71E+04	8.16E+04	9.48E+04	8.16E+04	9.48E+04	-2.21E+03	3.08E+03
3.75	8.80E+04	8.07E+04	9.91E+04	8.07E+04	9.90E+04	-1.94E+03	2.94E+03
5.00	8.96E+04	8.07E+04	1.05E+05	8.07E+04	1.05E+05	-1.77E+03	3.03E+03

Table O-275. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>FREDYN</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.55E+04	8.30E+04	8.86E+04	8.30E+04	8.86E+04	-2.55E+03	3.06E+03
1.75	8.60E+04	8.23E+04	9.11E+04	8.23E+04	9.11E+04	-2.11E+03	2.91E+03
2.50	8.66E+04	8.22E+04	9.37E+04	8.22E+04	9.36E+04	-1.79E+03	2.80E+03
3.75	8.80E+04	8.22E+04	9.80E+04	8.22E+04	9.79E+04	-1.55E+03	2.65E+03
5.00	8.96E+04	8.22E+04	1.02E+05	8.22E+04	1.02E+05	-1.47E+03	2.56E+03

Table O-276. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.56E+04	8.22E+04	8.89E+04	8.22E+04	8.89E+04	-3.31E+03	3.30E+03
1.75	8.55E+04	7.97E+04	9.13E+04	7.97E+04	9.13E+04	-3.32E+03	3.30E+03
2.50	8.55E+04	7.72E+04	9.38E+04	7.72E+04	9.37E+04	-3.32E+03	3.29E+03
3.75	8.55E+04	7.30E+04	9.78E+04	7.30E+04	9.78E+04	-3.33E+03	3.28E+03
5.00	8.54E+04	6.87E+04	1.02E+05	6.88E+04	1.02E+05	-3.33E+03	3.26E+03

Table O-277. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.57E+04	8.32E+04	8.88E+04	8.32E+04	8.88E+04	-2.56E+03	3.07E+03
1.75	8.62E+04	8.25E+04	9.13E+04	8.25E+04	9.13E+04	-2.11E+03	2.91E+03
2.50	8.68E+04	8.24E+04	9.38E+04	8.24E+04	9.38E+04	-1.78E+03	2.78E+03
3.75	8.81E+04	8.24E+04	9.79E+04	8.24E+04	9.79E+04	-1.53E+03	2.61E+03
5.00	8.96E+04	8.24E+04	1.02E+05	8.24E+04	1.02E+05	-1.45E+03	2.50E+03

Table O-278. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.57E+04	8.32E+04	8.88E+04	8.32E+04	8.88E+04	-2.56E+03	3.07E+03
1.75	8.62E+04	8.25E+04	9.13E+04	8.25E+04	9.13E+04	-2.11E+03	2.91E+03
2.50	8.68E+04	8.24E+04	9.38E+04	8.24E+04	9.38E+04	-1.78E+03	2.78E+03
3.75	8.81E+04	8.24E+04	9.79E+04	8.24E+04	9.79E+04	-1.53E+03	2.61E+03
5.00	8.96E+04	8.24E+04	1.02E+05	8.24E+04	1.02E+05	-1.45E+03	2.50E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–279. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–280. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.61E+04	8.36E+04	8.92E+04	8.36E+04	8.92E+04	-2.55E+03	3.03E+03
1.75	8.66E+04	8.29E+04	9.18E+04	8.29E+04	9.17E+04	-2.14E+03	2.90E+03
2.50	8.73E+04	8.28E+04	9.44E+04	8.28E+04	9.43E+04	-1.81E+03	2.80E+03
3.75	8.87E+04	8.28E+04	9.89E+04	8.28E+04	9.88E+04	-1.57E+03	2.69E+03
5.00	9.04E+04	8.28E+04	1.04E+05	8.28E+04	1.04E+05	-1.51E+03	2.63E+03



# TASK 1/PITCH MOTION/MODEL 5613

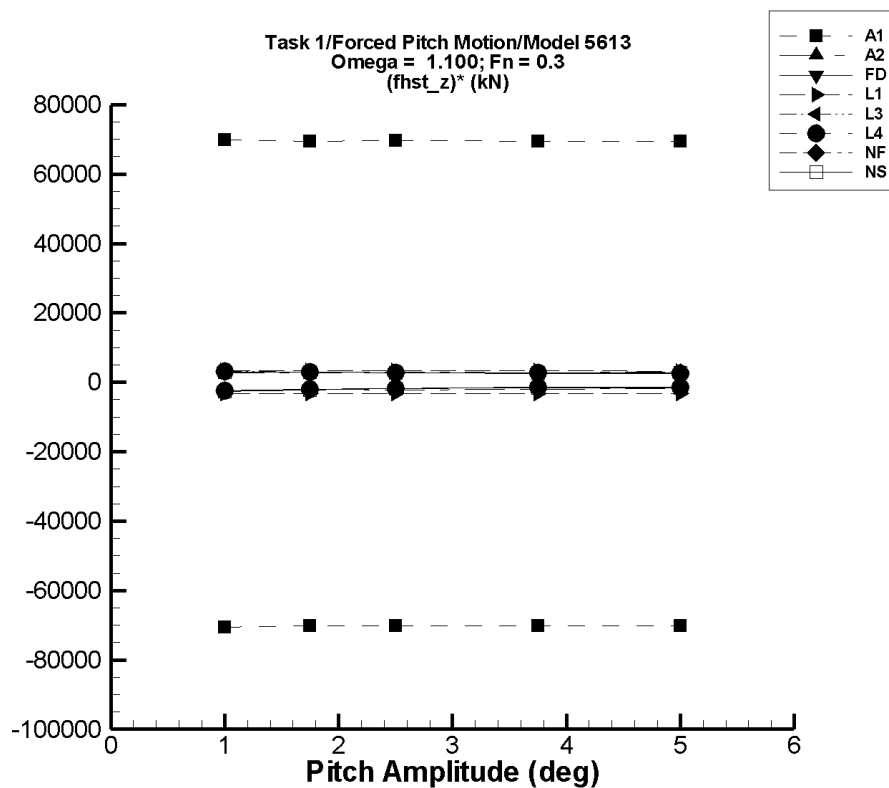


Figure O–36. Minimum and maximum of filtered  $(F_z^{\text{hst}} - \langle F_z^{\text{hst}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–281. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.59E+04	1.37E+04	1.58E+05	1.55E+04	1.56E+05	-7.04E+04	6.99E+04
1.75	8.59E+04	-3.99E+04	2.12E+05	-3.68E+04	2.08E+05	-7.01E+04	6.96E+04
2.50	8.59E+04	-9.38E+04	2.65E+05	-8.95E+04	2.60E+05	-7.01E+04	6.96E+04
3.75	8.58E+04	-1.83E+05	3.55E+05	-1.77E+05	3.46E+05	-7.01E+04	6.95E+04
5.00	8.57E+04	-2.73E+05	4.44E+05	-2.64E+05	4.33E+05	-7.00E+04	6.95E+04

Table O–282. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.59E+04	8.33E+04	8.87E+04	8.33E+04	8.86E+04	-2.53E+03	2.68E+03
1.75	8.64E+04	8.28E+04	9.15E+04	8.29E+04	9.13E+04	-2.03E+03	2.80E+03
2.50	8.71E+04	8.16E+04	9.48E+04	8.17E+04	9.46E+04	-2.15E+03	2.99E+03
3.75	8.80E+04	8.07E+04	9.91E+04	8.08E+04	9.84E+04	-1.93E+03	2.78E+03
5.00	8.96E+04	8.07E+04	1.05E+05	8.09E+04	1.04E+05	-1.73E+03	2.92E+03

Table O–283. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>FREDYN</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.55E+04	8.30E+04	8.86E+04	8.30E+04	8.85E+04	-2.51E+03	2.97E+03
1.75	8.60E+04	8.23E+04	9.11E+04	8.23E+04	9.09E+04	-2.09E+03	2.82E+03
2.50	8.66E+04	8.22E+04	9.37E+04	8.22E+04	9.34E+04	-1.79E+03	2.70E+03
3.75	8.80E+04	8.22E+04	9.80E+04	8.23E+04	9.76E+04	-1.52E+03	2.56E+03
5.00	8.96E+04	8.22E+04	1.02E+05	8.26E+04	1.02E+05	-1.40E+03	2.45E+03

Table O–284. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.56E+04	8.22E+04	8.89E+04	8.23E+04	8.88E+04	-3.28E+03	3.27E+03
1.75	8.55E+04	7.97E+04	9.13E+04	7.98E+04	9.13E+04	-3.28E+03	3.26E+03
2.50	8.55E+04	7.72E+04	9.38E+04	7.73E+04	9.37E+04	-3.29E+03	3.26E+03
3.75	8.55E+04	7.30E+04	9.78E+04	7.31E+04	9.76E+04	-3.29E+03	3.25E+03
5.00	8.54E+04	6.87E+04	1.02E+05	6.89E+04	1.02E+05	-3.29E+03	3.23E+03

Table O–285. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.57E+04	8.32E+04	8.88E+04	8.32E+04	8.88E+04	-2.54E+03	3.03E+03
1.75	8.62E+04	8.25E+04	9.13E+04	8.25E+04	9.12E+04	-2.10E+03	2.87E+03
2.50	8.68E+04	8.24E+04	9.38E+04	8.24E+04	9.37E+04	-1.78E+03	2.75E+03
3.75	8.81E+04	8.24E+04	9.79E+04	8.24E+04	9.78E+04	-1.52E+03	2.58E+03
5.00	8.96E+04	8.24E+04	1.02E+05	8.25E+04	1.02E+05	-1.43E+03	2.46E+03

Table O–286. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.57E+04	8.32E+04	8.88E+04	8.32E+04	8.88E+04	-2.54E+03	3.03E+03
1.75	8.62E+04	8.25E+04	9.13E+04	8.25E+04	9.12E+04	-2.10E+03	2.87E+03
2.50	8.68E+04	8.24E+04	9.38E+04	8.24E+04	9.37E+04	-1.78E+03	2.75E+03
3.75	8.81E+04	8.24E+04	9.79E+04	8.24E+04	9.78E+04	-1.52E+03	2.58E+03
5.00	8.96E+04	8.24E+04	1.02E+05	8.25E+04	1.02E+05	-1.43E+03	2.46E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–287. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–288. Minimum and Maximum of Variables  $F_z^{\text{hst}}$  and  $(F_z^{\text{hst}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.61E+04	8.36E+04	8.92E+04	8.36E+04	8.92E+04	-2.55E+03	3.03E+03
1.75	8.66E+04	8.29E+04	9.18E+04	8.29E+04	9.17E+04	-2.14E+03	2.90E+03
2.50	8.73E+04	8.28E+04	9.44E+04	8.28E+04	9.43E+04	-1.81E+03	2.80E+03
3.75	8.87E+04	8.28E+04	9.89E+04	8.28E+04	9.88E+04	-1.57E+03	2.69E+03
5.00	9.04E+04	8.28E+04	1.04E+05	8.28E+04	1.04E+05	-1.51E+03	2.63E+03

# TASK 1/PITCH MOTION/MODEL 5613

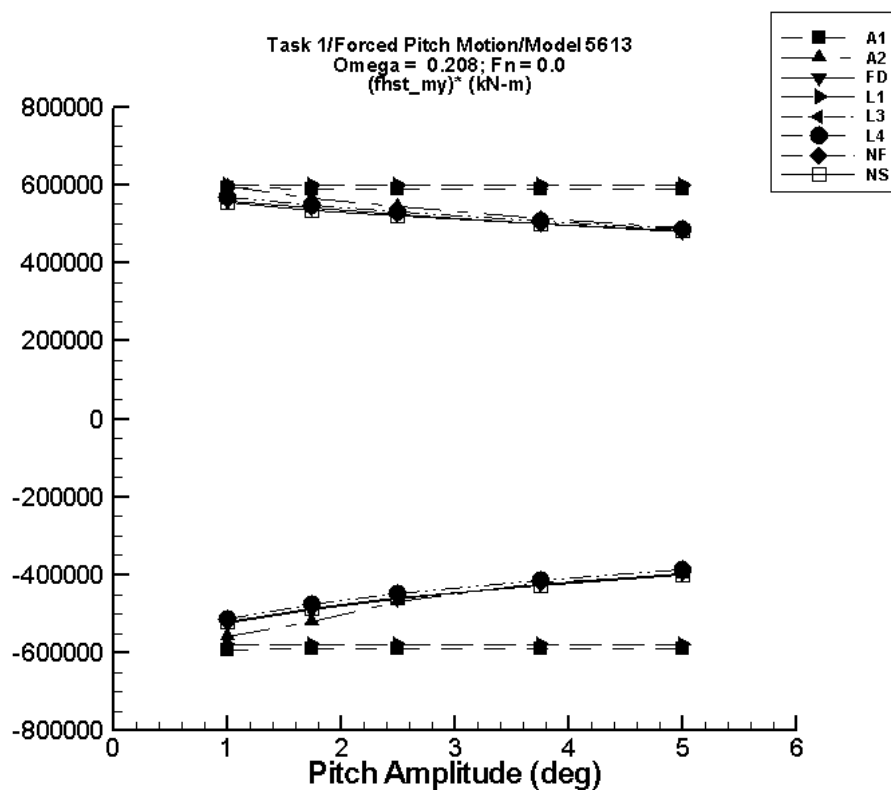


Figure O-37. Minimum and maximum of filtered  $(M_y^{hst} - \langle M_y^{hst} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–289. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	<b>Unfiltered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>(M_y^{\text{hst}})^*</math></b>	
	<b>Mean (kN-m)</b>	<b>Min. (kN-m)</b>	<b>Max. (kN-m)</b>	<b>Min. (kN-m)</b>	<b>Max. (kN-m)</b>	<b>Min. (kN-m/°)</b>	<b>Max. (kN-m/°)</b>
1.00	0.368	-5.92E+05	5.92E+05	-5.92E+05	5.91E+05	-5.92E+05	5.91E+05
1.75	0.645	-1.03E+06	1.03E+06	-1.03E+06	1.03E+06	-5.90E+05	5.89E+05
2.50	1.03	-1.48E+06	1.48E+06	-1.48E+06	1.47E+06	-5.90E+05	5.89E+05
3.75	1.66	-2.21E+06	2.21E+06	-2.21E+06	2.21E+06	-5.90E+05	5.89E+05
5.00	1.91	-2.95E+06	2.95E+06	-2.95E+06	2.95E+06	-5.91E+05	5.90E+05

Table O–290. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	<b>Unfiltered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>(M_y^{\text{hst}})^*</math></b>	
	<b>Mean (kN-m)</b>	<b>Min. (kN-m)</b>	<b>Max. (kN-m)</b>	<b>Min. (kN-m)</b>	<b>Max. (kN-m)</b>	<b>Min. (kN-m/°)</b>	<b>Max. (kN-m/°)</b>
1.00	2.16E+04	-5.37E+05	6.20E+05	-5.38E+05	6.19E+05	-5.59E+05	5.97E+05
1.75	5.25E+04	-8.56E+05	1.04E+06	-8.56E+05	1.04E+06	-5.19E+05	5.63E+05
2.50	1.02E+05	-1.07E+06	1.46E+06	-1.07E+06	1.46E+06	-4.68E+05	5.44E+05
3.75	1.88E+05	-1.39E+06	2.11E+06	-1.39E+06	2.11E+06	-4.21E+05	5.12E+05
5.00	2.99E+05	-1.70E+06	2.75E+06	-1.70E+06	2.75E+06	-4.00E+05	4.90E+05

Table O–291. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>FREDYN</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.02E+04	-5.06E+05	5.80E+05	-5.05E+05	5.80E+05	-5.25E+05	5.60E+05
1.75	5.06E+04	-8.05E+05	9.97E+05	-8.04E+05	9.96E+05	-4.89E+05	5.40E+05
2.50	8.99E+04	-1.06E+06	1.40E+06	-1.06E+06	1.40E+06	-4.60E+05	5.23E+05
3.75	1.67E+05	-1.42E+06	2.04E+06	-1.42E+06	2.04E+06	-4.24E+05	4.99E+05
5.00	2.56E+05	-1.73E+06	2.65E+06	-1.73E+06	2.65E+06	-3.97E+05	4.79E+05

Table O–292. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.15E-02	-5.89E+05	5.89E+05	-5.89E+05	5.89E+05	-5.89E+05	5.89E+05
1.75	-2.23	-1.03E+06	1.03E+06	-1.03E+06	1.03E+06	-5.89E+05	5.89E+05
2.50	-0.154	-1.47E+06	1.47E+06	-1.47E+06	1.47E+06	-5.89E+05	5.89E+05
3.75	-4.21	-2.21E+06	2.21E+06	-2.21E+06	2.21E+06	-5.89E+05	5.89E+05
5.00	0.114	-2.94E+06	2.94E+06	-2.94E+06	2.94E+06	-5.89E+05	5.89E+05



Table O–293. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.39E+04	-5.11E+05	5.73E+05	-5.11E+05	5.73E+05	-5.25E+05	5.59E+05
1.75	4.37E+04	-8.10E+05	9.86E+05	-8.09E+05	9.86E+05	-4.88E+05	5.38E+05
2.50	8.21E+04	-1.07E+06	1.38E+06	-1.07E+06	1.38E+06	-4.59E+05	5.21E+05
3.75	1.58E+05	-1.43E+06	2.02E+06	-1.43E+06	2.02E+06	-4.23E+05	4.97E+05
5.00	2.44E+05	-1.73E+06	2.62E+06	-1.73E+06	2.62E+06	-3.95E+05	4.76E+05

Table O–294. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.39E+04	-5.11E+05	5.73E+05	-5.11E+05	5.73E+05	-5.25E+05	5.59E+05
1.75	4.37E+04	-8.10E+05	9.86E+05	-8.09E+05	9.86E+05	-4.88E+05	5.38E+05
2.50	8.21E+04	-1.07E+06	1.38E+06	-1.07E+06	1.38E+06	-4.59E+05	5.21E+05
3.75	1.58E+05	-1.43E+06	2.02E+06	-1.43E+06	2.02E+06	-4.23E+05	4.97E+05
5.00	2.44E+05	-1.73E+06	2.62E+06	-1.73E+06	2.62E+06	-3.95E+05	4.76E+05

TASK 1/PITCH MOTION/MODEL 5613

Table O–295. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–296. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.73E+04	-5.08E+05	5.76E+05	-5.04E+05	5.70E+05	-5.21E+05	5.53E+05
1.75	4.88E+04	-8.11E+05	9.96E+05	-8.04E+05	9.86E+05	-4.87E+05	5.36E+05
2.50	8.95E+04	-1.07E+06	1.40E+06	-1.06E+06	1.39E+06	-4.60E+05	5.20E+05
3.75	1.70E+05	-1.44E+06	2.06E+06	-1.43E+06	2.05E+06	-4.27E+05	5.01E+05
5.00	2.62E+05	-1.75E+06	2.69E+06	-1.74E+06	2.68E+06	-4.01E+05	4.83E+05

# TASK 1/PITCH MOTION/MODEL 5613

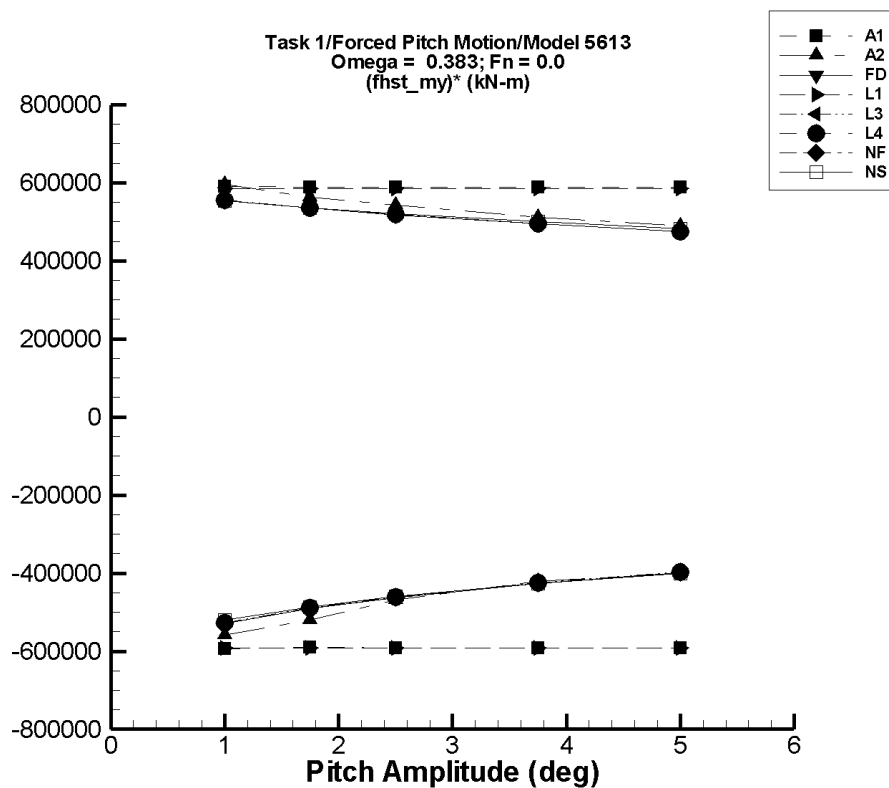


Figure O-38. Minimum and maximum of filtered  $(M_y^{hst} - \langle M_y^{hst} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–297. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-4.34E-02	-5.92E+05	5.92E+05	-5.94E+05	5.90E+05	-5.94E+05	5.90E+05
1.75	2.60E-02	-1.03E+06	1.03E+06	-1.03E+06	1.03E+06	-5.91E+05	5.87E+05
2.50	-6.83E-02	-1.47E+06	1.47E+06	-1.48E+06	1.47E+06	-5.92E+05	5.88E+05
3.75	-0.232	-2.21E+06	2.21E+06	-2.22E+06	2.20E+06	-5.92E+05	5.88E+05
5.00	-0.194	-2.95E+06	2.95E+06	-2.96E+06	2.94E+06	-5.92E+05	5.88E+05

Table O–298. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.15E+04	-5.37E+05	6.20E+05	-5.38E+05	6.17E+05	-5.59E+05	5.96E+05
1.75	5.23E+04	-8.56E+05	1.04E+06	-8.58E+05	1.04E+06	-5.20E+05	5.62E+05
2.50	1.02E+05	-1.07E+06	1.46E+06	-1.07E+06	1.46E+06	-4.69E+05	5.43E+05
3.75	1.88E+05	-1.39E+06	2.11E+06	-1.39E+06	2.10E+06	-4.22E+05	5.11E+05
5.00	2.99E+05	-1.70E+06	2.75E+06	-1.70E+06	2.74E+06	-4.01E+05	4.88E+05

Table O–299. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>FREDYN</b>							
$\theta_a$	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.01E+04	-5.06E+05	5.80E+05	-5.04E+05	5.78E+05	-5.24E+05	5.58E+05
1.75	5.04E+04	-8.05E+05	9.97E+05	-8.03E+05	9.93E+05	-4.88E+05	5.39E+05
2.50	8.96E+04	-1.06E+06	1.40E+06	-1.06E+06	1.39E+06	-4.59E+05	5.22E+05
3.75	1.67E+05	-1.42E+06	2.04E+06	-1.42E+06	2.03E+06	-4.23E+05	4.98E+05
5.00	2.55E+05	-1.73E+06	2.65E+06	-1.72E+06	2.64E+06	-3.96E+05	4.78E+05

Table O–300. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-1</b>							
$\theta_a$	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-2.84	-5.89E+05	5.89E+05	-5.88E+05	5.88E+05	-5.88E+05	5.88E+05
1.75	-2.77	-1.03E+06	1.03E+06	-1.03E+06	1.03E+06	-5.88E+05	5.88E+05
2.50	-5.79	-1.47E+06	1.47E+06	-1.47E+06	1.47E+06	-5.88E+05	5.88E+05
3.75	-6.57	-2.21E+06	2.21E+06	-2.21E+06	2.21E+06	-5.88E+05	5.88E+05
5.00	-11.3	-2.94E+06	2.94E+06	-2.94E+06	2.94E+06	-5.88E+05	5.88E+05

Table O–301. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.37E+04	-5.11E+05	5.73E+05	-5.10E+05	5.72E+05	-5.24E+05	5.58E+05
1.75	4.31E+04	-8.10E+05	9.86E+05	-8.09E+05	9.85E+05	-4.87E+05	5.38E+05
2.50	8.09E+04	-1.07E+06	1.38E+06	-1.06E+06	1.38E+06	-4.58E+05	5.21E+05
3.75	1.56E+05	-1.43E+06	2.02E+06	-1.43E+06	2.02E+06	-4.22E+05	4.97E+05
5.00	2.40E+05	-1.73E+06	2.62E+06	-1.73E+06	2.62E+06	-3.94E+05	4.76E+05

Table O–302. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.37E+04	-5.11E+05	5.73E+05	-5.10E+05	5.72E+05	-5.24E+05	5.58E+05
1.75	4.31E+04	-8.10E+05	9.86E+05	-8.09E+05	9.85E+05	-4.87E+05	5.38E+05
2.50	8.09E+04	-1.07E+06	1.38E+06	-1.06E+06	1.38E+06	-4.58E+05	5.21E+05
3.75	1.56E+05	-1.43E+06	2.02E+06	-1.43E+06	2.02E+06	-4.22E+05	4.97E+05
5.00	2.40E+05	-1.73E+06	2.62E+06	-1.73E+06	2.62E+06	-3.94E+05	4.76E+05

TASK 1/PITCH MOTION/MODEL 5613

Table O–303. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–304. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.72E+04	-5.08E+05	5.76E+05	-5.04E+05	5.70E+05	-5.21E+05	5.53E+05
1.75	4.88E+04	-8.11E+05	9.96E+05	-8.04E+05	9.86E+05	-4.87E+05	5.35E+05
2.50	8.95E+04	-1.07E+06	1.40E+06	-1.06E+06	1.39E+06	-4.60E+05	5.20E+05
3.75	1.70E+05	-1.44E+06	2.06E+06	-1.43E+06	2.05E+06	-4.27E+05	5.01E+05
5.00	2.62E+05	-1.75E+06	2.69E+06	-1.74E+06	2.68E+06	-4.01E+05	4.83E+05

# TASK 1/PITCH MOTION/MODEL 5613

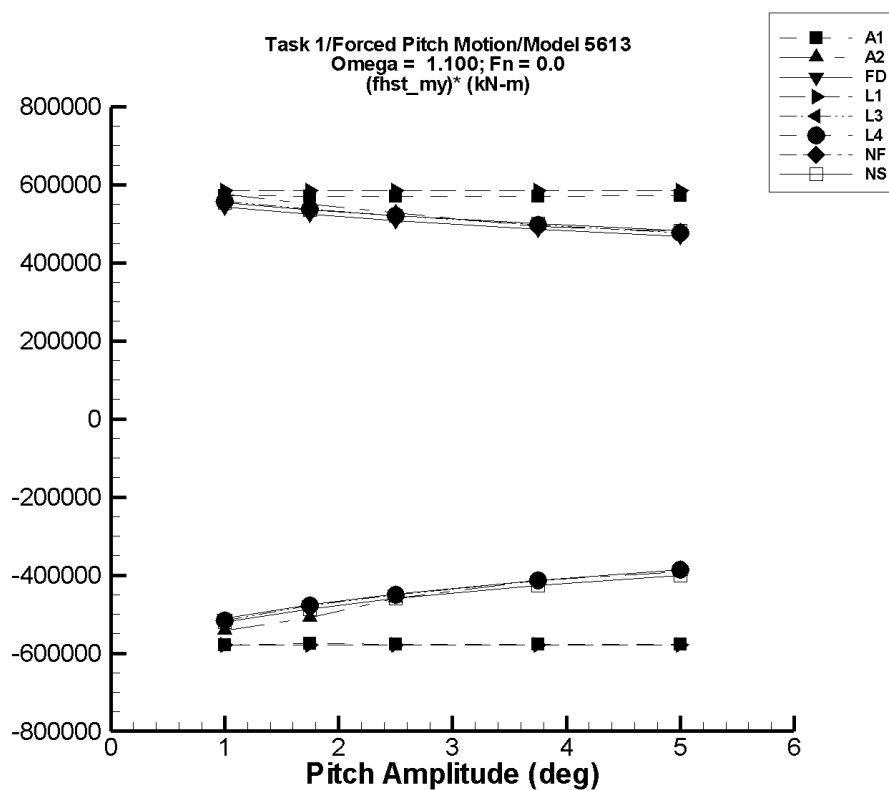


Figure O-39. Minimum and maximum of filtered  $(M_y^{hst} - \langle M_y^{hst} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.



Table O–305. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	0.627	-5.92E+05	5.92E+05	-5.78E+05	5.73E+05	-5.78E+05	5.73E+05
1.75	1.02	-1.03E+06	1.03E+06	-1.01E+06	9.99E+05	-5.75E+05	5.71E+05
2.50	1.55	-1.47E+06	1.47E+06	-1.44E+06	1.43E+06	-5.76E+05	5.71E+05
3.75	2.23	-2.21E+06	2.21E+06	-2.16E+06	2.14E+06	-5.76E+05	5.71E+05
5.00	3.01	-2.95E+06	2.95E+06	-2.88E+06	2.86E+06	-5.76E+05	5.72E+05

Table O–306. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.15E+04	-5.37E+05	6.19E+05	-5.21E+05	5.97E+05	-5.43E+05	5.76E+05
1.75	5.22E+04	-8.56E+05	1.04E+06	-8.37E+05	1.02E+06	-5.08E+05	5.50E+05
2.50	1.02E+05	-1.07E+06	1.46E+06	-1.05E+06	1.42E+06	-4.59E+05	5.29E+05
3.75	1.88E+05	-1.39E+06	2.11E+06	-1.36E+06	2.04E+06	-4.13E+05	4.93E+05
5.00	2.99E+05	-1.70E+06	2.75E+06	-1.66E+06	2.70E+06	-3.91E+05	4.80E+05

Table O–307. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>FREDYN</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.01E+04	-5.06E+05	5.80E+05	-4.92E+05	5.63E+05	-5.12E+05	5.42E+05
1.75	5.03E+04	-8.05E+05	9.95E+05	-7.84E+05	9.66E+05	-4.77E+05	5.23E+05
2.50	8.94E+04	-1.06E+06	1.40E+06	-1.04E+06	1.36E+06	-4.50E+05	5.07E+05
3.75	1.66E+05	-1.42E+06	2.04E+06	-1.39E+06	1.98E+06	-4.15E+05	4.84E+05
5.00	2.54E+05	-1.73E+06	2.65E+06	-1.69E+06	2.58E+06	-3.89E+05	4.65E+05

Table O–308. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-40.7	-5.89E+05	5.89E+05	-5.82E+05	5.82E+05	-5.82E+05	5.82E+05
1.75	-70.9	-1.03E+06	1.03E+06	-1.02E+06	1.02E+06	-5.82E+05	5.82E+05
2.50	-101.	-1.47E+06	1.47E+06	-1.46E+06	1.46E+06	-5.82E+05	5.82E+05
3.75	-153.	-2.21E+06	2.21E+06	-2.18E+06	2.18E+06	-5.82E+05	5.82E+05
5.00	-203.	-2.94E+06	2.94E+06	-2.91E+06	2.91E+06	-5.82E+05	5.82E+05

Table O–309. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.38E+04	-5.11E+05	5.73E+05	-5.06E+05	5.66E+05	-5.20E+05	5.53E+05
1.75	4.33E+04	-8.09E+05	9.86E+05	-8.02E+05	9.75E+05	-4.83E+05	5.33E+05
2.50	8.12E+04	-1.07E+06	1.38E+06	-1.06E+06	1.37E+06	-4.55E+05	5.15E+05
3.75	1.56E+05	-1.43E+06	2.02E+06	-1.42E+06	2.00E+06	-4.19E+05	4.92E+05
5.00	2.41E+05	-1.73E+06	2.62E+06	-1.72E+06	2.60E+06	-3.92E+05	4.71E+05

Table O–310. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.38E+04	-5.11E+05	5.73E+05	-5.06E+05	5.66E+05	-5.20E+05	5.53E+05
1.75	4.33E+04	-8.09E+05	9.86E+05	-8.02E+05	9.75E+05	-4.83E+05	5.33E+05
2.50	8.12E+04	-1.07E+06	1.38E+06	-1.06E+06	1.37E+06	-4.55E+05	5.15E+05
3.75	1.56E+05	-1.43E+06	2.02E+06	-1.42E+06	2.00E+06	-4.19E+05	4.92E+05
5.00	2.41E+05	-1.73E+06	2.62E+06	-1.72E+06	2.60E+06	-3.92E+05	4.71E+05

TASK 1/PITCH MOTION/MODEL 5613

Table O–311. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–312. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.72E+04	-5.08E+05	5.76E+05	-5.04E+05	5.70E+05	-5.21E+05	5.53E+05
1.75	4.88E+04	-8.11E+05	9.96E+05	-8.04E+05	9.86E+05	-4.87E+05	5.35E+05
2.50	8.95E+04	-1.07E+06	1.40E+06	-1.06E+06	1.39E+06	-4.60E+05	5.20E+05
3.75	1.70E+05	-1.44E+06	2.06E+06	-1.43E+06	2.05E+06	-4.27E+05	5.01E+05
5.00	2.62E+05	-1.75E+06	2.69E+06	-1.74E+06	2.68E+06	-4.01E+05	4.83E+05

# TASK 1/PITCH MOTION/MODEL 5613

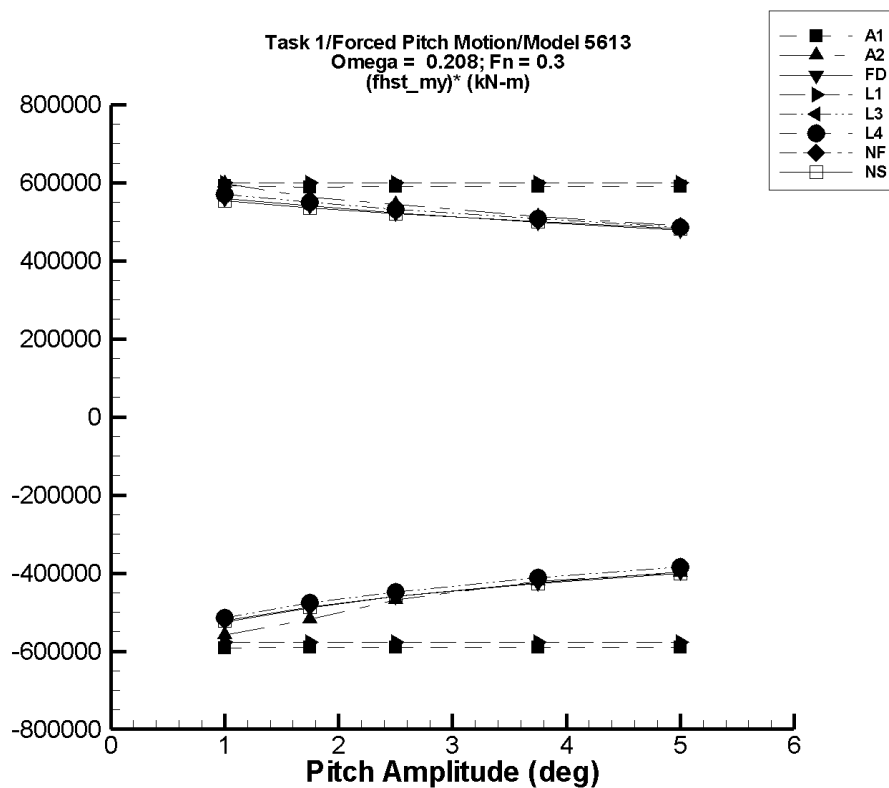


Figure O-40. Minimum and maximum of filtered  $(M_y^{hst} - \langle M_y^{hst} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–313. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	0.368	-5.92E+05	5.92E+05	-5.92E+05	5.91E+05	-5.92E+05	5.91E+05
1.75	0.645	-1.03E+06	1.03E+06	-1.03E+06	1.03E+06	-5.90E+05	5.89E+05
2.50	1.03	-1.48E+06	1.48E+06	-1.48E+06	1.47E+06	-5.90E+05	5.89E+05
3.75	1.66	-2.21E+06	2.21E+06	-2.21E+06	2.21E+06	-5.90E+05	5.89E+05
5.00	1.91	-2.95E+06	2.95E+06	-2.95E+06	2.95E+06	-5.91E+05	5.90E+05

Table O–314. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.16E+04	-5.37E+05	6.20E+05	-5.37E+05	6.19E+05	-5.58E+05	5.97E+05
1.75	5.25E+04	-8.56E+05	1.04E+06	-8.56E+05	1.04E+06	-5.19E+05	5.63E+05
2.50	1.02E+05	-1.07E+06	1.46E+06	-1.07E+06	1.46E+06	-4.68E+05	5.44E+05
3.75	1.88E+05	-1.39E+06	2.11E+06	-1.39E+06	2.11E+06	-4.21E+05	5.12E+05
5.00	2.99E+05	-1.70E+06	2.75E+06	-1.70E+06	2.75E+06	-4.00E+05	4.90E+05

Table O–315. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

FREDYN							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.02E+04	-5.06E+05	5.80E+05	-5.05E+05	5.80E+05	-5.25E+05	5.60E+05
1.75	5.06E+04	-8.05E+05	9.97E+05	-8.04E+05	9.96E+05	-4.89E+05	5.40E+05
2.50	8.99E+04	-1.06E+06	1.40E+06	-1.06E+06	1.40E+06	-4.60E+05	5.23E+05
3.75	1.67E+05	-1.42E+06	2.04E+06	-1.42E+06	2.04E+06	-4.24E+05	4.99E+05
5.00	2.56E+05	-1.73E+06	2.65E+06	-1.73E+06	2.65E+06	-3.97E+05	4.79E+05

Table O–316. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

LAMP-1							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.15E-02	-5.89E+05	5.89E+05	-5.89E+05	5.89E+05	-5.89E+05	5.89E+05
1.75	-2.23	-1.03E+06	1.03E+06	-1.03E+06	1.03E+06	-5.89E+05	5.89E+05
2.50	-0.154	-1.47E+06	1.47E+06	-1.47E+06	1.47E+06	-5.89E+05	5.89E+05
3.75	-4.21	-2.21E+06	2.21E+06	-2.21E+06	2.21E+06	-5.89E+05	5.89E+05
5.00	0.114	-2.94E+06	2.94E+06	-2.94E+06	2.94E+06	-5.89E+05	5.89E+05

Table O–317. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.39E+04	-5.11E+05	5.73E+05	-5.11E+05	5.73E+05	-5.25E+05	5.59E+05
1.75	4.37E+04	-8.10E+05	9.86E+05	-8.09E+05	9.86E+05	-4.88E+05	5.38E+05
2.50	8.21E+04	-1.07E+06	1.38E+06	-1.07E+06	1.38E+06	-4.59E+05	5.21E+05
3.75	1.58E+05	-1.43E+06	2.02E+06	-1.43E+06	2.02E+06	-4.23E+05	4.97E+05
5.00	2.44E+05	-1.73E+06	2.62E+06	-1.73E+06	2.62E+06	-3.95E+05	4.76E+05

Table O–318. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.39E+04	-5.11E+05	5.73E+05	-5.11E+05	5.73E+05	-5.25E+05	5.59E+05
1.75	4.37E+04	-8.10E+05	9.86E+05	-8.09E+05	9.86E+05	-4.88E+05	5.38E+05
2.50	8.21E+04	-1.07E+06	1.38E+06	-1.07E+06	1.38E+06	-4.59E+05	5.21E+05
3.75	1.58E+05	-1.43E+06	2.02E+06	-1.43E+06	2.02E+06	-4.23E+05	4.97E+05
5.00	2.44E+05	-1.73E+06	2.62E+06	-1.73E+06	2.62E+06	-3.95E+05	4.76E+05



TASK 1/PITCH MOTION/MODEL 5613

Table O–319. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–320. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.73E+04	-5.08E+05	5.76E+05	-5.04E+05	5.70E+05	-5.21E+05	5.53E+05
1.75	4.88E+04	-8.11E+05	9.96E+05	-8.04E+05	9.86E+05	-4.87E+05	5.36E+05
2.50	8.95E+04	-1.07E+06	1.40E+06	-1.06E+06	1.39E+06	-4.60E+05	5.20E+05
3.75	1.70E+05	-1.44E+06	2.06E+06	-1.43E+06	2.05E+06	-4.27E+05	5.01E+05
5.00	2.62E+05	-1.75E+06	2.69E+06	-1.74E+06	2.68E+06	-4.01E+05	4.83E+05

# TASK 1/PITCH MOTION/MODEL 5613

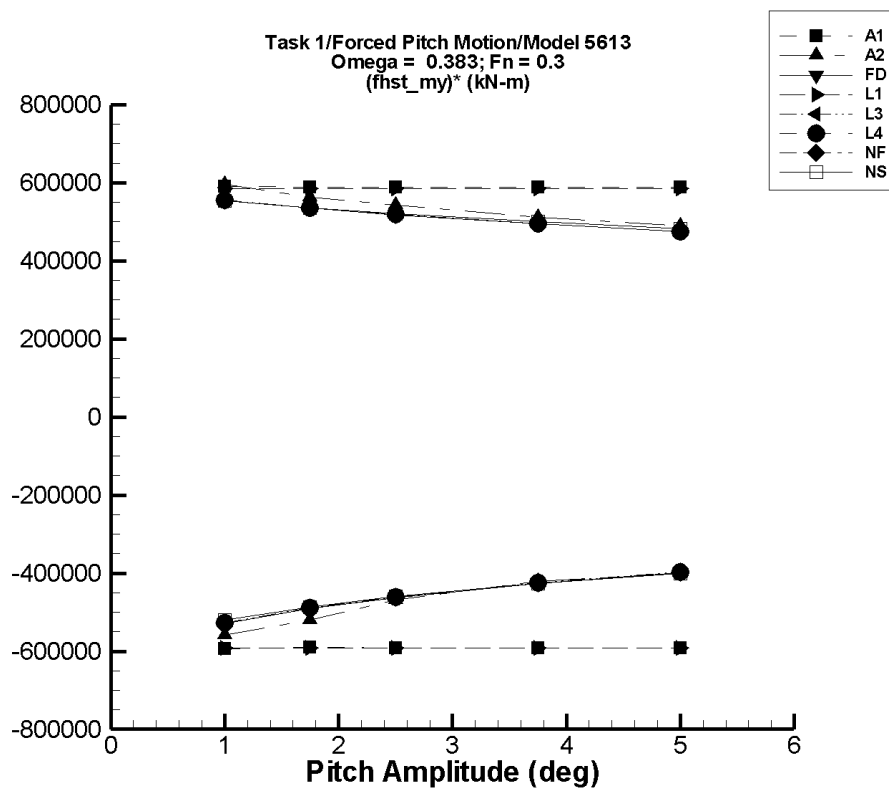


Figure O-41. Minimum and maximum of filtered  $(M_y^{hst} - \langle M_y^{hst} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–321. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-4.34E-02	-5.92E+05	5.92E+05	-5.94E+05	5.90E+05	-5.94E+05	5.90E+05
1.75	2.60E-02	-1.03E+06	1.03E+06	-1.03E+06	1.03E+06	-5.91E+05	5.87E+05
2.50	-6.83E-02	-1.47E+06	1.47E+06	-1.48E+06	1.47E+06	-5.92E+05	5.88E+05
3.75	-0.232	-2.21E+06	2.21E+06	-2.22E+06	2.20E+06	-5.92E+05	5.88E+05
5.00	-0.194	-2.95E+06	2.95E+06	-2.96E+06	2.94E+06	-5.92E+05	5.88E+05

Table O–322. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.15E+04	-5.37E+05	6.20E+05	-5.38E+05	6.17E+05	-5.59E+05	5.96E+05
1.75	5.23E+04	-8.56E+05	1.04E+06	-8.58E+05	1.04E+06	-5.20E+05	5.62E+05
2.50	1.02E+05	-1.07E+06	1.46E+06	-1.07E+06	1.46E+06	-4.69E+05	5.43E+05
3.75	1.88E+05	-1.39E+06	2.11E+06	-1.39E+06	2.10E+06	-4.22E+05	5.11E+05
5.00	2.99E+05	-1.70E+06	2.75E+06	-1.70E+06	2.74E+06	-4.01E+05	4.88E+05

Table O–323. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>FREDYN</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.01E+04	-5.06E+05	5.80E+05	-5.04E+05	5.78E+05	-5.24E+05	5.58E+05
1.75	5.04E+04	-8.05E+05	9.97E+05	-8.03E+05	9.93E+05	-4.88E+05	5.39E+05
2.50	8.96E+04	-1.06E+06	1.40E+06	-1.06E+06	1.39E+06	-4.59E+05	5.22E+05
3.75	1.67E+05	-1.42E+06	2.04E+06	-1.42E+06	2.03E+06	-4.23E+05	4.98E+05
5.00	2.55E+05	-1.73E+06	2.65E+06	-1.72E+06	2.64E+06	-3.96E+05	4.78E+05

Table O–324. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-2.84	-5.89E+05	5.89E+05	-5.88E+05	5.88E+05	-5.88E+05	5.88E+05
1.75	-2.77	-1.03E+06	1.03E+06	-1.03E+06	1.03E+06	-5.88E+05	5.88E+05
2.50	-5.79	-1.47E+06	1.47E+06	-1.47E+06	1.47E+06	-5.88E+05	5.88E+05
3.75	-6.57	-2.21E+06	2.21E+06	-2.21E+06	2.21E+06	-5.88E+05	5.88E+05
5.00	-11.3	-2.94E+06	2.94E+06	-2.94E+06	2.94E+06	-5.88E+05	5.88E+05

Table O–325. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.37E+04	-5.11E+05	5.73E+05	-5.10E+05	5.72E+05	-5.24E+05	5.58E+05
1.75	4.31E+04	-8.10E+05	9.86E+05	-8.09E+05	9.85E+05	-4.87E+05	5.38E+05
2.50	8.09E+04	-1.07E+06	1.38E+06	-1.06E+06	1.38E+06	-4.58E+05	5.21E+05
3.75	1.56E+05	-1.43E+06	2.02E+06	-1.43E+06	2.02E+06	-4.22E+05	4.97E+05
5.00	2.40E+05	-1.73E+06	2.62E+06	-1.73E+06	2.62E+06	-3.94E+05	4.76E+05

Table O–326. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.37E+04	-5.11E+05	5.73E+05	-5.10E+05	5.72E+05	-5.24E+05	5.58E+05
1.75	4.31E+04	-8.10E+05	9.86E+05	-8.09E+05	9.85E+05	-4.87E+05	5.38E+05
2.50	8.09E+04	-1.07E+06	1.38E+06	-1.06E+06	1.38E+06	-4.58E+05	5.21E+05
3.75	1.56E+05	-1.43E+06	2.02E+06	-1.43E+06	2.02E+06	-4.22E+05	4.97E+05
5.00	2.40E+05	-1.73E+06	2.62E+06	-1.73E+06	2.62E+06	-3.94E+05	4.76E+05

Table O–327. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–328. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.72E+04	-5.08E+05	5.76E+05	-5.04E+05	5.70E+05	-5.21E+05	5.53E+05
1.75	4.88E+04	-8.11E+05	9.96E+05	-8.04E+05	9.86E+05	-4.87E+05	5.35E+05
2.50	8.95E+04	-1.07E+06	1.40E+06	-1.06E+06	1.39E+06	-4.60E+05	5.20E+05
3.75	1.70E+05	-1.44E+06	2.06E+06	-1.43E+06	2.05E+06	-4.27E+05	5.01E+05
5.00	2.62E+05	-1.75E+06	2.69E+06	-1.74E+06	2.68E+06	-4.01E+05	4.83E+05

# TASK 1/PITCH MOTION/MODEL 5613

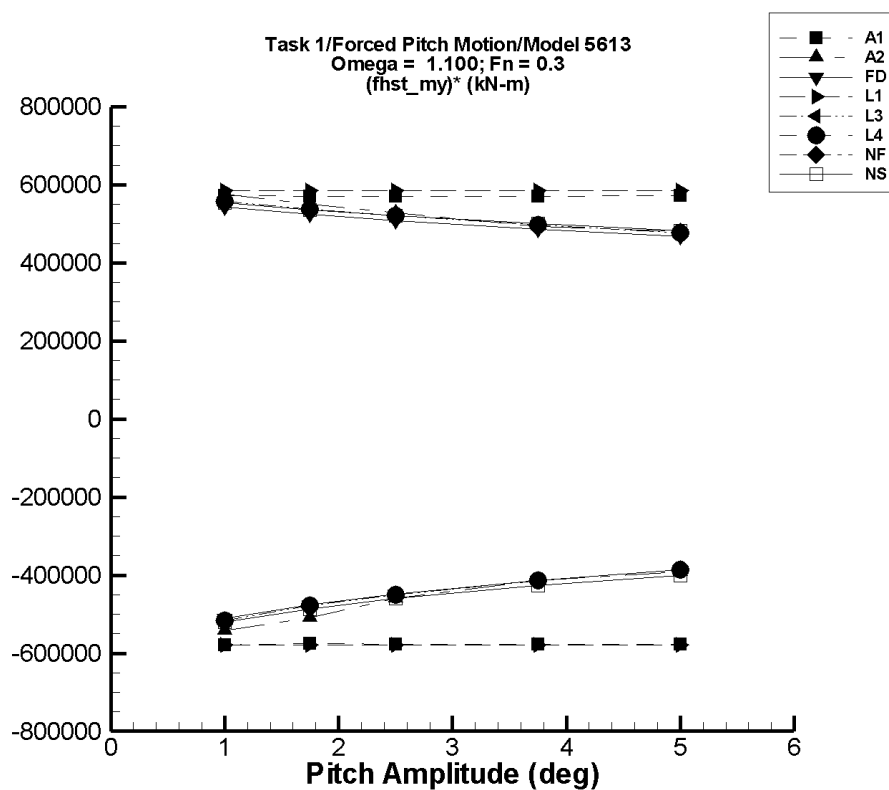


Figure O-42. Minimum and maximum of filtered  $(M_y^{hst} - \langle M_y^{hst} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–329. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	0.627	-5.92E+05	5.92E+05	-5.78E+05	5.73E+05	-5.78E+05	5.73E+05
1.75	1.02	-1.03E+06	1.03E+06	-1.01E+06	9.99E+05	-5.75E+05	5.71E+05
2.50	1.55	-1.47E+06	1.47E+06	-1.44E+06	1.43E+06	-5.76E+05	5.71E+05
3.75	2.23	-2.21E+06	2.21E+06	-2.16E+06	2.14E+06	-5.76E+05	5.71E+05
5.00	3.01	-2.95E+06	2.95E+06	-2.88E+06	2.86E+06	-5.76E+05	5.72E+05

Table O–330. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.15E+04	-5.37E+05	6.19E+05	-5.21E+05	5.97E+05	-5.43E+05	5.76E+05
1.75	5.22E+04	-8.56E+05	1.04E+06	-8.37E+05	1.02E+06	-5.08E+05	5.50E+05
2.50	1.02E+05	-1.07E+06	1.46E+06	-1.05E+06	1.42E+06	-4.59E+05	5.29E+05
3.75	1.88E+05	-1.39E+06	2.11E+06	-1.36E+06	2.04E+06	-4.13E+05	4.93E+05
5.00	2.99E+05	-1.70E+06	2.75E+06	-1.66E+06	2.70E+06	-3.91E+05	4.80E+05



Table O–331. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>FREDYN</b>							
$\theta_a$	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	2.01E+04	-5.06E+05	5.80E+05	-4.92E+05	5.63E+05	-5.12E+05	5.42E+05
1.75	5.03E+04	-8.05E+05	9.95E+05	-7.84E+05	9.66E+05	-4.77E+05	5.23E+05
2.50	8.94E+04	-1.06E+06	1.40E+06	-1.04E+06	1.36E+06	-4.50E+05	5.07E+05
3.75	1.66E+05	-1.42E+06	2.04E+06	-1.39E+06	1.98E+06	-4.15E+05	4.84E+05
5.00	2.54E+05	-1.73E+06	2.65E+06	-1.69E+06	2.58E+06	-3.89E+05	4.65E+05

Table O–332. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-1</b>							
$\theta_a$	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-40.7	-5.89E+05	5.89E+05	-5.82E+05	5.82E+05	-5.82E+05	5.82E+05
1.75	-70.9	-1.03E+06	1.03E+06	-1.02E+06	1.02E+06	-5.82E+05	5.82E+05
2.50	-101.	-1.47E+06	1.47E+06	-1.46E+06	1.46E+06	-5.82E+05	5.82E+05
3.75	-153.	-2.21E+06	2.21E+06	-2.18E+06	2.18E+06	-5.82E+05	5.82E+05
5.00	-203.	-2.94E+06	2.94E+06	-2.91E+06	2.91E+06	-5.82E+05	5.82E+05

Table O–333. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.38E+04	-5.11E+05	5.73E+05	-5.06E+05	5.66E+05	-5.20E+05	5.53E+05
1.75	4.33E+04	-8.09E+05	9.86E+05	-8.02E+05	9.75E+05	-4.83E+05	5.33E+05
2.50	8.12E+04	-1.07E+06	1.38E+06	-1.06E+06	1.37E+06	-4.55E+05	5.15E+05
3.75	1.56E+05	-1.43E+06	2.02E+06	-1.42E+06	2.00E+06	-4.19E+05	4.92E+05
5.00	2.41E+05	-1.73E+06	2.62E+06	-1.72E+06	2.60E+06	-3.92E+05	4.71E+05

Table O–334. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.38E+04	-5.11E+05	5.73E+05	-5.06E+05	5.66E+05	-5.20E+05	5.53E+05
1.75	4.33E+04	-8.09E+05	9.86E+05	-8.02E+05	9.75E+05	-4.83E+05	5.33E+05
2.50	8.12E+04	-1.07E+06	1.38E+06	-1.06E+06	1.37E+06	-4.55E+05	5.15E+05
3.75	1.56E+05	-1.43E+06	2.02E+06	-1.42E+06	2.00E+06	-4.19E+05	4.92E+05
5.00	2.41E+05	-1.73E+06	2.62E+06	-1.72E+06	2.60E+06	-3.92E+05	4.71E+05

TASK 1/PITCH MOTION/MODEL 5613

Table O–335. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–336. Minimum and Maximum of Variables  $M_y^{\text{hst}}$  and  $(M_y^{\text{hst}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.72E+04	-5.08E+05	5.76E+05	-5.04E+05	5.70E+05	-5.21E+05	5.53E+05
1.75	4.88E+04	-8.11E+05	9.96E+05	-8.04E+05	9.86E+05	-4.87E+05	5.35E+05
2.50	8.95E+04	-1.07E+06	1.40E+06	-1.06E+06	1.39E+06	-4.60E+05	5.20E+05
3.75	1.70E+05	-1.44E+06	2.06E+06	-1.43E+06	2.05E+06	-4.27E+05	5.01E+05
5.00	2.62E+05	-1.75E+06	2.69E+06	-1.74E+06	2.68E+06	-4.01E+05	4.83E+05

# TASK 1/PITCH MOTION/MODEL 5613

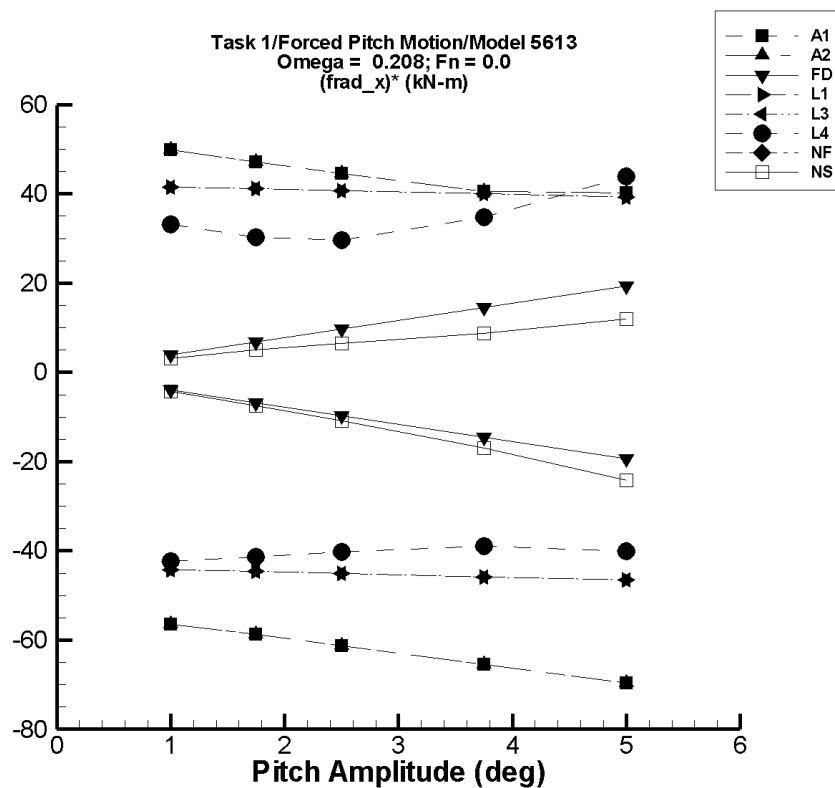


Figure O-43. Minimum and maximum of filtered  $(F_x^{\text{rad}} - \langle F_x^{\text{rad}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–337. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
(°)	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN/°)	(kN/°)
1.00	-3.35	-62.8	50.1	-59.8	46.5	-56.5	49.9
1.75	-10.1	-118.	79.2	-113.	72.4	-58.7	47.1
2.50	-20.7	-180.	102.	-174.	90.9	-61.3	44.6
3.75	-46.4	-299.	123.	-292.	106.	-65.4	40.5
5.00	-82.6	-439.	125.	-431.	119.	-69.6	40.2

Table O–338. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
(°)	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN/°)	(kN/°)
1.00	-3.35	-62.8	50.1	-59.8	46.5	-56.5	49.9
1.75	-10.1	-118.	79.2	-113.	72.4	-58.7	47.1
2.50	-20.7	-180.	102.	-174.	90.9	-61.3	44.6
3.75	-46.4	-299.	123.	-292.	106.	-65.4	40.5
5.00	-82.6	-439.	125.	-431.	119.	-69.6	40.2

Table O–339. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>FREDYN</b>							
$\theta_a$	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
(°)	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN/°)	(kN/°)
1.00	-3.10	-6.99	0.795	-6.97	0.778	-3.87	3.87
1.75	-9.48	-21.4	2.44	-21.3	2.38	-6.78	6.78
2.50	-19.3	-43.7	4.97	-43.6	4.86	-9.68	9.68
3.75	-43.5	-98.2	11.2	-98.0	10.9	-14.5	14.5
5.00	-77.3	-174.	19.9	-174.	19.5	-19.3	19.4

Table O–340. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-1</b>							
$\theta_a$	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
(°)	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN/°)	(kN/°)
1.00	0.548	-42.9	42.9	-42.9	42.9	-43.4	42.3
1.75	1.68	-75.1	75.1	-75.0	75.1	-43.8	41.9
2.50	3.43	-107.	107.	-107.	107.	-44.2	41.5
3.75	7.71	-161.	161.	-161.	161.	-44.9	40.8
5.00	13.7	-214.	215.	-214.	215.	-45.6	40.2

Table O–341. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	0.548	-42.9	42.9	-42.9	42.9	-43.4	42.3
1.75	1.68	-75.1	75.1	-75.0	75.1	-43.8	41.9
2.50	3.43	-107.	107.	-107.	107.	-44.2	41.5
3.75	7.71	-161.	161.	-161.	161.	-44.9	40.8
5.00	13.7	-214.	215.	-214.	215.	-45.6	40.2

Table O–342. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-3.40E-02	-41.5	34.3	-41.4	33.9	-41.4	34.0
1.75	4.93E-02	-70.6	54.9	-70.6	54.6	-40.3	31.2
2.50	0.249	-97.9	78.9	-97.9	76.7	-39.3	30.6
3.75	0.981	-141.	152.	-141.	136.	-37.9	35.9
5.00	2.02	-218.	258.	-193.	228.	-39.0	45.1

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Table O–343. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–344. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-2.71	-7.12	0.540	-6.97	0.395	-4.26	3.11
1.75	-7.46	-20.8	1.90	-20.5	1.38	-7.43	5.05
2.50	-13.6	-41.4	3.84	-40.7	2.62	-10.8	6.49
3.75	-26.5	-91.3	7.44	-90.1	6.08	-17.0	8.68
5.00	-42.4	-165.	17.4	-163.	17.0	-24.2	11.9



# TASK 1/PITCH MOTION/MODEL 5613

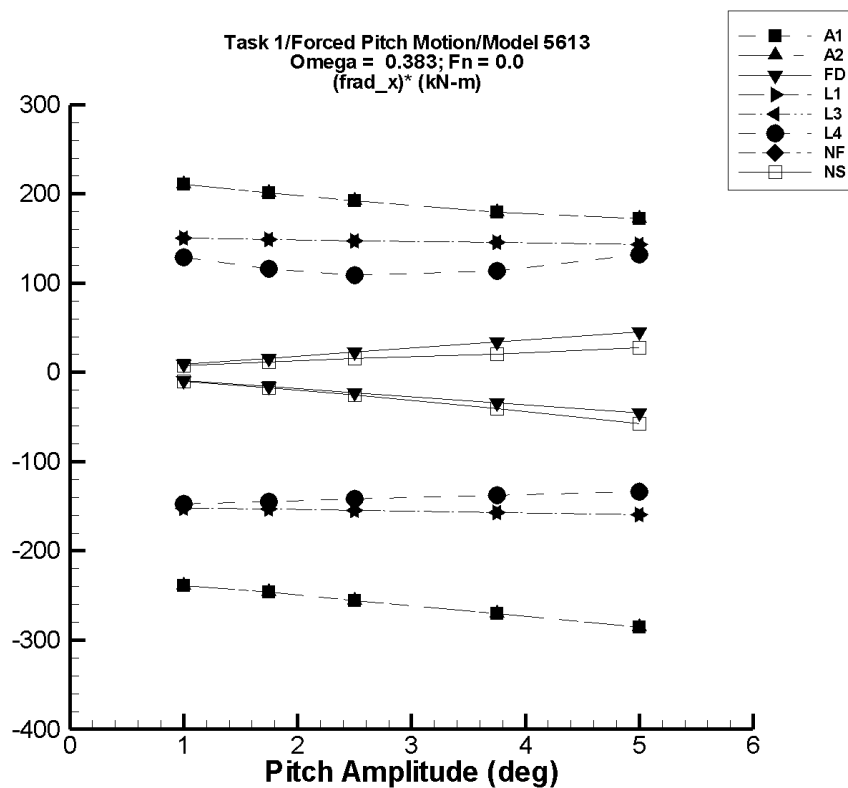


Figure O-44. Minimum and maximum of filtered  $(F_x^{\text{rad}} - \langle F_x^{\text{rad}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–345. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
(°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-10.6	-250.	202.	-249.	200.	-239.	211.
1.75	-32.0	-465.	323.	-463.	320.	-246.	201.
2.50	-65.3	-708.	420.	-704.	416.	-256.	192.
3.75	-147.	-1.17E+03	542.	-1.16E+03	527.	-270.	180.
5.00	-261.	-1.70E+03	612.	-1.69E+03	599.	-285.	172.

Table O–346. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
(°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-10.6	-250.	202.	-249.	200.	-239.	211.
1.75	-32.0	-465.	323.	-463.	320.	-246.	201.
2.50	-65.3	-708.	420.	-704.	416.	-256.	192.
3.75	-147.	-1.17E+03	542.	-1.16E+03	527.	-270.	180.
5.00	-261.	-1.70E+03	612.	-1.69E+03	599.	-285.	172.

Table O–347. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>FREDYN</b>							
$\theta_a$	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
(°)	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN/°)	(kN/°)
1.00	-6.35	-15.6	2.92	-15.5	2.79	-9.14	9.14
1.75	-19.5	-47.8	8.93	-47.4	8.54	-16.0	16.0
2.50	-39.7	-97.6	18.2	-96.8	17.4	-22.8	22.9
3.75	-89.3	-220.	41.0	-218.	39.2	-34.2	34.3
5.00	-159.	-390.	72.9	-387.	69.7	-45.6	45.7

Table O–348. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-1</b>							
$\theta_a$	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
(°)	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN/°)	(kN/°)
1.00	1.82	-151.	151.	-151.	151.	-153.	149.
1.75	5.58	-265.	265.	-264.	265.	-154.	148.
2.50	11.4	-378.	379.	-378.	378.	-156.	147.
3.75	25.6	-567.	569.	-566.	568.	-158.	145.
5.00	45.6	-756.	759.	-755.	758.	-160.	142.

Table O–349. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ <b>Mean</b>	<b>Unfiltered <math>F_x^{\text{rad}}</math></b>		<b>Filtered <math>F_x^{\text{rad}}</math></b>		<b>Filtered <math>(F_x^{\text{rad}})^*</math></b>	
	<b>(kN)</b>	<b>Min.</b> <b>(kN)</b>	<b>Max.</b> <b>(kN)</b>	<b>Min.</b> <b>(kN)</b>	<b>Max.</b> <b>(kN)</b>	<b>Min.</b> <b>(kN/°)</b>	<b>Max.</b> <b>(kN/°)</b>
1.00	1.82	-151.	151.	-151.	151.	-153.	149.
1.75	5.58	-265.	265.	-264.	265.	-154.	148.
2.50	11.4	-378.	379.	-378.	378.	-156.	147.
3.75	25.6	-567.	568.	-567.	568.	-158.	145.
5.00	45.6	-756.	758.	-755.	757.	-160.	142.

Table O–350. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to  $L = 154$  m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ <b>Mean</b>	<b>Unfiltered <math>F_x^{\text{rad}}</math></b>		<b>Filtered <math>F_x^{\text{rad}}</math></b>		<b>Filtered <math>(F_x^{\text{rad}})^*</math></b>	
	<b>(kN)</b>	<b>Min.</b> <b>(kN)</b>	<b>Max.</b> <b>(kN)</b>	<b>Min.</b> <b>(kN)</b>	<b>Max.</b> <b>(kN)</b>	<b>Min.</b> <b>(kN/°)</b>	<b>Max.</b> <b>(kN/°)</b>
1.00	3.41E-02	-149.	128.	-148.	128.	-148.	128.
1.75	0.394	-255.	203.	-255.	202.	-146.	115.
2.50	0.988	-356.	282.	-356.	271.	-143.	108.
3.75	3.00	-516.	491.	-516.	427.	-138.	113.
5.00	5.90	-811.	775.	-666.	662.	-134.	131.

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Table O–351. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
(°)	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN/°)	(kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–352. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
(°)	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN/°)	(kN/°)
1.00	-5.80	-16.1	1.85	-15.8	1.46	-9.98	7.26
1.75	-16.0	-47.5	6.03	-46.6	4.86	-17.5	11.9
2.50	-29.2	-95.3	11.3	-93.3	9.10	-25.6	15.3
3.75	-56.9	-212.	26.2	-209.	20.6	-40.5	20.7
5.00	-92.4	-387.	49.8	-381.	46.7	-57.7	27.8

# TASK 1/PITCH MOTION/MODEL 5613

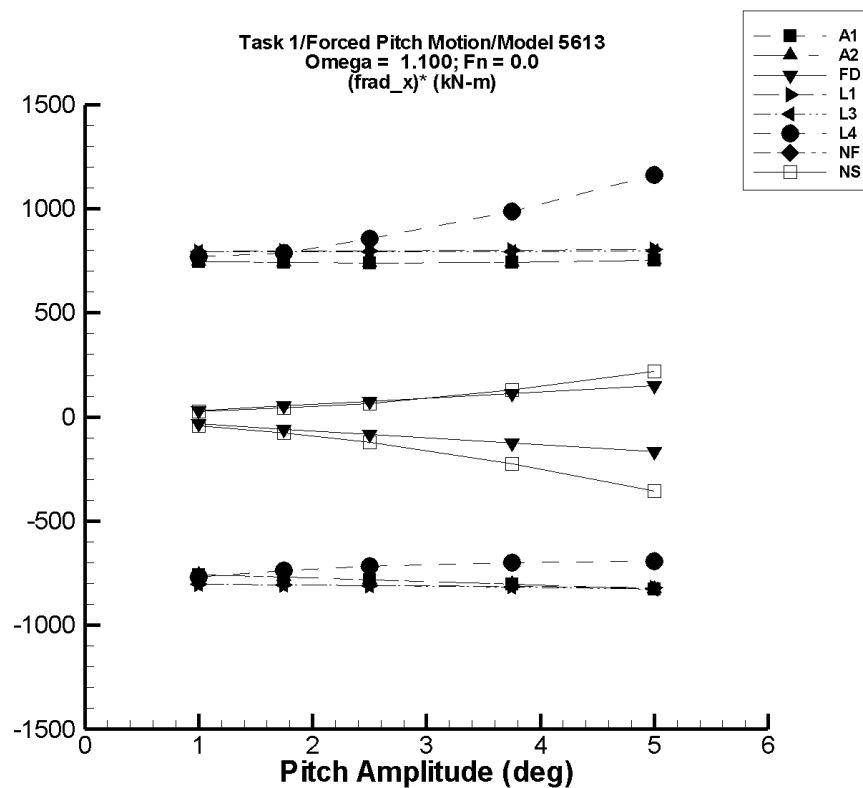


Figure O-45. Minimum and maximum of filtered  $(F_x^{\text{rad}} - \langle F_x^{\text{rad}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–353. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-24.6	-809.	745.	-784.	722.	-759.	747.
1.75	-73.9	-1.47E+03	1.26E+03	-1.42E+03	1.22E+03	-768.	741.
2.50	-150.	-2.17E+03	1.76E+03	-2.10E+03	1.70E+03	-781.	740.
3.75	-337.	-3.47E+03	2.55E+03	-3.35E+03	2.45E+03	-803.	743.
5.00	-599.	-4.93E+03	3.31E+03	-4.74E+03	3.16E+03	-829.	752.

Table O–354. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-24.6	-809.	745.	-784.	722.	-759.	747.
1.75	-73.9	-1.47E+03	1.26E+03	-1.42E+03	1.22E+03	-768.	741.
2.50	-150.	-2.17E+03	1.76E+03	-2.10E+03	1.70E+03	-781.	740.
3.75	-337.	-3.47E+03	2.55E+03	-3.35E+03	2.45E+03	-803.	743.
5.00	-599.	-4.93E+03	3.31E+03	-4.74E+03	3.16E+03	-829.	752.

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Table O–355. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

FREDYN							
$\theta_a$	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
(°)	Mean	Min.	Max.	Min.	Max.	Min.	Max.
	(kN)	(kN)	(kN)	(kN)	(kN)	(kN/°)	(kN/°)
1.00	-27.6	-63.3	8.06	-58.9	4.53	-31.3	32.2
1.75	-84.6	-194.	24.7	-180.	13.9	-54.8	56.3
2.50	-173.	-396.	50.4	-368.	28.3	-78.3	80.4
3.75	-388.	-890.	113.	-828.	63.7	-117.	121.
5.00	-690.	-1.58E+03	201.	-1.47E+03	113.	-156.	161.

Table O–356. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

LAMP-1							
$\theta_a$	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
(°)	Mean	Min.	Max.	Min.	Max.	Min.	Max.
	(kN)	(kN)	(kN)	(kN)	(kN)	(kN/°)	(kN/°)
1.00	17.1	-791.	825.	-782.	816.	-799.	799.
1.75	52.5	-1.36E+03	1.47E+03	-1.35E+03	1.45E+03	-801.	801.
2.50	107.	-1.92E+03	2.14E+03	-1.90E+03	2.11E+03	-803.	803.
3.75	241.	-2.82E+03	3.30E+03	-2.79E+03	3.27E+03	-807.	807.
5.00	428.	-3.69E+03	4.54E+03	-3.64E+03	4.49E+03	-813.	813.



TASK 1/PITCH MOTION/MODEL 5613

Table O–357. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

LAMP-3							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	17.1	-792.	824.	-783.	815.	-800.	798.
1.75	52.5	-1.37E+03	1.46E+03	-1.35E+03	1.45E+03	-802.	798.
2.50	107.	-1.93E+03	2.13E+03	-1.91E+03	2.11E+03	-805.	800.
3.75	241.	-2.84E+03	3.28E+03	-2.80E+03	3.25E+03	-811.	802.
5.00	428.	-3.71E+03	4.51E+03	-3.66E+03	4.46E+03	-818.	807.

Table O–358. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

LAMP-4							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-4.52	-772.	820.	-765.	773.	-760.	777.
1.75	-12.3	-1.30E+03	1.48E+03	-1.29E+03	1.38E+03	-729.	797.
2.50	-19.6	-1.82E+03	2.41E+03	-1.78E+03	2.15E+03	-705.	869.
3.75	-31.3	-2.67E+03	4.20E+03	-2.60E+03	3.72E+03	-685.	1.00E+03
5.00	-47.9	-3.68E+03	6.21E+03	-3.42E+03	5.84E+03	-675.	1.18E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–359. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–360. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-23.3	-65.5	5.90	-64.2	4.15	-40.9	27.4
1.75	-64.7	-204.	21.4	-200.	12.8	-77.1	44.3
2.50	-125.	-443.	44.6	-431.	32.1	-122.	63.0
3.75	-271.	-1.13E+03	212.	-1.11E+03	209.	-223.	128.
5.00	-490.	-2.30E+03	609.	-2.28E+03	607.	-357.	220.

# TASK 1/PITCH MOTION/MODEL 5613

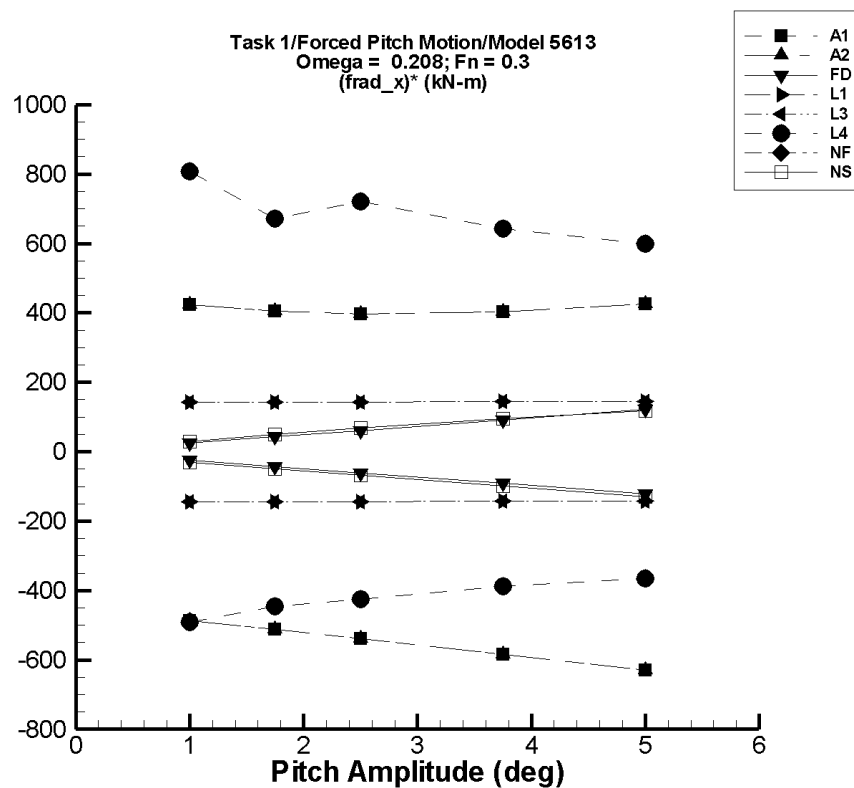


Figure O-46. Minimum and maximum of filtered  $(F_x^{\text{rad}} - \langle F_x^{\text{rad}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

TASK 1/PITCH MOTION/MODEL 5613

Table O–361. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

AEGIR-1							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-17.8	-506.	407.	-505.	407.	-488.	425.
1.75	-54.3	-951.	654.	-950.	653.	-512.	404.
2.50	-111.	-1.46E+03	890.	-1.46E+03	880.	-539.	397.
3.75	-250.	-2.44E+03	1.28E+03	-2.44E+03	1.26E+03	-584.	403.
5.00	-446.	-3.60E+03	1.69E+03	-3.60E+03	1.69E+03	-630.	427.

Table O–362. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

AEGIR-2							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-17.8	-506.	407.	-505.	407.	-488.	425.
1.75	-54.3	-951.	654.	-950.	653.	-512.	404.
2.50	-111.	-1.46E+03	890.	-1.46E+03	880.	-539.	397.
3.75	-250.	-2.44E+03	1.28E+03	-2.44E+03	1.26E+03	-584.	403.
5.00	-446.	-3.60E+03	1.69E+03	-3.60E+03	1.69E+03	-630.	427.

Table O–363. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>FREDYN</b>							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	9.87	-14.6	34.4	-14.5	34.3	-24.4	24.4
1.75	30.2	-44.8	105.	-44.5	105.	-42.7	42.7
2.50	61.7	-91.5	215.	-90.8	214.	-61.0	61.0
3.75	139.	-206.	483.	-204.	482.	-91.5	91.4
5.00	246.	-366.	858.	-363.	856.	-122.	122.

Table O–364. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-1</b>							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-41.2	-184.	103.	-184.	103.	-143.	144.
1.75	-40.5	-290.	213.	-289.	213.	-142.	145.
2.50	-39.3	-394.	325.	-394.	324.	-142.	145.
3.75	-36.6	-566.	513.	-565.	513.	-141.	147.
5.00	-32.7	-735.	706.	-735.	706.	-140.	148.

Table O-365. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ <b>Mean</b>	<b>Unfiltered <math>F_x^{\text{rad}}</math></b>		<b>Filtered <math>F_x^{\text{rad}}</math></b>		<b>Filtered <math>(F_x^{\text{rad}})^*</math></b>	
	<b>(kN)</b>	<b>Min.</b> <b>(kN)</b>	<b>Max.</b> <b>(kN)</b>	<b>Min.</b> <b>(kN)</b>	<b>Max.</b> <b>(kN)</b>	<b>Min.</b> <b>(kN/°)</b>	<b>Max.</b> <b>(kN/°)</b>
1.00	-41.2	-184.	103.	-184.	103.	-143.	144.
1.75	-40.5	-290.	213.	-290.	213.	-142.	145.
2.50	-39.4	-394.	325.	-394.	324.	-142.	146.
3.75	-36.6	-566.	513.	-566.	513.	-141.	147.
5.00	-32.8	-735.	706.	-735.	706.	-140.	148.

Table O-366. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ <b>Mean</b>	<b>Unfiltered <math>F_x^{\text{rad}}</math></b>		<b>Filtered <math>F_x^{\text{rad}}</math></b>		<b>Filtered <math>(F_x^{\text{rad}})^*</math></b>	
	<b>(kN)</b>	<b>Min.</b> <b>(kN)</b>	<b>Max.</b> <b>(kN)</b>	<b>Min.</b> <b>(kN)</b>	<b>Max.</b> <b>(kN)</b>	<b>Min.</b> <b>(kN/°)</b>	<b>Max.</b> <b>(kN/°)</b>
1.00	220.	-326.	1.06E+03	-293.	1.01E+03	-513.	786.
1.75	432.	-414.	1.69E+03	-381.	1.58E+03	-465.	653.
2.50	681.	-470.	2.47E+03	-430.	2.44E+03	-444.	702.
3.75	1.01E+03	-568.	3.40E+03	-508.	3.35E+03	-406.	624.
5.00	1.32E+03	-662.	4.24E+03	-594.	4.23E+03	-383.	582.

TASK 1/PITCH MOTION/MODEL 5613

Table O–367. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–368. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	15.4	-17.8	46.6	-16.3	45.4	-31.7	30.0
1.75	44.9	-44.5	134.	-41.2	131.	-49.2	49.1
2.50	85.1	-93.7	261.	-83.8	254.	-67.6	67.6
3.75	179.	-203.	547.	-195.	534.	-99.7	94.7
5.00	298.	-357.	897.	-351.	888.	-130.	118.

# TASK 1/PITCH MOTION/MODEL 5613

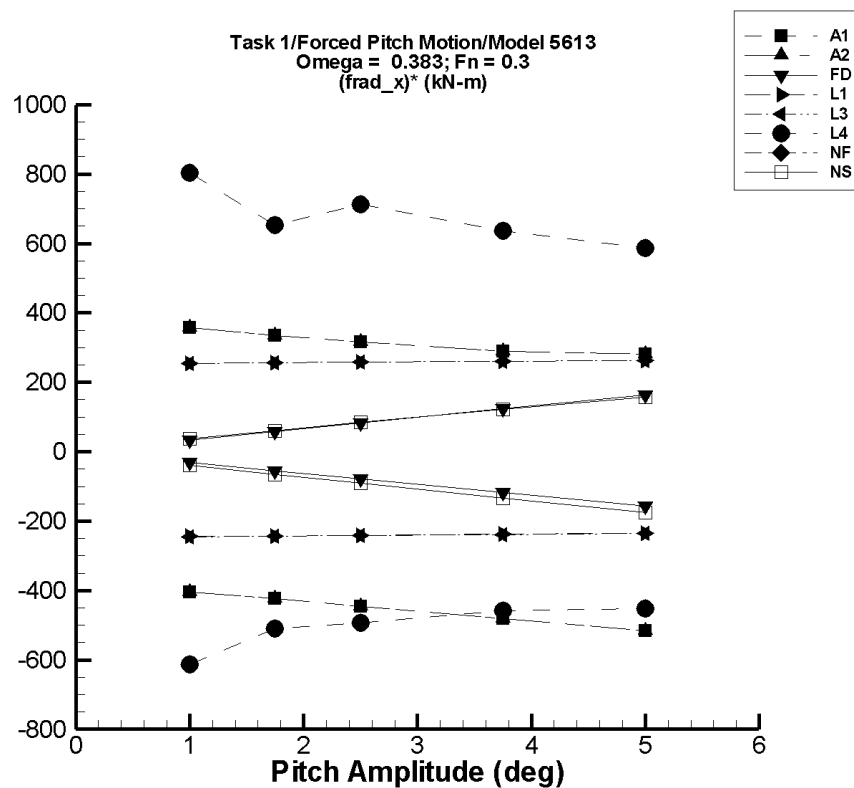


Figure O-47. Minimum and maximum of filtered  $(F_x^{\text{rad}} - \langle F_x^{\text{rad}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.



Table O–369. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{rad}})^*$ Max. (kN/°)
1.00	1.67	-424.	360.	-403.	359.	-405.	357.
1.75	7.78	-771.	597.	-734.	595.	-424.	336.
2.50	18.1	-1.15E+03	810.	-1.10E+03	808.	-445.	316.
3.75	44.7	-1.84E+03	1.13E+03	-1.76E+03	1.13E+03	-480.	289.
5.00	83.1	-2.60E+03	1.49E+03	-2.49E+03	1.49E+03	-516.	281.

Table O–370. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{rad}})^*$ Max. (kN/°)
1.00	1.67	-424.	360.	-403.	359.	-405.	357.
1.75	7.78	-771.	597.	-734.	595.	-424.	336.
2.50	18.1	-1.15E+03	810.	-1.10E+03	808.	-445.	316.
3.75	44.7	-1.84E+03	1.13E+03	-1.76E+03	1.13E+03	-480.	289.
5.00	83.1	-2.60E+03	1.49E+03	-2.49E+03	1.49E+03	-516.	281.

Table O-371. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>FREDYN</b>							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	8.99	-23.7	41.6	-23.2	41.2	-32.2	32.2
1.75	27.5	-72.5	128.	-71.0	126.	-56.3	56.3
2.50	56.2	-148.	260.	-145.	257.	-80.4	80.4
3.75	126.	-333.	585.	-326.	579.	-121.	121.
5.00	225.	-591.	1.04E+03	-579.	1.03E+03	-161.	161.

Table O-372. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-1</b>							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-39.9	-287.	212.	-287.	212.	-247.	251.
1.75	-36.6	-466.	407.	-465.	407.	-245.	253.
2.50	-31.4	-640.	607.	-639.	606.	-243.	255.
3.75	-18.6	-920.	951.	-919.	950.	-240.	258.
5.00	-0.823	-1.19E+03	1.31E+03	-1.19E+03	1.31E+03	-237.	261.

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Table O–373. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-39.9	-287.	212.	-287.	212.	-247.	252.
1.75	-36.6	-466.	408.	-466.	407.	-245.	254.
2.50	-31.4	-641.	608.	-640.	607.	-244.	255.
3.75	-18.7	-923.	951.	-922.	950.	-241.	258.
5.00	-0.840	-1.19E+03	1.31E+03	-1.19E+03	1.31E+03	-238.	261.

Table O–374. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	206.	-449.	1.07E+03	-406.	1.01E+03	-612.	803.
1.75	404.	-570.	1.64E+03	-489.	1.54E+03	-510.	652.
2.50	650.	-734.	2.47E+03	-585.	2.43E+03	-494.	712.
3.75	951.	-967.	3.43E+03	-771.	3.33E+03	-459.	635.
5.00	1.24E+03	-1.18E+03	4.26E+03	-1.03E+03	4.17E+03	-453.	587.

TASK 1/PITCH MOTION/MODEL 5613

Table O–375. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–376. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	19.2	-23.1	58.3	-20.8	56.3	-40.0	37.1
1.75	58.2	-61.2	169.	-56.6	165.	-65.6	60.9
2.50	114.	-125.	332.	-114.	324.	-91.2	83.8
3.75	244.	-274.	719.	-262.	702.	-135.	122.
5.00	410.	-475.	1.21E+03	-468.	1.19E+03	-175.	157.

# TASK 1/PITCH MOTION/MODEL 5613

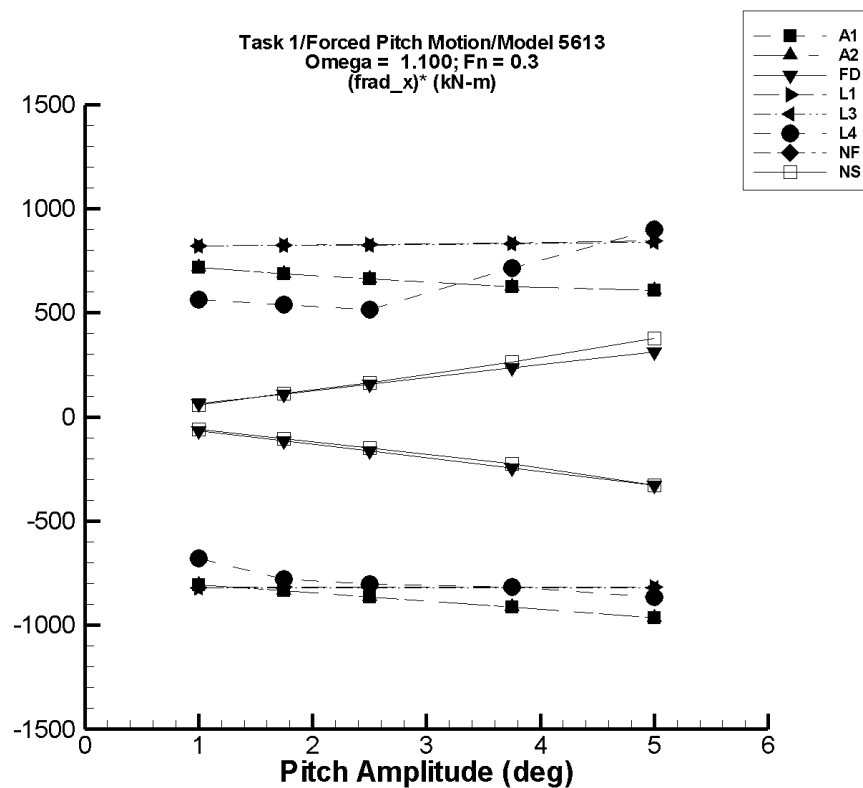


Figure O-48. Minimum and maximum of filtered  $(F_x^{\text{rad}} - \langle F_x^{\text{rad}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

TASK 1/PITCH MOTION/MODEL 5613

Table O-377. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

AEGIR-1							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-19.6	-856.	718.	-826.	698.	-807.	717.
1.75	-54.6	-1.57E+03	1.18E+03	-1.51E+03	1.15E+03	-833.	688.
2.50	-108.	-2.36E+03	1.58E+03	-2.27E+03	1.55E+03	-864.	662.
3.75	-235.	-3.83E+03	2.16E+03	-3.66E+03	2.11E+03	-913.	626.
5.00	-413.	-5.50E+03	2.71E+03	-5.24E+03	2.63E+03	-965.	609.

Table O-378. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

AEGIR-2							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-19.6	-856.	718.	-826.	698.	-807.	717.
1.75	-54.6	-1.57E+03	1.18E+03	-1.51E+03	1.15E+03	-833.	688.
2.50	-108.	-2.36E+03	1.58E+03	-2.27E+03	1.55E+03	-864.	662.
3.75	-235.	-3.83E+03	2.16E+03	-3.66E+03	2.11E+03	-913.	626.
5.00	-413.	-5.50E+03	2.71E+03	-5.24E+03	2.63E+03	-965.	609.

TASK 1/PITCH MOTION/MODEL 5613

Table O-379. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

FREDYN							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-9.70	-82.9	63.4	-73.9	54.4	-64.2	64.1
1.75	-29.7	-254.	194.	-226.	167.	-112.	112.
2.50	-60.6	-518.	396.	-462.	340.	-160.	160.
3.75	-136.	-1.16E+03	891.	-1.04E+03	765.	-241.	240.
5.00	-242.	-2.07E+03	1.58E+03	-1.85E+03	1.36E+03	-321.	320.

Table O-380. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-27.3	-851.	806.	-842.	797.	-815.	824.
1.75	2.12	-1.44E+03	1.47E+03	-1.42E+03	1.45E+03	-813.	828.
2.50	47.6	-2.00E+03	2.15E+03	-1.98E+03	2.13E+03	-811.	833.
3.75	159.	-2.91E+03	3.35E+03	-2.87E+03	3.31E+03	-809.	841.
5.00	315.	-3.77E+03	4.62E+03	-3.73E+03	4.57E+03	-808.	852.

Table O–381. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-27.3	-854.	806.	-845.	797.	-818.	825.
1.75	2.15	-1.44E+03	1.47E+03	-1.43E+03	1.45E+03	-816.	828.
2.50	47.6	-2.01E+03	2.15E+03	-1.99E+03	2.13E+03	-815.	831.
3.75	159.	-2.93E+03	3.34E+03	-2.89E+03	3.30E+03	-814.	839.
5.00	315.	-3.80E+03	4.59E+03	-3.75E+03	4.55E+03	-814.	846.

Table O–382. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	167.	-914.	783.	-523.	720.	-689.	554.
1.75	328.	-1.54E+03	1.31E+03	-1.05E+03	1.26E+03	-788.	532.
2.50	527.	-1.94E+03	2.17E+03	-1.50E+03	1.80E+03	-810.	508.
3.75	721.	-3.02E+03	3.82E+03	-2.36E+03	3.39E+03	-821.	711.
5.00	993.	-4.14E+03	5.95E+03	-3.35E+03	5.48E+03	-868.	898.



TASK 1/PITCH MOTION/MODEL 5613

Table O–383. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
(°)	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN/°)	(kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–384. Minimum and Maximum of Variables  $F_x^{\text{rad}}$  and  $(F_x^{\text{rad}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$	$\langle F_x^{\text{rad}} \rangle$	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
(°)	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN/°)	(kN/°)
1.00	6.27	-60.3	69.7	-53.5	65.2	-59.8	58.9
1.75	28.3	-164.	228.	-155.	223.	-105.	111.
2.50	58.6	-336.	479.	-310.	465.	-148.	162.
3.75	101.	-778.	1.11E+03	-743.	1.09E+03	-225.	264.
5.00	108.	-1.59E+03	2.02E+03	-1.53E+03	2.00E+03	-327.	379.

# TASK 1/PITCH MOTION/MODEL 5613

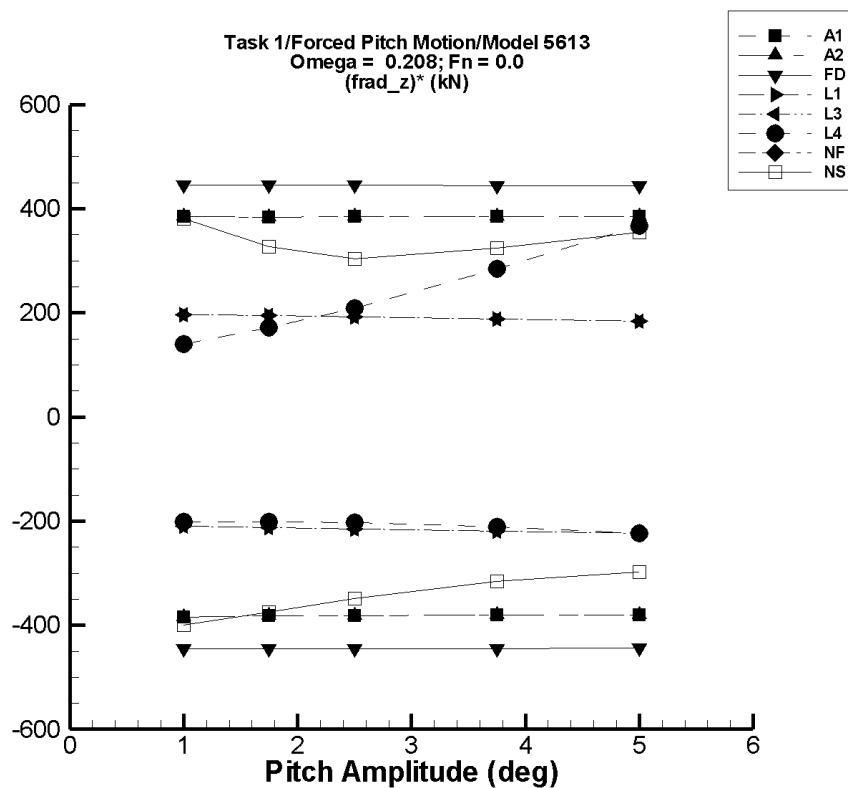


Figure O-49. Minimum and maximum of filtered  $(F_z^{\text{rad}} - \langle F_z^{\text{rad}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–385. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{rad}})^*$ Max. (kN/°)
1.00	0.407	-385.	387.	-384.	386.	-384.	386.
1.75	1.31	-669.	675.	-668.	674.	-382.	384.
2.50	2.72	-954.	966.	-952.	965.	-382.	385.
3.75	6.23	-1.42E+03	1.45E+03	-1.42E+03	1.45E+03	-381.	385.
5.00	11.2	-1.89E+03	1.94E+03	-1.89E+03	1.94E+03	-380.	385.

Table O–386. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{rad}})^*$ Max. (kN/°)
1.00	0.407	-385.	387.	-384.	386.	-384.	386.
1.75	1.31	-669.	675.	-668.	674.	-382.	384.
2.50	2.72	-954.	966.	-952.	965.	-382.	385.
3.75	6.23	-1.42E+03	1.45E+03	-1.42E+03	1.45E+03	-381.	385.
5.00	11.2	-1.89E+03	1.94E+03	-1.89E+03	1.94E+03	-380.	385.

TASK 1/PITCH MOTION/MODEL 5613

Table O–387. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

FREDYN							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-4.55E-05	-446.	446.	-445.	445.	-445.	445.
1.75	-3.75E-05	-780.	780.	-779.	779.	-445.	445.
2.50	4.55E-05	-1.11E+03	1.11E+03	-1.11E+03	1.11E+03	-445.	445.
3.75	3.40E-04	-1.67E+03	1.67E+03	-1.67E+03	1.67E+03	-445.	445.
5.00	1.39E-03	-2.22E+03	2.22E+03	-2.22E+03	2.22E+03	-444.	444.

Table O–388. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	2.98	-204.	204.	-204.	204.	-207.	201.
1.75	9.13	-357.	356.	-356.	356.	-209.	198.
2.50	18.6	-509.	509.	-509.	509.	-211.	196.
3.75	41.9	-764.	763.	-764.	763.	-215.	192.
5.00	74.5	-1.02E+03	1.02E+03	-1.02E+03	1.02E+03	-219.	189.

Table O–389. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	2.98	-204.	204.	-204.	204.	-207.	201.
1.75	9.13	-357.	356.	-356.	356.	-209.	198.
2.50	18.6	-509.	509.	-509.	509.	-211.	196.
3.75	41.9	-764.	763.	-764.	763.	-215.	192.
5.00	74.5	-1.02E+03	1.02E+03	-1.02E+03	1.02E+03	-219.	189.

Table O–390. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-8.15	-206.	149.	-205.	137.	-197.	145.
1.75	-21.5	-365.	324.	-365.	288.	-196.	177.
2.50	-38.7	-532.	576.	-532.	497.	-197.	214.
3.75	-74.4	-840.	1.16E+03	-839.	1.01E+03	-204.	290.
5.00	-120.	-1.21E+03	2.02E+03	-1.20E+03	1.75E+03	-217.	374.

TASK 1/PITCH MOTION/MODEL 5613

Table O–391. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–392. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-41.3	-445.	358.	-441.	340.	-400.	381.
1.75	-92.3	-758.	643.	-748.	481.	-375.	328.
2.50	-165.	-1.06E+03	735.	-1.04E+03	596.	-348.	304.
3.75	-303.	-1.54E+03	1.30E+03	-1.49E+03	916.	-316.	325.
5.00	-469.	-1.99E+03	2.21E+03	-1.96E+03	1.30E+03	-298.	354.

# TASK 1/PITCH MOTION/MODEL 5613

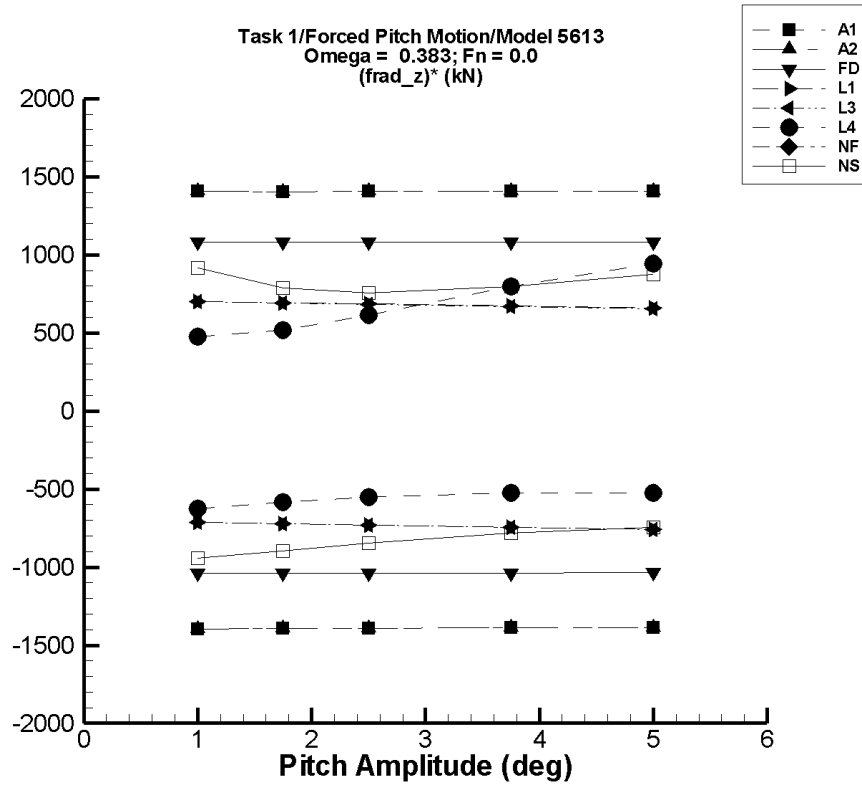


Figure O-50. Minimum and maximum of filtered  $(F_z^{\text{rad}} - \langle F_z^{\text{rad}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–393. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

AEGIR-1							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered $(F_z^{\text{rad}})^*$ Min. (kN/°)	Max. (kN/°)
1.00	1.34	-1.40E+03	1.42E+03	-1.40E+03	1.41E+03	-1.40E+03	1.41E+03
1.75	4.83	-2.44E+03	2.47E+03	-2.43E+03	2.46E+03	-1.39E+03	1.40E+03
2.50	10.5	-3.48E+03	3.54E+03	-3.47E+03	3.52E+03	-1.39E+03	1.41E+03
3.75	24.8	-5.20E+03	5.32E+03	-5.18E+03	5.30E+03	-1.39E+03	1.41E+03
5.00	45.2	-6.91E+03	7.11E+03	-6.89E+03	7.08E+03	-1.39E+03	1.41E+03

Table O–394. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

AEGIR-2							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered $(F_z^{\text{rad}})^*$ Min. (kN/°)	Max. (kN/°)
1.00	1.34	-1.40E+03	1.42E+03	-1.40E+03	1.41E+03	-1.40E+03	1.41E+03
1.75	4.83	-2.44E+03	2.47E+03	-2.43E+03	2.46E+03	-1.39E+03	1.40E+03
2.50	10.5	-3.48E+03	3.54E+03	-3.47E+03	3.52E+03	-1.39E+03	1.41E+03
3.75	24.8	-5.20E+03	5.32E+03	-5.18E+03	5.30E+03	-1.39E+03	1.41E+03
5.00	45.2	-6.91E+03	7.11E+03	-6.89E+03	7.08E+03	-1.39E+03	1.41E+03



Table O–395. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

FREDYN							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{rad}})^*$ Max. (kN/°)
1.00	2.16E-03	-1.06E+03	1.06E+03	-1.06E+03	1.06E+03	-1.06E+03	1.06E+03
1.75	1.19E-02	-1.86E+03	1.86E+03	-1.86E+03	1.85E+03	-1.06E+03	1.06E+03
2.50	3.49E-02	-2.65E+03	2.65E+03	-2.65E+03	2.64E+03	-1.06E+03	1.06E+03
3.75	0.118	-3.98E+03	3.98E+03	-3.98E+03	3.96E+03	-1.06E+03	1.06E+03
5.00	0.280	-5.30E+03	5.30E+03	-5.30E+03	5.28E+03	-1.06E+03	1.06E+03

Table O–396. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{rad}})^*$ Max. (kN/°)
1.00	10.9	-709.	709.	-708.	708.	-719.	697.
1.75	33.4	-1.24E+03	1.24E+03	-1.24E+03	1.24E+03	-728.	689.
2.50	68.1	-1.77E+03	1.77E+03	-1.77E+03	1.77E+03	-736.	680.
3.75	153.	-2.66E+03	2.66E+03	-2.66E+03	2.65E+03	-750.	667.
5.00	272.	-3.55E+03	3.54E+03	-3.55E+03	3.54E+03	-764.	653.

Table O–397. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	10.9	-710.	708.	-709.	707.	-719.	697.
1.75	33.4	-1.24E+03	1.24E+03	-1.24E+03	1.24E+03	-728.	688.
2.50	68.1	-1.78E+03	1.77E+03	-1.77E+03	1.77E+03	-737.	679.
3.75	153.	-2.67E+03	2.65E+03	-2.66E+03	2.65E+03	-751.	665.
5.00	272.	-3.56E+03	3.53E+03	-3.55E+03	3.53E+03	-765.	651.

Table O–398. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-24.5	-657.	466.	-656.	446.	-631.	471.
1.75	-66.6	-1.10E+03	913.	-1.10E+03	829.	-588.	512.
2.50	-124.	-1.52E+03	1.60E+03	-1.52E+03	1.40E+03	-556.	611.
3.75	-255.	-2.25E+03	3.51E+03	-2.24E+03	2.73E+03	-528.	795.
5.00	-441.	-3.11E+03	5.68E+03	-3.08E+03	4.27E+03	-527.	942.

TASK 1/PITCH MOTION/MODEL 5613

Table O–399. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–400. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-95.3	-1.05E+03	866.	-1.04E+03	820.	-942.	915.
1.75	-204.	-1.81E+03	1.59E+03	-1.77E+03	1.17E+03	-896.	788.
2.50	-346.	-2.52E+03	2.31E+03	-2.46E+03	1.54E+03	-845.	756.
3.75	-636.	-3.72E+03	3.25E+03	-3.56E+03	2.36E+03	-780.	799.
5.00	-989.	-4.82E+03	5.57E+03	-4.72E+03	3.39E+03	-746.	875.

# TASK 1/PITCH MOTION/MODEL 5613

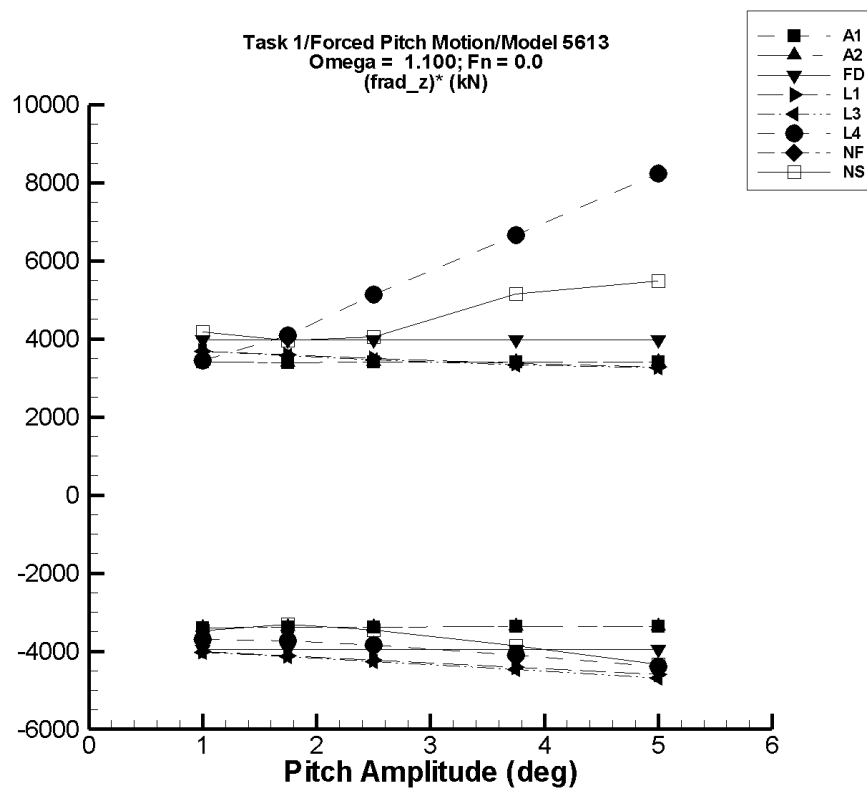


Figure O-51. Minimum and maximum of filtered  $(F_z^{\text{rad}} - \langle F_z^{\text{rad}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

TASK 1/PITCH MOTION/MODEL 5613

Table O-401. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

AEGIR-1							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-22.4	-3.54E+03	3.49E+03	-3.43E+03	3.39E+03	-3.41E+03	3.41E+03
1.75	-33.9	-6.15E+03	6.10E+03	-5.96E+03	5.91E+03	-3.39E+03	3.40E+03
2.50	-40.9	-8.77E+03	8.74E+03	-8.50E+03	8.47E+03	-3.38E+03	3.40E+03
3.75	-42.7	-1.31E+04	1.31E+04	-1.27E+04	1.27E+04	-3.38E+03	3.41E+03
5.00	-31.7	-1.74E+04	1.76E+04	-1.69E+04	1.70E+04	-3.37E+03	3.41E+03

Table O-402. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

AEGIR-2							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-22.4	-3.54E+03	3.49E+03	-3.43E+03	3.39E+03	-3.41E+03	3.41E+03
1.75	-33.9	-6.15E+03	6.10E+03	-5.96E+03	5.91E+03	-3.39E+03	3.40E+03
2.50	-40.9	-8.77E+03	8.74E+03	-8.50E+03	8.47E+03	-3.38E+03	3.40E+03
3.75	-42.7	-1.31E+04	1.31E+04	-1.27E+04	1.27E+04	-3.38E+03	3.41E+03
5.00	-31.7	-1.74E+04	1.76E+04	-1.69E+04	1.70E+04	-3.37E+03	3.41E+03

Table O-403. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

FREDYN							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{rad}})^*$ Max. (kN/°)
1.00	7.96E-03	-4.09E+03	4.09E+03	-3.96E+03	3.97E+03	-3.96E+03	3.97E+03
1.75	4.35E-02	-7.15E+03	7.15E+03	-6.93E+03	6.95E+03	-3.96E+03	3.97E+03
2.50	0.126	-1.02E+04	1.02E+04	-9.90E+03	9.92E+03	-3.96E+03	3.97E+03
3.75	0.427	-1.53E+04	1.53E+04	-1.48E+04	1.49E+04	-3.96E+03	3.97E+03
5.00	1.01	-2.04E+04	2.04E+04	-1.98E+04	1.98E+04	-3.95E+03	3.96E+03

Table O-404. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{rad}})^*$ Max. (kN/°)
1.00	-13.3	-4.05E+03	3.74E+03	-4.00E+03	3.70E+03	-3.98E+03	3.71E+03
1.75	-40.8	-7.29E+03	6.35E+03	-7.19E+03	6.29E+03	-4.09E+03	3.62E+03
2.50	-83.3	-1.07E+04	8.82E+03	-1.06E+04	8.75E+03	-4.19E+03	3.53E+03
3.75	-188.	-1.69E+04	1.27E+04	-1.66E+04	1.26E+04	-4.38E+03	3.41E+03
5.00	-333.	-2.35E+04	1.64E+04	-2.31E+04	1.63E+04	-4.56E+03	3.32E+03

Table O–405. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-13.3	-4.06E+03	3.72E+03	-4.01E+03	3.68E+03	-4.00E+03	3.70E+03
1.75	-40.8	-7.35E+03	6.30E+03	-7.25E+03	6.24E+03	-4.12E+03	3.59E+03
2.50	-83.3	-1.08E+04	8.72E+03	-1.07E+04	8.65E+03	-4.24E+03	3.50E+03
3.75	-188.	-1.71E+04	1.25E+04	-1.69E+04	1.24E+04	-4.44E+03	3.37E+03
5.00	-333.	-2.40E+04	1.63E+04	-2.36E+04	1.62E+04	-4.65E+03	3.30E+03

Table O–406. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-171.	-3.86E+03	3.68E+03	-3.79E+03	3.35E+03	-3.62E+03	3.52E+03
1.75	-454.	-6.94E+03	8.62E+03	-6.81E+03	6.88E+03	-3.63E+03	4.19E+03
2.50	-840.	-1.04E+04	1.53E+04	-1.01E+04	1.23E+04	-3.71E+03	5.25E+03
3.75	-1.69E+03	-1.71E+04	2.88E+04	-1.65E+04	2.39E+04	-3.95E+03	6.82E+03
5.00	-2.62E+03	-2.48E+04	4.46E+04	-2.36E+04	3.95E+04	-4.20E+03	8.42E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–407. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$	$\langle F_z^{\text{rad}} \rangle$	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
(°)	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN/°)	(kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–408. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$	$\langle F_z^{\text{rad}} \rangle$	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
(°)	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN/°)	(kN/°)
1.00	-424.	-3.93E+03	4.05E+03	-3.90E+03	3.75E+03	-3.47E+03	4.18E+03
1.75	-920.	-6.78E+03	8.87E+03	-6.71E+03	6.01E+03	-3.31E+03	3.96E+03
2.50	-1.45E+03	-1.02E+04	1.40E+04	-1.01E+04	8.67E+03	-3.45E+03	4.05E+03
3.75	-2.60E+03	-1.73E+04	2.35E+04	-1.71E+04	1.67E+04	-3.86E+03	5.16E+03
5.00	-4.48E+03	-2.63E+04	3.55E+04	-2.61E+04	2.29E+04	-4.33E+03	5.48E+03



# TASK 1/PITCH MOTION/MODEL 5613

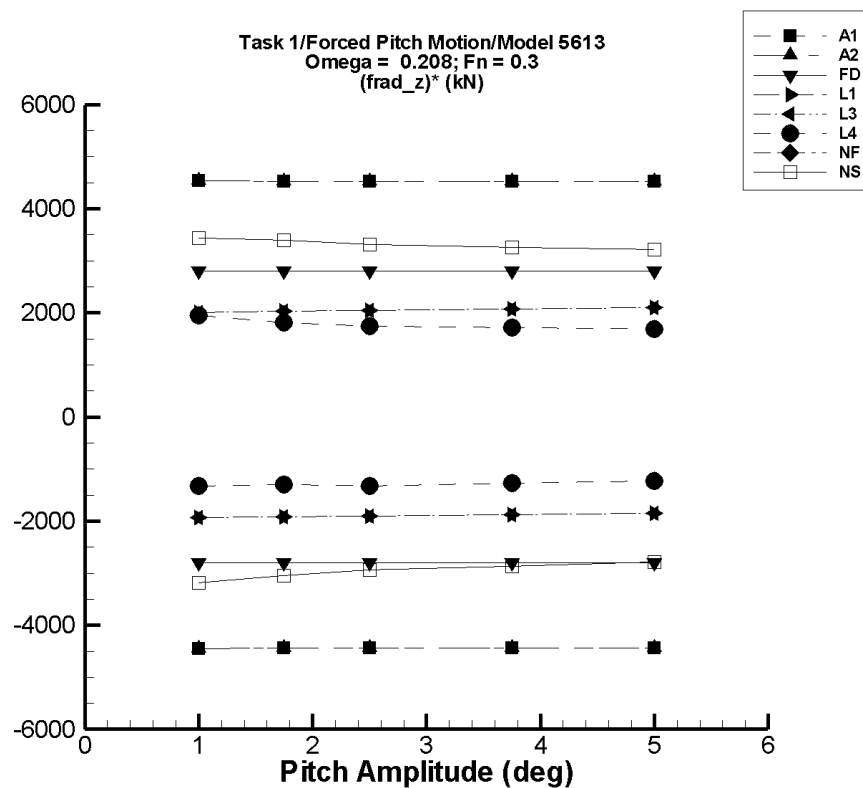


Figure O-52. Minimum and maximum of filtered  $(F_z^{\text{rad}} - \langle F_z^{\text{rad}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

TASK 1/PITCH MOTION/MODEL 5613

Table O-409. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

AEGIR-1							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	32.6	-4.42E+03	4.58E+03	-4.42E+03	4.58E+03	-4.45E+03	4.54E+03
1.75	61.7	-7.71E+03	7.99E+03	-7.70E+03	7.98E+03	-4.43E+03	4.52E+03
2.50	95.4	-1.10E+04	1.14E+04	-1.10E+04	1.14E+04	-4.44E+03	4.53E+03
3.75	161.	-1.65E+04	1.71E+04	-1.65E+04	1.71E+04	-4.44E+03	4.52E+03
5.00	239.	-2.20E+04	2.29E+04	-2.20E+04	2.29E+04	-4.44E+03	4.52E+03

Table O-410. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

AEGIR-2							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	32.6	-4.42E+03	4.58E+03	-4.42E+03	4.58E+03	-4.45E+03	4.54E+03
1.75	61.7	-7.71E+03	7.99E+03	-7.70E+03	7.98E+03	-4.43E+03	4.52E+03
2.50	95.4	-1.10E+04	1.14E+04	-1.10E+04	1.14E+04	-4.44E+03	4.53E+03
3.75	161.	-1.65E+04	1.71E+04	-1.65E+04	1.71E+04	-4.44E+03	4.52E+03
5.00	239.	-2.20E+04	2.29E+04	-2.20E+04	2.29E+04	-4.44E+03	4.52E+03

Table O-411. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

FREDYN							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-7.34E-03	-2.81E+03	2.81E+03	-2.80E+03	2.80E+03	-2.80E+03	2.80E+03
1.75	-3.85E-02	-4.91E+03	4.91E+03	-4.91E+03	4.91E+03	-2.80E+03	2.80E+03
2.50	-0.112	-7.02E+03	7.02E+03	-7.01E+03	7.01E+03	-2.80E+03	2.80E+03
3.75	-0.379	-1.05E+04	1.05E+04	-1.05E+04	1.05E+04	-2.80E+03	2.80E+03
5.00	-0.896	-1.40E+04	1.40E+04	-1.40E+04	1.40E+04	-2.80E+03	2.80E+03

Table O-412. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

LAMP-1							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-3.75E+03	-5.70E+03	-1.75E+03	-5.70E+03	-1.76E+03	-1.95E+03	2.00E+03
1.75	-3.80E+03	-7.18E+03	-266.	-7.18E+03	-268.	-1.93E+03	2.02E+03
2.50	-3.86E+03	-8.65E+03	1.23E+03	-8.65E+03	1.22E+03	-1.91E+03	2.04E+03
3.75	-4.03E+03	-1.11E+04	3.73E+03	-1.11E+04	3.72E+03	-1.88E+03	2.07E+03
5.00	-4.26E+03	-1.35E+04	6.24E+03	-1.35E+04	6.24E+03	-1.86E+03	2.10E+03

Table O–413. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{rad}})^*$ Max. (kN/°)
1.00	-3.75E+03	-5.70E+03	-1.75E+03	-5.70E+03	-1.76E+03	-1.95E+03	2.00E+03
1.75	-3.80E+03	-7.18E+03	-266.	-7.18E+03	-268.	-1.93E+03	2.02E+03
2.50	-3.86E+03	-8.65E+03	1.23E+03	-8.65E+03	1.22E+03	-1.91E+03	2.04E+03
3.75	-4.03E+03	-1.11E+04	3.73E+03	-1.11E+04	3.72E+03	-1.88E+03	2.07E+03
5.00	-4.26E+03	-1.35E+04	6.24E+03	-1.35E+04	6.24E+03	-1.86E+03	2.10E+03

Table O–414. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{rad}})^*$ Max. (kN/°)
1.00	-4.15E+03	-5.56E+03	-2.11E+03	-5.47E+03	-2.19E+03	-1.32E+03	1.96E+03
1.75	-4.36E+03	-6.72E+03	-1.07E+03	-6.62E+03	-1.18E+03	-1.29E+03	1.81E+03
2.50	-4.57E+03	-8.07E+03	-130.	-7.88E+03	-203.	-1.33E+03	1.75E+03
3.75	-4.92E+03	-1.04E+04	1.72E+03	-9.68E+03	1.53E+03	-1.27E+03	1.72E+03
5.00	-5.23E+03	-1.24E+04	3.45E+03	-1.14E+04	3.22E+03	-1.23E+03	1.69E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O–415. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–416. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	95.0	-3.15E+03	3.58E+03	-3.09E+03	3.54E+03	-3.19E+03	3.44E+03
1.75	43.6	-5.57E+03	6.06E+03	-5.29E+03	5.98E+03	-3.05E+03	3.39E+03
2.50	48.0	-7.58E+03	8.42E+03	-7.31E+03	8.32E+03	-2.94E+03	3.31E+03
3.75	-152.	-1.14E+04	1.22E+04	-1.09E+04	1.21E+04	-2.86E+03	3.26E+03
5.00	-529.	-1.53E+04	1.58E+04	-1.44E+04	1.55E+04	-2.78E+03	3.21E+03

# TASK 1/PITCH MOTION/MODEL 5613

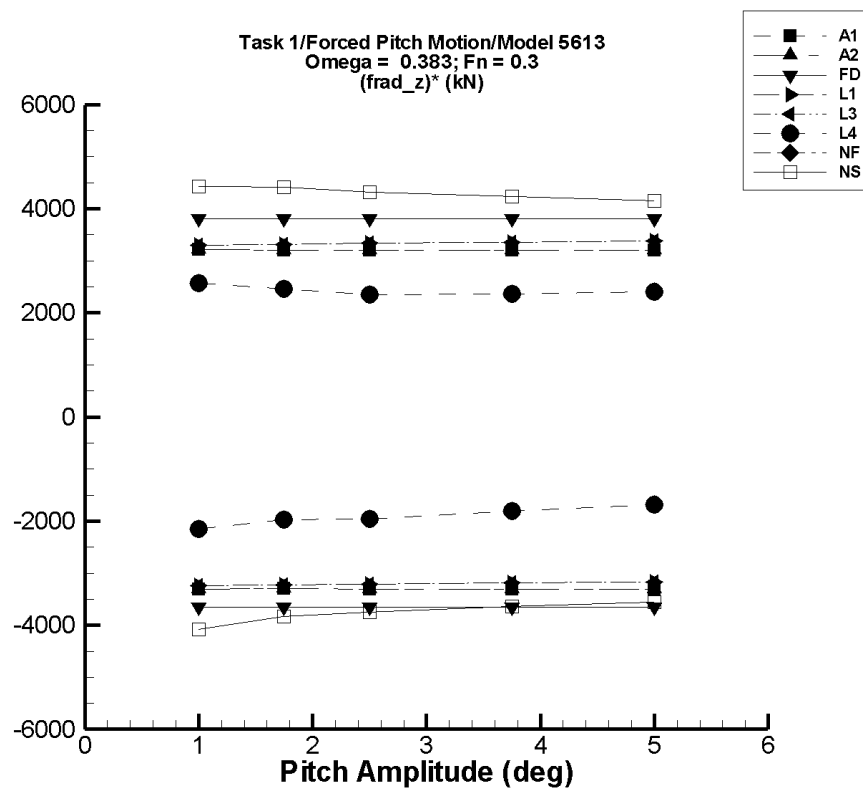


Figure O-53. Minimum and maximum of filtered  $(F_z^{\text{rad}} - \langle F_z^{\text{rad}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

TASK 1/PITCH MOTION/MODEL 5613

Table O–417. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

AEGIR-1							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-43.7	-3.37E+03	3.18E+03	-3.36E+03	3.17E+03	-3.31E+03	3.21E+03
1.75	-73.4	-5.87E+03	5.54E+03	-5.85E+03	5.52E+03	-3.30E+03	3.20E+03
2.50	-101.	-8.40E+03	7.91E+03	-8.36E+03	7.89E+03	-3.31E+03	3.20E+03
3.75	-142.	-1.26E+04	1.19E+04	-1.25E+04	1.18E+04	-3.31E+03	3.19E+03
5.00	-176.	-1.68E+04	1.58E+04	-1.68E+04	1.58E+04	-3.32E+03	3.19E+03

Table O–418. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

AEGIR-2							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-43.7	-3.37E+03	3.18E+03	-3.36E+03	3.17E+03	-3.31E+03	3.21E+03
1.75	-73.4	-5.87E+03	5.54E+03	-5.85E+03	5.52E+03	-3.30E+03	3.20E+03
2.50	-101.	-8.40E+03	7.91E+03	-8.36E+03	7.89E+03	-3.31E+03	3.20E+03
3.75	-142.	-1.26E+04	1.19E+04	-1.25E+04	1.18E+04	-3.31E+03	3.19E+03
5.00	-176.	-1.68E+04	1.58E+04	-1.68E+04	1.58E+04	-3.32E+03	3.19E+03

Table O–419. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>FREDYN</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{rad}})^*$ Max. (kN/°)
1.00	2.04E-03	-3.74E+03	3.74E+03	-3.73E+03	3.73E+03	-3.73E+03	3.73E+03
1.75	1.08E-02	-6.55E+03	6.55E+03	-6.53E+03	6.53E+03	-3.73E+03	3.73E+03
2.50	3.03E-02	-9.36E+03	9.36E+03	-9.32E+03	9.32E+03	-3.73E+03	3.73E+03
3.75	0.102	-1.40E+04	1.40E+04	-1.40E+04	1.40E+04	-3.73E+03	3.73E+03
5.00	0.241	-1.87E+04	1.87E+04	-1.86E+04	1.86E+04	-3.73E+03	3.73E+03

Table O–420. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{rad}})^*$ Max. (kN/°)
1.00	-3.75E+03	-7.01E+03	-459.	-7.01E+03	-464.	-3.25E+03	3.29E+03
1.75	-3.80E+03	-9.47E+03	1.99E+03	-9.47E+03	1.98E+03	-3.24E+03	3.31E+03
2.50	-3.87E+03	-1.19E+04	4.44E+03	-1.19E+04	4.43E+03	-3.22E+03	3.32E+03
3.75	-4.04E+03	-1.61E+04	8.53E+03	-1.61E+04	8.51E+03	-3.20E+03	3.35E+03
5.00	-4.28E+03	-2.02E+04	1.26E+04	-2.02E+04	1.26E+04	-3.18E+03	3.37E+03



Table O-421. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-3.75E+03	-7.01E+03	-460.	-7.01E+03	-464.	-3.25E+03	3.29E+03
1.75	-3.80E+03	-9.47E+03	1.99E+03	-9.46E+03	1.98E+03	-3.24E+03	3.30E+03
2.50	-3.87E+03	-1.19E+04	4.44E+03	-1.19E+04	4.43E+03	-3.22E+03	3.32E+03
3.75	-4.04E+03	-1.61E+04	8.53E+03	-1.60E+04	8.51E+03	-3.20E+03	3.35E+03
5.00	-4.28E+03	-2.02E+04	1.26E+04	-2.02E+04	1.26E+04	-3.18E+03	3.37E+03

Table O-422. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	-4.15E+03	-6.36E+03	-1.52E+03	-6.31E+03	-1.59E+03	-2.16E+03	2.57E+03
1.75	-4.41E+03	-8.03E+03	-27.4	-7.87E+03	-115.	-1.98E+03	2.46E+03
2.50	-4.66E+03	-9.98E+03	1.48E+03	-9.58E+03	1.19E+03	-1.97E+03	2.34E+03
3.75	-5.10E+03	-1.27E+04	4.30E+03	-1.19E+04	3.72E+03	-1.81E+03	2.35E+03
5.00	-5.55E+03	-1.54E+04	8.04E+03	-1.40E+04	6.46E+03	-1.70E+03	2.40E+03

TASK 1/PITCH MOTION/MODEL 5613

Table O-423. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O-424. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	45.9	-4.11E+03	4.54E+03	-4.04E+03	4.47E+03	-4.09E+03	4.43E+03
1.75	-87.4	-7.12E+03	7.74E+03	-6.79E+03	7.63E+03	-3.83E+03	4.41E+03
2.50	-171.	-1.02E+04	1.08E+04	-9.54E+03	1.06E+04	-3.75E+03	4.32E+03
3.75	-475.	-1.54E+04	1.56E+04	-1.41E+04	1.54E+04	-3.64E+03	4.23E+03
5.00	-870.	-2.07E+04	2.04E+04	-1.87E+04	1.99E+04	-3.56E+03	4.15E+03

# TASK 1/PITCH MOTION/MODEL 5613

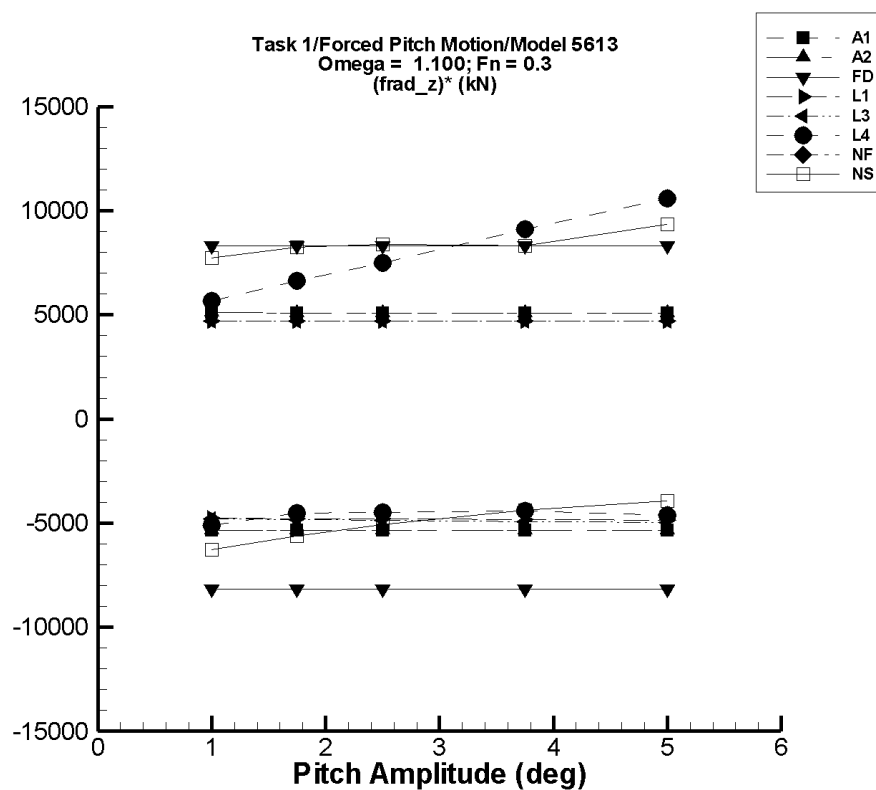


Figure O-54. Minimum and maximum of filtered  $(F_z^{\text{rad}} - \langle F_z^{\text{rad}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O-425. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	14.7	-5.50E+03	5.28E+03	-5.34E+03	5.13E+03	-5.36E+03	5.12E+03
1.75	32.0	-9.59E+03	9.20E+03	-9.31E+03	8.95E+03	-5.34E+03	5.09E+03
2.50	55.1	-1.37E+04	1.32E+04	-1.33E+04	1.28E+04	-5.34E+03	5.10E+03
3.75	106.	-2.05E+04	1.98E+04	-1.99E+04	1.92E+04	-5.34E+03	5.09E+03
5.00	173.	-2.74E+04	2.64E+04	-2.66E+04	2.57E+04	-5.35E+03	5.10E+03

Table O-426. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
1.00	14.7	-5.50E+03	5.28E+03	-5.34E+03	5.13E+03	-5.36E+03	5.12E+03
1.75	32.0	-9.59E+03	9.20E+03	-9.31E+03	8.95E+03	-5.34E+03	5.09E+03
2.50	55.1	-1.37E+04	1.32E+04	-1.33E+04	1.28E+04	-5.34E+03	5.10E+03
3.75	106.	-2.05E+04	1.98E+04	-1.99E+04	1.92E+04	-5.34E+03	5.09E+03
5.00	173.	-2.74E+04	2.64E+04	-2.66E+04	2.57E+04	-5.35E+03	5.10E+03

Table O-427. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>FREDYN</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{rad}})^*$ Max. (kN/°)
1.00	8.82E-03	-8.38E+03	8.38E+03	-8.18E+03	8.33E+03	-8.18E+03	8.33E+03
1.75	4.26E-02	-1.47E+04	1.47E+04	-1.43E+04	1.46E+04	-8.18E+03	8.33E+03
2.50	0.123	-2.09E+04	2.10E+04	-2.05E+04	2.08E+04	-8.18E+03	8.33E+03
3.75	0.410	-3.14E+04	3.14E+04	-3.07E+04	3.12E+04	-8.18E+03	8.33E+03
5.00	0.968	-4.19E+04	4.19E+04	-4.09E+04	4.16E+04	-8.18E+03	8.33E+03

Table O-428. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-1</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{rad}})^*$ Max. (kN/°)
1.00	-3.79E+03	-8.60E+03	987.	-8.55E+03	934.	-4.76E+03	4.72E+03
1.75	-3.91E+03	-1.24E+04	4.44E+03	-1.23E+04	4.34E+03	-4.77E+03	4.72E+03
2.50	-4.10E+03	-1.62E+04	7.81E+03	-1.61E+04	7.68E+03	-4.79E+03	4.71E+03
3.75	-4.56E+03	-2.28E+04	1.33E+04	-2.26E+04	1.31E+04	-4.82E+03	4.70E+03
5.00	-5.20E+03	-2.98E+04	1.86E+04	-2.95E+04	1.85E+04	-4.85E+03	4.73E+03

Table O–429. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered $(F_z^{\text{rad}})^*$ Min. (kN/°)	Max. (kN/°)
1.00	-3.79E+03	-8.64E+03	990.	-8.58E+03	938.	-4.79E+03	4.73E+03
1.75	-3.91E+03	-1.24E+04	4.42E+03	-1.23E+04	4.33E+03	-4.82E+03	4.71E+03
2.50	-4.10E+03	-1.64E+04	7.76E+03	-1.62E+04	7.66E+03	-4.85E+03	4.70E+03
3.75	-4.56E+03	-2.32E+04	1.31E+04	-2.30E+04	1.31E+04	-4.91E+03	4.72E+03
5.00	-5.20E+03	-3.04E+04	1.84E+04	-3.00E+04	1.85E+04	-4.97E+03	4.73E+03

Table O–430. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered $(F_z^{\text{rad}})^*$ Min. (kN/°)	Max. (kN/°)
1.00	-4.33E+03	-9.62E+03	1.72E+03	-9.33E+03	1.42E+03	-5.00E+03	5.75E+03
1.75	-4.94E+03	-1.33E+04	8.01E+03	-1.27E+04	6.87E+03	-4.41E+03	6.75E+03
2.50	-5.66E+03	-1.68E+04	1.64E+04	-1.65E+04	1.34E+04	-4.34E+03	7.64E+03
3.75	-7.18E+03	-2.44E+04	3.16E+04	-2.31E+04	2.76E+04	-4.26E+03	9.28E+03
5.00	-8.57E+03	-3.20E+04	5.27E+04	-3.08E+04	4.54E+04	-4.45E+03	1.08E+04

TASK 1/PITCH MOTION/MODEL 5613

Table O–431. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$	$\langle F_z^{\text{rad}} \rangle$	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
(°)	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN/°)	(kN/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–432. Minimum and Maximum of Variables  $F_z^{\text{rad}}$  and  $(F_z^{\text{rad}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$	$\langle F_z^{\text{rad}} \rangle$	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
(°)	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN/°)	(kN/°)
1.00	-220.	-6.64E+03	7.74E+03	-6.48E+03	7.52E+03	-6.26E+03	7.74E+03
1.75	-1.04E+03	-1.13E+04	1.51E+04	-1.09E+04	1.34E+04	-5.62E+03	8.25E+03
2.50	-1.90E+03	-1.56E+04	2.49E+04	-1.46E+04	1.91E+04	-5.07E+03	8.39E+03
3.75	-3.30E+03	-2.17E+04	3.50E+04	-1.97E+04	2.79E+04	-4.38E+03	8.32E+03
5.00	-4.63E+03	-2.74E+04	5.24E+04	-2.43E+04	4.21E+04	-3.94E+03	9.35E+03

# TASK 1/PITCH MOTION/MODEL 5613

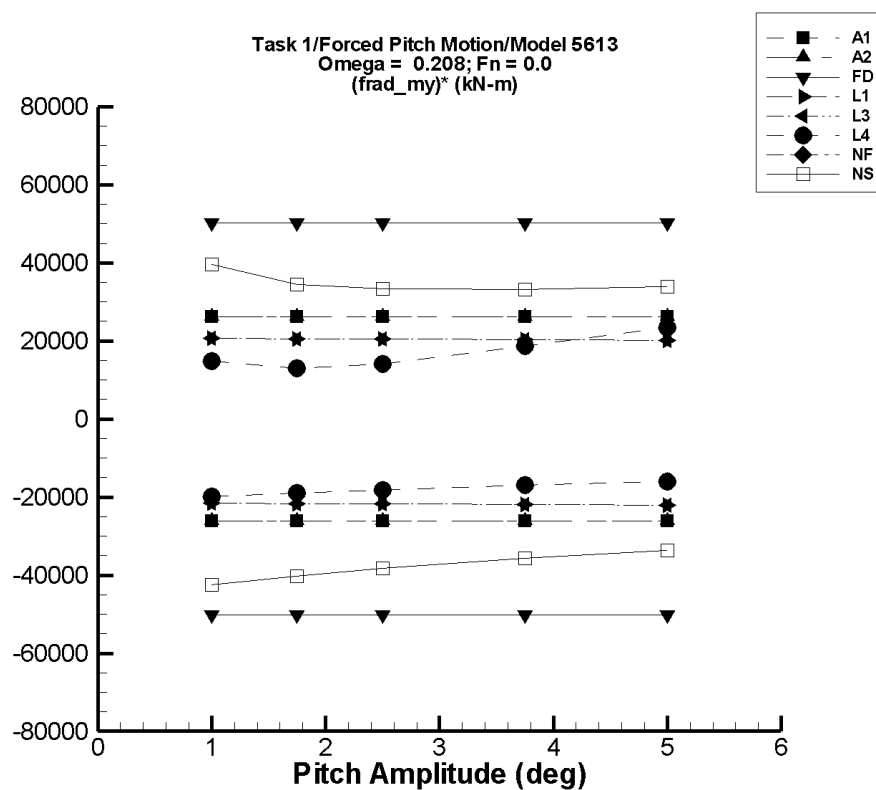


Figure O-55. Minimum and maximum of filtered  $(M_y^{\text{rad}} - \langle M_y^{\text{rad}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.



Table O-433. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	<b>Unfiltered <math>M_y^{\text{rad}}</math></b>		<b>Filtered <math>M_y^{\text{rad}}</math></b>		<b>Filtered <math>(M_y^{\text{rad}})^*</math></b>	
	<b>Mean (kN-m)</b>	<b>Min. (kN-m)</b>	<b>Max. (kN-m)</b>	<b>Min. (kN-m)</b>	<b>Max. (kN-m)</b>	<b>Min. (kN-m/°)</b>	<b>Max. (kN-m/°)</b>
1.00	-13.9	-2.69E+04	2.70E+04	-2.62E+04	2.62E+04	-2.62E+04	2.62E+04
1.75	-24.2	-4.69E+04	4.71E+04	-4.56E+04	4.57E+04	-2.61E+04	2.61E+04
2.50	-34.7	-6.70E+04	6.73E+04	-6.52E+04	6.53E+04	-2.61E+04	2.61E+04
3.75	-52.0	-1.01E+05	1.01E+05	-9.79E+04	9.80E+04	-2.61E+04	2.61E+04
5.00	-69.4	-1.34E+05	1.35E+05	-1.31E+05	1.31E+05	-2.61E+04	2.62E+04

Table O-434. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	<b>Unfiltered <math>M_y^{\text{rad}}</math></b>		<b>Filtered <math>M_y^{\text{rad}}</math></b>		<b>Filtered <math>(M_y^{\text{rad}})^*</math></b>	
	<b>Mean (kN-m)</b>	<b>Min. (kN-m)</b>	<b>Max. (kN-m)</b>	<b>Min. (kN-m)</b>	<b>Max. (kN-m)</b>	<b>Min. (kN-m/°)</b>	<b>Max. (kN-m/°)</b>
1.00	-13.9	-2.69E+04	2.70E+04	-2.62E+04	2.62E+04	-2.62E+04	2.62E+04
1.75	-24.2	-4.69E+04	4.71E+04	-4.56E+04	4.57E+04	-2.61E+04	2.61E+04
2.50	-34.7	-6.70E+04	6.73E+04	-6.52E+04	6.53E+04	-2.61E+04	2.61E+04
3.75	-52.0	-1.01E+05	1.01E+05	-9.79E+04	9.80E+04	-2.61E+04	2.61E+04
5.00	-69.4	-1.34E+05	1.35E+05	-1.31E+05	1.31E+05	-2.61E+04	2.62E+04

Table O-435. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>FREDYN</b>							
$\theta_a$	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-3.25E-03	-5.03E+04	5.03E+04	-5.02E+04	5.02E+04	-5.02E+04	5.02E+04
1.75	-5.22E-03	-8.80E+04	8.80E+04	-8.79E+04	8.79E+04	-5.02E+04	5.02E+04
2.50	8.00E-04	-1.26E+05	1.26E+05	-1.26E+05	1.26E+05	-5.02E+04	5.02E+04
3.75	2.12E-03	-1.89E+05	1.89E+05	-1.88E+05	1.88E+05	-5.02E+04	5.02E+04
5.00	-1.75E-03	-2.51E+05	2.51E+05	-2.51E+05	2.51E+05	-5.02E+04	5.02E+04

Table O-436. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-1</b>							
$\theta_a$	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	119.	-2.11E+04	2.11E+04	-2.11E+04	2.11E+04	-2.12E+04	2.10E+04
1.75	364.	-3.70E+04	3.70E+04	-3.69E+04	3.69E+04	-2.13E+04	2.09E+04
2.50	744.	-5.28E+04	5.28E+04	-5.28E+04	5.28E+04	-2.14E+04	2.08E+04
3.75	1.67E+03	-7.92E+04	7.92E+04	-7.92E+04	7.92E+04	-2.16E+04	2.07E+04
5.00	2.98E+03	-1.06E+05	1.06E+05	-1.06E+05	1.06E+05	-2.17E+04	2.05E+04

Table O-437. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	119.	-2.11E+04	2.11E+04	-2.11E+04	2.11E+04	-2.12E+04	2.10E+04
1.75	364.	-3.70E+04	3.70E+04	-3.69E+04	3.69E+04	-2.13E+04	2.09E+04
2.50	744.	-5.28E+04	5.28E+04	-5.28E+04	5.28E+04	-2.14E+04	2.08E+04
3.75	1.67E+03	-7.92E+04	7.92E+04	-7.92E+04	7.92E+04	-2.16E+04	2.07E+04
5.00	2.98E+03	-1.06E+05	1.06E+05	-1.06E+05	1.06E+05	-2.17E+04	2.05E+04

Table O-438. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-518.	-1.99E+04	1.50E+04	-1.99E+04	1.47E+04	-1.94E+04	1.53E+04
1.75	-1.29E+03	-3.36E+04	2.31E+04	-3.36E+04	2.21E+04	-1.85E+04	1.34E+04
2.50	-2.16E+03	-4.64E+04	3.91E+04	-4.64E+04	3.42E+04	-1.77E+04	1.46E+04
3.75	-3.52E+03	-6.56E+04	7.68E+04	-6.56E+04	6.81E+04	-1.65E+04	1.91E+04
5.00	-4.60E+03	-8.26E+04	1.32E+05	-8.23E+04	1.14E+05	-1.55E+04	2.38E+04

TASK 1/PITCH MOTION/MODEL 5613

Table O–439. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O–440. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-2.58E+03	-4.54E+04	3.83E+04	-4.50E+04	3.70E+04	-4.25E+04	3.96E+04
1.75	-5.45E+03	-7.68E+04	6.49E+04	-7.61E+04	5.48E+04	-4.04E+04	3.44E+04
2.50	-9.30E+03	-1.07E+05	7.81E+04	-1.05E+05	7.39E+04	-3.82E+04	3.33E+04
3.75	-1.57E+04	-1.52E+05	1.33E+05	-1.49E+05	1.09E+05	-3.57E+04	3.32E+04
5.00	-2.18E+04	-1.94E+05	2.02E+05	-1.90E+05	1.48E+05	-3.36E+04	3.39E+04

# TASK 1/PITCH MOTION/MODEL 5613

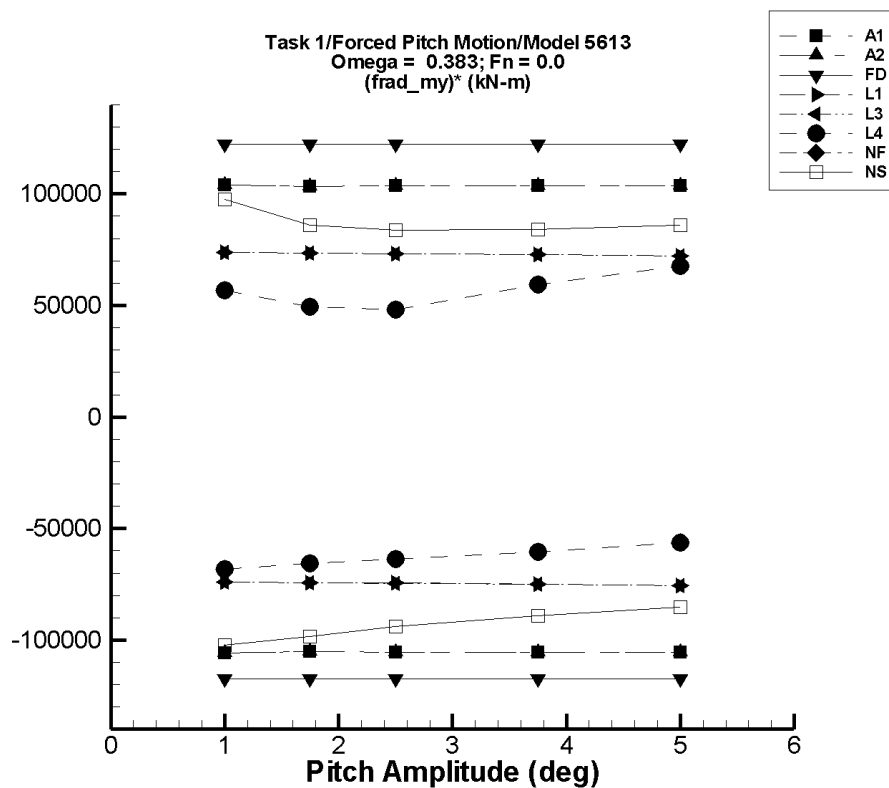


Figure O-56. Minimum and maximum of filtered  $(M_y^{\text{rad}} - \langle M_y^{\text{rad}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831 \text{ rad/s}$ ,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154 \text{ m}$ .

Table O-441. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-56.9	-1.06E+05	1.05E+05	-1.06E+05	1.04E+05	-1.06E+05	1.04E+05
1.75	-99.2	-1.85E+05	1.83E+05	-1.84E+05	1.81E+05	-1.05E+05	1.03E+05
2.50	-142.	-2.64E+05	2.62E+05	-2.63E+05	2.59E+05	-1.05E+05	1.04E+05
3.75	-213.	-3.97E+05	3.92E+05	-3.95E+05	3.88E+05	-1.05E+05	1.04E+05
5.00	-284.	-5.29E+05	5.24E+05	-5.27E+05	5.18E+05	-1.05E+05	1.04E+05

Table O-442. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-56.9	-1.06E+05	1.05E+05	-1.06E+05	1.04E+05	-1.06E+05	1.04E+05
1.75	-99.2	-1.85E+05	1.83E+05	-1.84E+05	1.81E+05	-1.05E+05	1.03E+05
2.50	-142.	-2.64E+05	2.62E+05	-2.63E+05	2.59E+05	-1.05E+05	1.04E+05
3.75	-213.	-3.97E+05	3.92E+05	-3.95E+05	3.88E+05	-1.05E+05	1.04E+05
5.00	-284.	-5.29E+05	5.24E+05	-5.27E+05	5.18E+05	-1.05E+05	1.04E+05

Table O-443. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>FREDYN</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-5.33E-03	-1.20E+05	1.20E+05	-1.20E+05	1.20E+05	-1.20E+05	1.20E+05
1.75	-3.05E-02	-2.10E+05	2.10E+05	-2.10E+05	2.09E+05	-1.20E+05	1.20E+05
2.50	-7.38E-03	-3.00E+05	3.00E+05	-3.00E+05	2.99E+05	-1.20E+05	1.20E+05
3.75	-3.99E-02	-4.50E+05	4.50E+05	-4.50E+05	4.49E+05	-1.20E+05	1.20E+05
5.00	-3.88E-02	-6.01E+05	6.01E+05	-6.00E+05	5.98E+05	-1.20E+05	1.20E+05

Table O-444. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	404.	-7.40E+04	7.39E+04	-7.39E+04	7.38E+04	-7.43E+04	7.34E+04
1.75	1.24E+03	-1.29E+05	1.29E+05	-1.29E+05	1.29E+05	-7.46E+04	7.31E+04
2.50	2.52E+03	-1.85E+05	1.85E+05	-1.85E+05	1.85E+05	-7.49E+04	7.28E+04
3.75	5.68E+03	-2.78E+05	2.77E+05	-2.77E+05	2.77E+05	-7.54E+04	7.23E+04
5.00	1.01E+04	-3.70E+05	3.69E+05	-3.70E+05	3.69E+05	-7.59E+04	7.18E+04

Table O-445. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	404.	-7.40E+04	7.39E+04	-7.39E+04	7.38E+04	-7.43E+04	7.34E+04
1.75	1.24E+03	-1.29E+05	1.29E+05	-1.29E+05	1.29E+05	-7.46E+04	7.31E+04
2.50	2.52E+03	-1.85E+05	1.85E+05	-1.85E+05	1.84E+05	-7.49E+04	7.28E+04
3.75	5.68E+03	-2.78E+05	2.77E+05	-2.77E+05	2.77E+05	-7.54E+04	7.23E+04
5.00	1.01E+04	-3.70E+05	3.69E+05	-3.70E+05	3.69E+05	-7.60E+04	7.17E+04

Table O-446. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-1.72E+03	-7.06E+04	5.47E+04	-7.04E+04	5.46E+04	-6.87E+04	5.63E+04
1.75	-4.32E+03	-1.20E+05	8.16E+04	-1.20E+05	8.12E+04	-6.61E+04	4.89E+04
2.50	-7.32E+03	-1.68E+05	1.24E+05	-1.67E+05	1.12E+05	-6.39E+04	4.79E+04
3.75	-1.21E+04	-2.40E+05	2.61E+05	-2.40E+05	2.09E+05	-6.07E+04	5.90E+04
5.00	-1.63E+04	-3.01E+05	4.14E+05	-2.99E+05	3.21E+05	-5.66E+04	6.74E+04



TASK 1/PITCH MOTION/MODEL 5613

Table O-447. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O-448. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-6.34E+03	-1.10E+05	9.45E+04	-1.09E+05	9.13E+04	-1.02E+05	9.77E+04
1.75	-1.29E+04	-1.88E+05	1.64E+05	-1.85E+05	1.37E+05	-9.83E+04	8.59E+04
2.50	-2.08E+04	-2.59E+05	2.30E+05	-2.56E+05	1.88E+05	-9.40E+04	8.36E+04
3.75	-3.51E+04	-3.80E+05	3.37E+05	-3.69E+05	2.80E+05	-8.91E+04	8.40E+04
5.00	-4.90E+04	-4.88E+05	5.13E+05	-4.75E+05	3.82E+05	-8.52E+04	8.61E+04

# TASK 1/PITCH MOTION/MODEL 5613

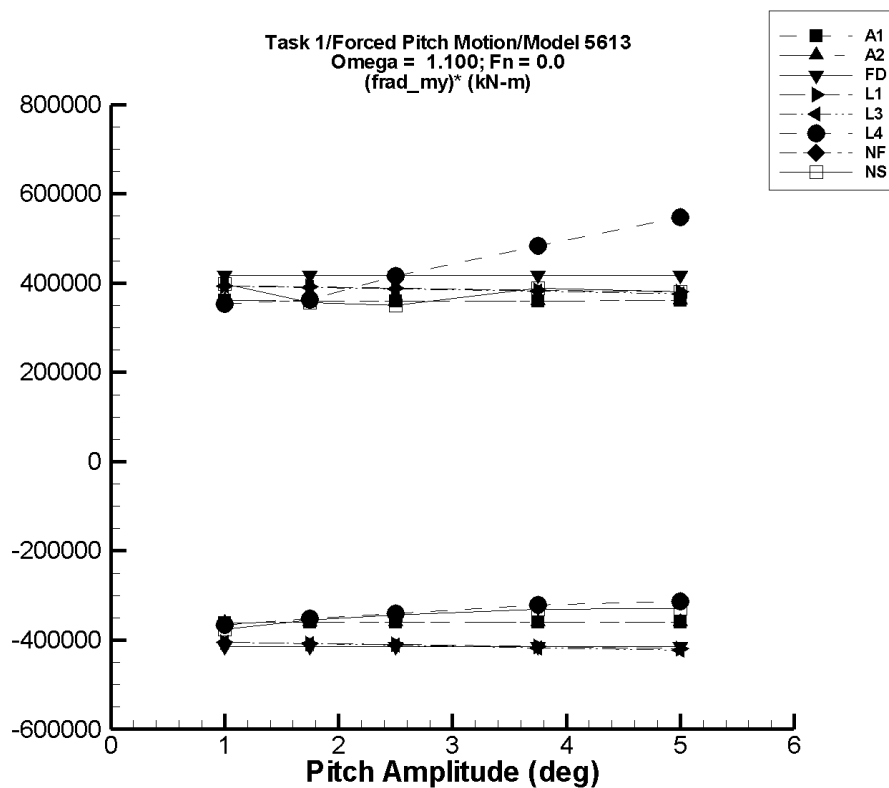


Figure O-57. Minimum and maximum of filtered  $(M_y^{\text{rad}} - \langle M_y^{\text{rad}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000$  rad/s,  $F_n = 0.0$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O-449. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{rad}})^*$ Max. (kN-m/°)
1.00	-465.	-3.73E+05	3.72E+05	-3.62E+05	3.61E+05	-3.61E+05	3.61E+05
1.75	-810.	-6.50E+05	6.49E+05	-6.30E+05	6.29E+05	-3.60E+05	3.60E+05
2.50	-1.16E+03	-9.29E+05	9.27E+05	-9.01E+05	8.99E+05	-3.60E+05	3.60E+05
3.75	-1.74E+03	-1.39E+06	1.39E+06	-1.35E+06	1.35E+06	-3.60E+05	3.60E+05
5.00	-2.32E+03	-1.86E+06	1.86E+06	-1.80E+06	1.80E+06	-3.60E+05	3.61E+05

Table O-450. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{rad}})^*$ Max. (kN-m/°)
1.00	-465.	-3.73E+05	3.72E+05	-3.62E+05	3.61E+05	-3.61E+05	3.61E+05
1.75	-810.	-6.50E+05	6.49E+05	-6.30E+05	6.29E+05	-3.60E+05	3.60E+05
2.50	-1.16E+03	-9.29E+05	9.27E+05	-9.01E+05	8.99E+05	-3.60E+05	3.60E+05
3.75	-1.74E+03	-1.39E+06	1.39E+06	-1.35E+06	1.35E+06	-3.60E+05	3.60E+05
5.00	-2.32E+03	-1.86E+06	1.86E+06	-1.80E+06	1.80E+06	-3.60E+05	3.61E+05

Table O–451. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>FREDYN</b>							
$\theta_a$	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-1.16E-02	-4.29E+05	4.29E+05	-4.15E+05	4.17E+05	-4.15E+05	4.17E+05
1.75	2.47E-02	-7.50E+05	7.51E+05	-7.27E+05	7.29E+05	-4.15E+05	4.17E+05
2.50	-3.90E-02	-1.07E+06	1.07E+06	-1.04E+06	1.04E+06	-4.15E+05	4.17E+05
3.75	0.151	-1.61E+06	1.61E+06	-1.56E+06	1.56E+06	-4.15E+05	4.17E+05
5.00	-7.88E-02	-2.14E+06	2.14E+06	-2.08E+06	2.08E+06	-4.15E+05	4.17E+05

Table O–452. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-1</b>							
$\theta_a$	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.87E+03	-4.06E+05	4.02E+05	-4.01E+05	3.98E+05	-4.03E+05	3.96E+05
1.75	5.74E+03	-7.12E+05	7.02E+05	-7.04E+05	6.94E+05	-4.06E+05	3.93E+05
2.50	1.17E+04	-1.02E+06	9.99E+05	-1.01E+06	9.89E+05	-4.08E+05	3.91E+05
3.75	2.64E+04	-1.54E+06	1.49E+06	-1.52E+06	1.48E+06	-4.12E+05	3.87E+05
5.00	4.69E+04	-2.06E+06	1.98E+06	-2.04E+06	1.96E+06	-4.17E+05	3.83E+05

Table O–453. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.87E+03	-4.06E+05	4.01E+05	-4.01E+05	3.97E+05	-4.03E+05	3.95E+05
1.75	5.74E+03	-7.14E+05	6.99E+05	-7.06E+05	6.92E+05	-4.06E+05	3.92E+05
2.50	1.17E+04	-1.02E+06	9.94E+05	-1.01E+06	9.84E+05	-4.10E+05	3.89E+05
3.75	2.64E+04	-1.55E+06	1.48E+06	-1.53E+06	1.47E+06	-4.15E+05	3.84E+05
5.00	4.69E+04	-2.08E+06	1.96E+06	-2.05E+06	1.94E+06	-4.20E+05	3.79E+05

Table O–454. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-8.36E+03	-3.79E+05	3.70E+05	-3.71E+05	3.49E+05	-3.62E+05	3.57E+05
1.75	-1.76E+04	-6.38E+05	7.03E+05	-6.23E+05	6.28E+05	-3.46E+05	3.69E+05
2.50	-2.80E+04	-8.78E+05	1.16E+06	-8.65E+05	1.03E+06	-3.35E+05	4.21E+05
3.75	-3.87E+04	-1.25E+06	2.07E+06	-1.22E+06	1.80E+06	-3.15E+05	4.90E+05
5.00	-5.11E+04	-1.64E+06	3.11E+06	-1.58E+06	2.73E+06	-3.06E+05	5.56E+05

TASK 1/PITCH MOTION/MODEL 5613

Table O-455. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NFA							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O-456. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.0$ )

NSHIPMO							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-2.68E+04	-4.08E+05	3.91E+05	-4.03E+05	3.72E+05	-3.76E+05	3.98E+05
1.75	-5.39E+04	-6.89E+05	7.55E+05	-6.76E+05	5.70E+05	-3.56E+05	3.56E+05
2.50	-7.95E+04	-9.79E+05	1.11E+06	-9.39E+05	7.95E+05	-3.44E+05	3.50E+05
3.75	-1.26E+05	-1.41E+06	1.77E+06	-1.37E+06	1.33E+06	-3.31E+05	3.88E+05
5.00	-1.94E+05	-1.91E+06	2.47E+06	-1.84E+06	1.71E+06	-3.30E+05	3.80E+05

# TASK 1/PITCH MOTION/MODEL 5613

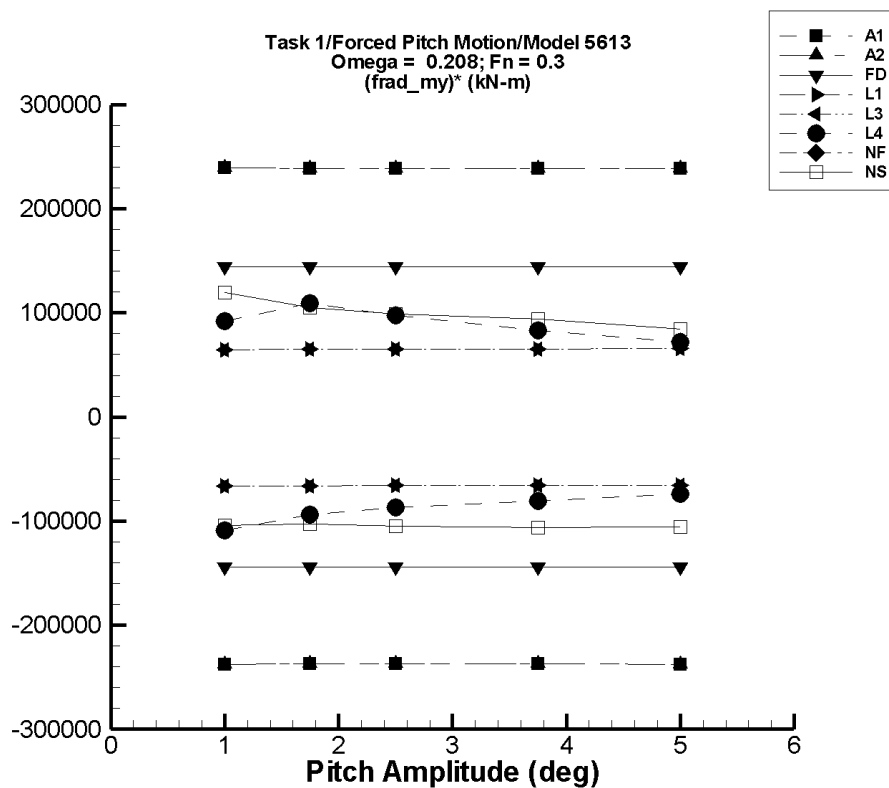


Figure O-58. Minimum and maximum of filtered  $(M_y^{\text{rad}} - \langle M_y^{\text{rad}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.2079$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O–457. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	229.	-2.38E+05	2.40E+05	-2.38E+05	2.40E+05	-2.38E+05	2.39E+05
1.75	399.	-4.15E+05	4.18E+05	-4.14E+05	4.18E+05	-2.37E+05	2.39E+05
2.50	570.	-5.93E+05	5.98E+05	-5.92E+05	5.97E+05	-2.37E+05	2.39E+05
3.75	855.	-8.90E+05	8.97E+05	-8.88E+05	8.96E+05	-2.37E+05	2.39E+05
5.00	1.14E+03	-1.19E+06	1.20E+06	-1.19E+06	1.20E+06	-2.37E+05	2.39E+05

Table O–458. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	229.	-2.38E+05	2.40E+05	-2.38E+05	2.40E+05	-2.38E+05	2.39E+05
1.75	399.	-4.15E+05	4.18E+05	-4.14E+05	4.18E+05	-2.37E+05	2.39E+05
2.50	570.	-5.93E+05	5.98E+05	-5.92E+05	5.97E+05	-2.37E+05	2.39E+05
3.75	855.	-8.90E+05	8.97E+05	-8.88E+05	8.96E+05	-2.37E+05	2.39E+05
5.00	1.14E+03	-1.19E+06	1.20E+06	-1.19E+06	1.20E+06	-2.37E+05	2.39E+05



Table O-459. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>FREDYN</b>							
$\theta_a$	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.67E-03	-1.45E+05	1.45E+05	-1.44E+05	1.44E+05	-1.44E+05	1.44E+05
1.75	-1.89E-02	-2.53E+05	2.53E+05	-2.53E+05	2.53E+05	-1.44E+05	1.44E+05
2.50	-2.63E-02	-3.61E+05	3.61E+05	-3.61E+05	3.61E+05	-1.44E+05	1.44E+05
3.75	2.70E-02	-5.42E+05	5.42E+05	-5.42E+05	5.42E+05	-1.44E+05	1.44E+05
5.00	-5.71E-02	-7.23E+05	7.23E+05	-7.22E+05	7.22E+05	-1.44E+05	1.44E+05

Table O-460. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-1</b>							
$\theta_a$	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-1.08E+04	-7.61E+04	5.49E+04	-7.61E+04	5.48E+04	-6.53E+04	6.56E+04
1.75	-1.11E+04	-1.25E+05	1.04E+05	-1.25E+05	1.04E+05	-6.51E+04	6.58E+04
2.50	-1.16E+04	-1.74E+05	1.53E+05	-1.74E+05	1.53E+05	-6.50E+04	6.60E+04
3.75	-1.26E+04	-2.56E+05	2.36E+05	-2.56E+05	2.36E+05	-6.49E+04	6.63E+04
5.00	-1.42E+04	-3.38E+05	3.19E+05	-3.38E+05	3.19E+05	-6.47E+04	6.66E+04

Table O–461. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{rad}})^*$ Max. (kN-m/°)
1.00	-1.08E+04	-7.61E+04	5.49E+04	-7.61E+04	5.48E+04	-6.53E+04	6.57E+04
1.75	-1.11E+04	-1.25E+05	1.04E+05	-1.25E+05	1.04E+05	-6.52E+04	6.58E+04
2.50	-1.16E+04	-1.74E+05	1.53E+05	-1.74E+05	1.53E+05	-6.50E+04	6.60E+04
3.75	-1.27E+04	-2.56E+05	2.36E+05	-2.56E+05	2.36E+05	-6.49E+04	6.63E+04
5.00	-1.42E+04	-3.38E+05	3.19E+05	-3.38E+05	3.19E+05	-6.48E+04	6.66E+04

Table O–462. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{rad}})^*$ Max. (kN-m/°)
1.00	-3.57E+04	-1.43E+05	6.49E+04	-1.42E+05	5.81E+04	-1.07E+05	9.39E+04
1.75	-4.91E+04	-2.17E+05	1.48E+05	-2.10E+05	1.45E+05	-9.21E+04	1.11E+05
2.50	-6.13E+04	-2.89E+05	1.96E+05	-2.75E+05	1.86E+05	-8.55E+04	9.90E+04
3.75	-7.24E+04	-3.76E+05	2.59E+05	-3.71E+05	2.44E+05	-7.96E+04	8.45E+04
5.00	-8.09E+04	-4.48E+05	2.93E+05	-4.43E+05	2.85E+05	-7.24E+04	7.32E+04

TASK 1/PITCH MOTION/MODEL 5613

Table O-463. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O-464. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.2079$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.71E+04	-8.80E+04	1.37E+05	-8.69E+04	1.37E+05	-1.04E+05	1.20E+05
1.75	2.53E+04	-1.57E+05	2.22E+05	-1.54E+05	2.09E+05	-1.03E+05	1.05E+05
2.50	3.73E+04	-2.31E+05	2.91E+05	-2.25E+05	2.85E+05	-1.05E+05	9.92E+04
3.75	4.90E+04	-3.57E+05	4.10E+05	-3.48E+05	4.02E+05	-1.06E+05	9.42E+04
5.00	5.83E+04	-4.90E+05	5.47E+05	-4.68E+05	4.79E+05	-1.05E+05	8.42E+04

# TASK 1/PITCH MOTION/MODEL 5613

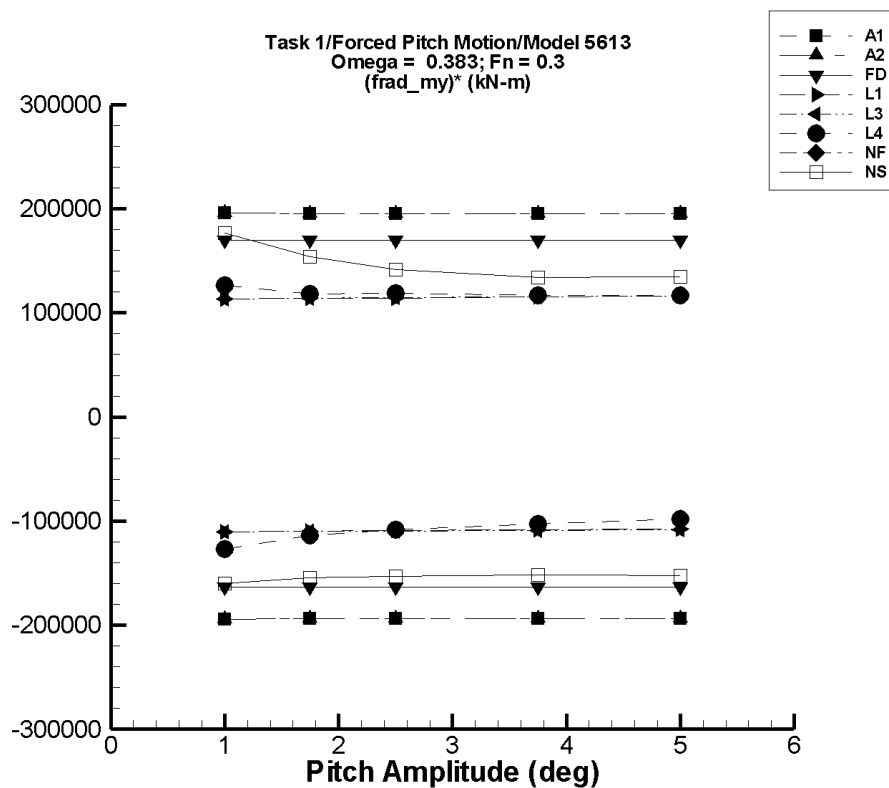


Figure O-59. Minimum and maximum of filtered  $(M_y^{\text{rad}} - \langle M_y^{\text{rad}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 0.3831$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O-465. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{rad}})^*$ Max. (kN-m/°)
1.00	-1.07E+03	-1.99E+05	1.96E+05	-1.95E+05	1.95E+05	-1.94E+05	1.96E+05
1.75	-1.87E+03	-3.48E+05	3.41E+05	-3.40E+05	3.40E+05	-1.93E+05	1.95E+05
2.50	-2.67E+03	-4.97E+05	4.87E+05	-4.87E+05	4.85E+05	-1.94E+05	1.95E+05
3.75	-4.00E+03	-7.45E+05	7.31E+05	-7.30E+05	7.28E+05	-1.94E+05	1.95E+05
5.00	-5.34E+03	-9.95E+05	9.76E+05	-9.75E+05	9.72E+05	-1.94E+05	1.95E+05

Table O-466. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{rad}})^*$ Max. (kN-m/°)
1.00	-1.07E+03	-1.99E+05	1.96E+05	-1.95E+05	1.95E+05	-1.94E+05	1.96E+05
1.75	-1.87E+03	-3.48E+05	3.41E+05	-3.40E+05	3.40E+05	-1.93E+05	1.95E+05
2.50	-2.67E+03	-4.97E+05	4.87E+05	-4.87E+05	4.85E+05	-1.94E+05	1.95E+05
3.75	-4.00E+03	-7.45E+05	7.31E+05	-7.30E+05	7.28E+05	-1.94E+05	1.95E+05
5.00	-5.34E+03	-9.95E+05	9.76E+05	-9.75E+05	9.72E+05	-1.94E+05	1.95E+05

TASK 1/PITCH MOTION/MODEL 5613

Table O-467. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

FREDYN							
$\theta_a$	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
(°)	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m/°)	(kN-m/°)
1.00	4.84E-03	-1.67E+05	1.67E+05	-1.67E+05	1.67E+05	-1.67E+05	1.67E+05
1.75	1.98E-02	-2.93E+05	2.93E+05	-2.92E+05	2.92E+05	-1.67E+05	1.67E+05
2.50	2.60E-02	-4.18E+05	4.18E+05	-4.17E+05	4.17E+05	-1.67E+05	1.67E+05
3.75	5.18E-02	-6.27E+05	6.27E+05	-6.25E+05	6.25E+05	-1.67E+05	1.67E+05
5.00	5.18E-02	-8.36E+05	8.36E+05	-8.33E+05	8.33E+05	-1.67E+05	1.67E+05

Table O-468. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

LAMP-1							
$\theta_a$	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
(°)	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m/°)	(kN-m/°)
1.00	-1.07E+04	-1.22E+05	1.02E+05	-1.22E+05	1.02E+05	-1.11E+05	1.12E+05
1.75	-1.06E+04	-2.05E+05	1.87E+05	-2.04E+05	1.87E+05	-1.11E+05	1.13E+05
2.50	-1.05E+04	-2.87E+05	2.73E+05	-2.86E+05	2.73E+05	-1.10E+05	1.13E+05
3.75	-1.03E+04	-4.21E+05	4.18E+05	-4.21E+05	4.18E+05	-1.09E+05	1.14E+05
5.00	-1.01E+04	-5.54E+05	5.66E+05	-5.54E+05	5.65E+05	-1.09E+05	1.15E+05

Table O–469. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{rad}})^*$ Max. (kN-m/°)
1.00	-1.07E+04	-1.22E+05	1.02E+05	-1.22E+05	1.02E+05	-1.11E+05	1.13E+05
1.75	-1.06E+04	-2.05E+05	1.87E+05	-2.05E+05	1.87E+05	-1.11E+05	1.13E+05
2.50	-1.05E+04	-2.87E+05	2.74E+05	-2.87E+05	2.73E+05	-1.11E+05	1.13E+05
3.75	-1.03E+04	-4.23E+05	4.19E+05	-4.22E+05	4.18E+05	-1.10E+05	1.14E+05
5.00	-1.01E+04	-5.56E+05	5.66E+05	-5.56E+05	5.65E+05	-1.09E+05	1.15E+05

Table O–470. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{rad}})^*$ Max. (kN-m/°)
1.00	-3.64E+04	-1.66E+05	9.61E+04	-1.64E+05	8.92E+04	-1.28E+05	1.26E+05
1.75	-5.21E+04	-2.61E+05	1.61E+05	-2.53E+05	1.53E+05	-1.15E+05	1.17E+05
2.50	-6.48E+04	-3.49E+05	2.35E+05	-3.37E+05	2.30E+05	-1.09E+05	1.18E+05
3.75	-7.56E+04	-4.78E+05	3.96E+05	-4.64E+05	3.59E+05	-1.03E+05	1.16E+05
5.00	-8.49E+04	-6.01E+05	5.85E+05	-5.80E+05	4.94E+05	-9.91E+04	1.16E+05

TASK 1/PITCH MOTION/MODEL 5613

Table O-471. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O-472. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 0.3831$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	1.17E+04	-1.50E+05	1.89E+05	-1.48E+05	1.88E+05	-1.60E+05	1.77E+05
1.75	1.28E+04	-2.64E+05	3.11E+05	-2.58E+05	2.82E+05	-1.55E+05	1.54E+05
2.50	1.79E+04	-3.76E+05	4.33E+05	-3.66E+05	3.72E+05	-1.53E+05	1.42E+05
3.75	1.98E+04	-5.80E+05	5.77E+05	-5.50E+05	5.21E+05	-1.52E+05	1.34E+05
5.00	2.45E+04	-7.92E+05	8.11E+05	-7.39E+05	6.97E+05	-1.53E+05	1.35E+05



# TASK 1/PITCH MOTION/MODEL 5613

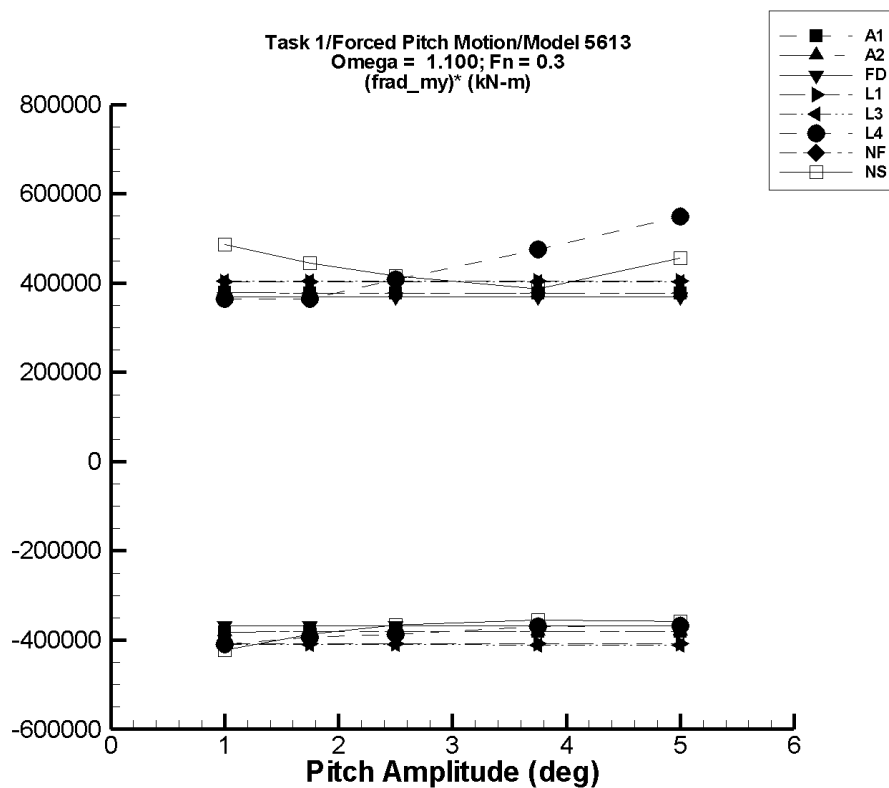


Figure O-60. Minimum and maximum of filtered  $(M_y^{\text{rad}} - \langle M_y^{\text{rad}} \rangle) / \theta_a$  vs.  $\theta_a$  for  $\omega = 1.1000$  rad/s,  $F_n = 0.3$  in the case of task 1, forced pitch motion, and Model 5613 scaled to  $L = 154$  m.

Table O-473. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (AEGIR-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-1</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{rad}})^*$ Max. (kN-m/°)
1.00	-1.89E+03	-3.96E+05	3.90E+05	-3.84E+05	3.77E+05	-3.82E+05	3.79E+05
1.75	-3.29E+03	-6.91E+05	6.80E+05	-6.69E+05	6.57E+05	-3.80E+05	3.77E+05
2.50	-4.71E+03	-9.87E+05	9.71E+05	-9.57E+05	9.39E+05	-3.81E+05	3.77E+05
3.75	-7.06E+03	-1.48E+06	1.46E+06	-1.43E+06	1.41E+06	-3.81E+05	3.77E+05
5.00	-9.42E+03	-1.98E+06	1.95E+06	-1.92E+06	1.88E+06	-3.81E+05	3.78E+05

Table O-474. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (AEGIR-2, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>AEGIR-2</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{rad}})^*$ Max. (kN-m/°)
1.00	-1.89E+03	-3.96E+05	3.90E+05	-3.84E+05	3.77E+05	-3.82E+05	3.79E+05
1.75	-3.29E+03	-6.91E+05	6.80E+05	-6.69E+05	6.57E+05	-3.80E+05	3.77E+05
2.50	-4.71E+03	-9.87E+05	9.71E+05	-9.57E+05	9.39E+05	-3.81E+05	3.77E+05
3.75	-7.06E+03	-1.48E+06	1.46E+06	-1.43E+06	1.41E+06	-3.81E+05	3.77E+05
5.00	-9.42E+03	-1.98E+06	1.95E+06	-1.92E+06	1.88E+06	-3.81E+05	3.78E+05

TASK 1/PITCH MOTION/MODEL 5613

Table O-475. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (FREDYN, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

FREDYN							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	8.02E-03	-3.80E+05	3.80E+05	-3.69E+05	3.69E+05	-3.69E+05	3.69E+05
1.75	5.92E-03	-6.66E+05	6.66E+05	-6.45E+05	6.45E+05	-3.69E+05	3.69E+05
2.50	1.78E-02	-9.51E+05	9.51E+05	-9.22E+05	9.21E+05	-3.69E+05	3.69E+05
3.75	6.18E-02	-1.43E+06	1.43E+06	-1.38E+06	1.38E+06	-3.69E+05	3.69E+05
5.00	1.13E-02	-1.90E+06	1.90E+06	-1.84E+06	1.84E+06	-3.69E+05	3.69E+05

Table O-476. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (LAMP-1, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

LAMP-1							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-1.03E+04	-4.21E+05	4.00E+05	-4.16E+05	3.95E+05	-4.06E+05	4.06E+05
1.75	-9.57E+03	-7.28E+05	7.09E+05	-7.20E+05	7.00E+05	-4.06E+05	4.06E+05
2.50	-8.43E+03	-1.03E+06	1.02E+06	-1.02E+06	1.01E+06	-4.06E+05	4.06E+05
3.75	-5.62E+03	-1.54E+06	1.53E+06	-1.53E+06	1.52E+06	-4.06E+05	4.06E+05
5.00	-1.69E+03	-2.05E+06	2.05E+06	-2.03E+06	2.03E+06	-4.06E+05	4.06E+05

Table O-477. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (LAMP-3, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-3</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{rad}})^*$ Max. (kN-m/°)
1.00	-1.03E+04	-4.23E+05	4.01E+05	-4.18E+05	3.96E+05	-4.08E+05	4.07E+05
1.75	-9.57E+03	-7.32E+05	7.09E+05	-7.24E+05	7.02E+05	-4.08E+05	4.06E+05
2.50	-8.42E+03	-1.04E+06	1.02E+06	-1.03E+06	1.01E+06	-4.09E+05	4.06E+05
3.75	-5.61E+03	-1.56E+06	1.53E+06	-1.54E+06	1.51E+06	-4.09E+05	4.05E+05
5.00	-1.69E+03	-2.07E+06	2.04E+06	-2.05E+06	2.02E+06	-4.10E+05	4.05E+05

Table O-478. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (LAMP-4, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

<b>LAMP-4</b>							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_y^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_y^{\text{rad}})^*$ Max. (kN-m/°)
1.00	-4.50E+04	-4.61E+05	3.54E+05	-4.49E+05	3.25E+05	-4.04E+05	3.70E+05
1.75	-7.27E+04	-7.74E+05	6.37E+05	-7.50E+05	5.76E+05	-3.87E+05	3.70E+05
2.50	-9.73E+04	-1.08E+06	1.07E+06	-1.05E+06	9.37E+05	-3.81E+05	4.14E+05
3.75	-1.18E+05	-1.53E+06	1.95E+06	-1.48E+06	1.69E+06	-3.63E+05	4.82E+05
5.00	-1.38E+05	-2.03E+06	3.10E+06	-1.94E+06	2.65E+06	-3.61E+05	5.57E+05

TASK 1/PITCH MOTION/MODEL 5613

Table O-479. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (NFA, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NFA							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	—	—	—	—	—	—	—
1.75	—	—	—	—	—	—	—
2.50	—	—	—	—	—	—	—
3.75	—	—	—	—	—	—	—
5.00	—	—	—	—	—	—	—

Table O-480. Minimum and Maximum of Variables  $M_y^{\text{rad}}$  and  $(M_y^{\text{rad}})^*$  for the Case (NSHIPMO, Task 1, Forced Pitch Motion, Model 5613 Scaled to L = 154 m,  $\omega = 1.1000$  rad/s,  $F_n = 0.3$ )

NSHIPMO							
$\theta_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
1.00	-7.19E+03	-4.39E+05	4.93E+05	-4.29E+05	4.79E+05	-4.22E+05	4.86E+05
1.75	-4.09E+04	-7.35E+05	9.46E+05	-7.18E+05	7.37E+05	-3.87E+05	4.44E+05
2.50	-6.74E+04	-1.02E+06	1.45E+06	-9.83E+05	9.74E+05	-3.66E+05	4.17E+05
3.75	-9.35E+04	-1.50E+06	1.89E+06	-1.42E+06	1.36E+06	-3.55E+05	3.87E+05
5.00	-1.02E+05	-1.96E+06	2.76E+06	-1.90E+06	2.18E+06	-3.59E+05	4.56E+05