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# LAMPIRAN









| ROLL (RX)         |       |       |       |       |       |       |       |       |       |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Frequency (rad/s) | -180  | -135  | -90   | -45   | 0     | 45    | 90    | 135   | 180   |
| 0.101             | 0.000 | 0.139 | 0.195 | 0.139 | 0.000 | 0.139 | 0.195 | 0.139 | 0.000 |
| 0.251             | 0.000 | 0.062 | 0.080 | 0.062 | 0.000 | 0.062 | 0.080 | 0.062 | 0.000 |
| 0.396             | 0.000 | 0.192 | 0.271 | 0.192 | 0.000 | 0.192 | 0.271 | 0.192 | 0.000 |
| 0.547             | 0.000 | 0.262 | 0.369 | 0.264 | 0.000 | 0.264 | 0.369 | 0.262 | 0.000 |
| 0.697             | 0.000 | 0.236 | 0.322 | 0.249 | 0.000 | 0.249 | 0.322 | 0.236 | 0.000 |
| 0.842             | 0.000 | 0.155 | 0.178 | 0.174 | 0.000 | 0.174 | 0.178 | 0.155 | 0.000 |
| 0.993             | 0.000 | 0.086 | 0.042 | 0.089 | 0.000 | 0.089 | 0.042 | 0.086 | 0.000 |
| 1.144             | 0.000 | 0.034 | 0.018 | 0.029 | 0.000 | 0.029 | 0.018 | 0.035 | 0.000 |
| 1.288             | 0.000 | 0.010 | 0.024 | 0.007 | 0.000 | 0.007 | 0.024 | 0.010 | 0.000 |
| 1.439             | 0.000 | 0.008 | 0.024 | 0.010 | 0.000 | 0.010 | 0.024 | 0.008 | 0.000 |
| 1.590             | 0.000 | 0.004 | 0.021 | 0.013 | 0.000 | 0.013 | 0.021 | 0.004 | 0.000 |
| 1.734             | 0.000 | 0.001 | 0.006 | 0.004 | 0.000 | 0.004 | 0.006 | 0.001 | 0.000 |
| 1.885             | 0.000 | 0.006 | 0.001 | 0.004 | 0.000 | 0.004 | 0.001 | 0.006 | 0.000 |
| 2.036             | 0.000 | 0.004 | 0.004 | 0.001 | 0.000 | 0.002 | 0.004 | 0.004 | 0.000 |
| 2.180             | 0.000 | 0.002 | 0.006 | 0.003 | 0.000 | 0.003 | 0.005 | 0.002 | 0.000 |
| 2.331             | 0.000 | 0.002 | 0.002 | 0.002 | 0.000 | 0.002 | 0.002 | 0.002 | 0.000 |
| 2.482             | 0.000 | 0.000 | 0.001 | 0.001 | 0.000 | 0.001 | 0.001 | 0.000 | 0.000 |
| 2.626             | 0.000 | 0.001 | 0.001 | 0.000 | 0.000 | 0.000 | 0.001 | 0.001 | 0.000 |
| 2.777             | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 |
| 2.928             | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 |

| PITCH (RY)        |       |       |       |       |       |       |       |       |       |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Frequency (rad/s) | -180  | -135  | -90   | -45   | 0     | 45    | 90    | 135   | 180   |
| 0.101             | 0.196 | 0.138 | 0.016 | 0.138 | 0.196 | 0.138 | 0.016 | 0.138 | 0.196 |
| 0.251             | 0.084 | 0.056 | 0.025 | 0.056 | 0.084 | 0.056 | 0.025 | 0.056 | 0.084 |
| 0.396             | 0.271 | 0.192 | 0.005 | 0.192 | 0.271 | 0.192 | 0.005 | 0.192 | 0.271 |
| 0.547             | 0.371 | 0.261 | 0.039 | 0.261 | 0.369 | 0.261 | 0.039 | 0.261 | 0.371 |
| 0.697             | 0.337 | 0.228 | 0.092 | 0.228 | 0.324 | 0.228 | 0.092 | 0.228 | 0.337 |
| 0.842             | 0.210 | 0.129 | 0.125 | 0.126 | 0.189 | 0.126 | 0.125 | 0.129 | 0.210 |
| 0.993             | 0.071 | 0.045 | 0.111 | 0.040 | 0.071 | 0.040 | 0.111 | 0.045 | 0.071 |
| 1.144             | 0.004 | 0.026 | 0.057 | 0.031 | 0.011 | 0.031 | 0.057 | 0.026 | 0.004 |
| 1.288             | 0.007 | 0.013 | 0.016 | 0.020 | 0.005 | 0.020 | 0.016 | 0.013 | 0.007 |
| 1.439             | 0.005 | 0.007 | 0.002 | 0.013 | 0.010 | 0.013 | 0.002 | 0.007 | 0.005 |
| 1.590             | 0.015 | 0.010 | 0.002 | 0.007 | 0.015 | 0.007 | 0.002 | 0.010 | 0.015 |
| 1.734             | 0.012 | 0.004 | 0.002 | 0.003 | 0.010 | 0.003 | 0.002 | 0.004 | 0.012 |
| 1.885             | 0.007 | 0.004 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.004 | 0.007 |
| 2.036             | 0.009 | 0.004 | 0.002 | 0.001 | 0.010 | 0.001 | 0.002 | 0.004 | 0.009 |
| 2.180             | 0.003 | 0.001 | 0.000 | 0.003 | 0.004 | 0.003 | 0.000 | 0.001 | 0.003 |
| 2.331             | 0.002 | 0.002 | 0.001 | 0.001 | 0.005 | 0.001 | 0.001 | 0.002 | 0.002 |
| 2.482             | 0.002 | 0.000 | 0.001 | 0.001 | 0.002 | 0.001 | 0.000 | 0.000 | 0.002 |
| 2.626             | 0.003 | 0.001 | 0.000 | 0.000 | 0.002 | 0.000 | 0.000 | 0.001 | 0.003 |
| 2.777             | 0.002 | 0.001 | 0.000 | 0.001 | 0.001 | 0.001 | 0.000 | 0.001 | 0.002 |
| 2.928             | 0.001 | 0.000 | 0.000 | 0.001 | 0.002 | 0.001 | 0.000 | 0.000 | 0.001 |

| YAW (RZ)          |       |       |       |       |       |       |       |       |       |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Frequency (rad/s) | -180  | -135  | -90   | -45   | 0     | 45    | 90    | 135   | 180   |
| 0.101             | 0.000 | 0.002 | 0.003 | 0.002 | 0.000 | 0.002 | 0.003 | 0.002 | 0.000 |
| 0.251             | 0.000 | 0.008 | 0.011 | 0.008 | 0.000 | 0.008 | 0.011 | 0.008 | 0.000 |
| 0.396             | 0.000 | 0.031 | 0.044 | 0.031 | 0.000 | 0.031 | 0.044 | 0.031 | 0.000 |
| 0.547             | 0.000 | 0.088 | 0.125 | 0.088 | 0.000 | 0.088 | 0.125 | 0.088 | 0.000 |
| 0.697             | 0.000 | 0.171 | 0.242 | 0.171 | 0.000 | 0.171 | 0.242 | 0.171 | 0.000 |
| 0.842             | 0.000 | 0.249 | 0.353 | 0.250 | 0.000 | 0.250 | 0.353 | 0.249 | 0.000 |
| 0.993             | 0.000 | 0.275 | 0.389 | 0.277 | 0.000 | 0.277 | 0.389 | 0.276 | 0.000 |
| 1.144             | 0.000 | 0.209 | 0.287 | 0.207 | 0.000 | 0.207 | 0.287 | 0.209 | 0.000 |
| 1.288             | 0.000 | 0.125 | 0.129 | 0.108 | 0.000 | 0.108 | 0.129 | 0.125 | 0.000 |
| 1.439             | 0.000 | 0.090 | 0.027 | 0.101 | 0.000 | 0.101 | 0.027 | 0.090 | 0.000 |
| 1.590             | 0.000 | 0.073 | 0.002 | 0.072 | 0.000 | 0.072 | 0.002 | 0.073 | 0.000 |
| 1.734             | 0.000 | 0.036 | 0.028 | 0.031 | 0.000 | 0.031 | 0.028 | 0.036 | 0.000 |
| 1.885             | 0.000 | 0.013 | 0.031 | 0.018 | 0.000 | 0.018 | 0.031 | 0.013 | 0.000 |
| 2.036             | 0.000 | 0.012 | 0.017 | 0.010 | 0.000 | 0.010 | 0.017 | 0.012 | 0.000 |
| 2.180             | 0.000 | 0.004 | 0.003 | 0.002 | 0.000 | 0.002 | 0.003 | 0.004 | 0.000 |
| 2.331             | 0.000 | 0.003 | 0.006 | 0.004 | 0.000 | 0.004 | 0.006 | 0.003 | 0.000 |
| 2.482             | 0.000 | 0.008 | 0.010 | 0.007 | 0.000 | 0.007 | 0.010 | 0.008 | 0.000 |
| 2.626             | 0.000 | 0.004 | 0.002 | 0.005 | 0.000 | 0.005 | 0.002 | 0.004 | 0.000 |
| 2.777             | 0.000 | 0.004 | 0.001 | 0.004 | 0.000 | 0.004 | 0.001 | 0.004 | 0.000 |
| 2.928             | 0.000 | 0.002 | 0.003 | 0.002 | 0.000 | 0.002 | 0.003 | 0.002 | 0.000 |





**Lampiran 4.** Tabel hasil *running added mass surge, sway, heave, roll, pitch, dan yaw* pada MIT/NREL TLP 5MW, semi-submersible OC4 5MW, dan SPAR OC3 5MW

| MIT/NREL TLP 5MW (ADDED MASS) |          |          |         |          |          |         |
|-------------------------------|----------|----------|---------|----------|----------|---------|
| Frequency (rad/s)             | SURGE    | SWAY     | HEAVE   | ROLL     | PITCH    | YAW     |
| 0.100                         | 11729122 | 11728080 | 2283577 | 33037399 | 33040364 | 3061868 |
| 0.245                         | 11956954 | 11955882 | 2223322 | 33536321 | 33539268 | 3061863 |
| 0.396                         | 12482518 | 12481392 | 2157561 | 34754734 | 34757788 | 3061866 |
| 0.540                         | 13013675 | 13012520 | 2144545 | 37189223 | 37192349 | 3061864 |
| 0.685                         | 12781570 | 12780493 | 2161412 | 40052971 | 40056268 | 3061868 |
| 0.835                         | 11336432 | 11335553 | 2173015 | 39265777 | 39268883 | 3061871 |
| 0.980                         | 9669408  | 9668555  | 2178370 | 33125002 | 33128308 | 3061862 |
| 1.124                         | 8546323  | 8545561  | 2179340 | 25750754 | 25753377 | 3061862 |
| 1.275                         | 8203087  | 8202272  | 2180953 | 21347456 | 21349962 | 3061864 |
| 1.419                         | 8214757  | 8213931  | 2182016 | 19460078 | 19462612 | 3061863 |
| 1.570                         | 8337391  | 8336559  | 2182756 | 18928524 | 18931055 | 3061865 |
| 1.714                         | 8477281  | 8476403  | 2183304 | 19011992 | 19014541 | 3061863 |
| 1.859                         | 8606043  | 8605171  | 2183712 | 19344861 | 19347381 | 3061866 |
| 2.010                         | 8724493  | 8723598  | 2184028 | 19768539 | 19771235 | 3061864 |
| 2.154                         | 8834209  | 8833487  | 2184281 | 20218716 | 20220890 | 3061864 |
| 2.298                         | 8959625  | 8958878  | 2184490 | 20734389 | 20736690 | 3061862 |
| 2.449                         | 9038195  | 9037431  | 2184653 | 21124333 | 21126450 | 3061866 |
| 2.594                         | 9097593  | 9096811  | 2184795 | 21441695 | 21444005 | 3061866 |
| 2.738                         | 9143255  | 9142214  | 2184910 | 21661847 | 21665406 | 3061865 |
| 2.889                         | 9192273  | 9191367  | 2185010 | 22008958 | 22011840 | 3061866 |

| SEMI-SUBMERSIBLE OC4 5MW (ADDED MASS) |          |          |          |           |           |           |
|---------------------------------------|----------|----------|----------|-----------|-----------|-----------|
| Frequency (rad/s)                     | SURGE    | SWAY     | HEAVE    | ROLL      | PITCH     | YAW       |
| 0.101                                 | 9849632  | 9850069  | 14984464 | 116707000 | 116700000 | 126182000 |
| 0.251                                 | 10078732 | 10079180 | 14832703 | 117047000 | 117039000 | 127452000 |
| 0.396                                 | 10594623 | 10594997 | 14850315 | 118079000 | 118071000 | 130254000 |
| 0.547                                 | 10688787 | 10689319 | 15064259 | 119652000 | 119644000 | 136048000 |
| 0.697                                 | 9657547  | 9659373  | 14718365 | 117659000 | 117653000 | 149063000 |
| 0.842                                 | 9653682  | 9657745  | 14737630 | 112730000 | 112723000 | 169916000 |
| 0.993                                 | 12870133 | 12877837 | 14707602 | 110965000 | 110961000 | 148139000 |
| 1.144                                 | 6998651  | 6994141  | 14562067 | 111782000 | 111778000 | 85185311  |
| 1.288                                 | 6505190  | 6502647  | 14483894 | 112124000 | 112118000 | 77436232  |
| 1.439                                 | 7444483  | 7443180  | 14506999 | 112885000 | 112879000 | 87348925  |
| 1.590                                 | 5692058  | 5691416  | 14575407 | 112910000 | 112905000 | 77827329  |
| 1.734                                 | 5643026  | 5640331  | 14602031 | 113016000 | 113010000 | 76224168  |
| 1.885                                 | 6415492  | 6414056  | 14619626 | 113319000 | 113311000 | 82390747  |
| 2.036                                 | 6517673  | 6517162  | 14634468 | 113424000 | 113417000 | 81362775  |
| 2.180                                 | 6433989  | 6432385  | 14644129 | 113390000 | 113384000 | 84290496  |
| 2.331                                 | 6473460  | 6472424  | 14644083 | 113444000 | 113438000 | 86176019  |
| 2.482                                 | 6612349  | 6610374  | 14641597 | 113495000 | 113489000 | 86475101  |
| 2.626                                 | 6836112  | 6834260  | 14646850 | 113534000 | 113527000 | 88638858  |
| 2.777                                 | 6823361  | 6822290  | 14645233 | 113509000 | 113503000 | 89724110  |
| 2.928                                 | 6929899  | 6928404  | 14650655 | 113558000 | 113552000 | 91009574  |

| SPAR OC3 OC4 5MW (ADDED MASS) |         |         |        |           |           |            |
|-------------------------------|---------|---------|--------|-----------|-----------|------------|
| Frequency (rad/s)             | SURGE   | SWAY    | HEAVE  | ROLL      | PITCH     | YAW        |
| 0.101                         | 8301569 | 8292141 | 226797 | 145787000 | 145918000 | 2.80477920 |
| 0.251                         | 8321015 | 8311552 | 224767 | 146275000 | 146408000 | 2.80508760 |
| 0.396                         | 8355871 | 8346338 | 224780 | 147273000 | 147408000 | 2.80561540 |
| 0.547                         | 8391675 | 8382043 | 226464 | 148981000 | 149122000 | 2.80620210 |
| 0.697                         | 8411518 | 8401800 | 227051 | 151204000 | 151350000 | 2.80672620 |
| 0.842                         | 8414781 | 8404948 | 226518 | 153310000 | 153465000 | 2.80727270 |
| 0.993                         | 8402163 | 8392233 | 225625 | 154599000 | 154763000 | 2.80794090 |
| 1.144                         | 8369138 | 8359186 | 224702 | 154521000 | 154690000 | 2.80877160 |
| 1.288                         | 8308603 | 8298749 | 223843 | 152629000 | 152797000 | 2.80977980 |
| 1.439                         | 8216884 | 8207362 | 223095 | 148673000 | 148827000 | 2.81098540 |
| 1.590                         | 8100015 | 8091063 | 221608 | 142917000 | 143042000 | 2.81244460 |
| 1.734                         | 7984087 | 7976323 | 221136 | 136718000 | 136776000 | 2.81567420 |
| 1.885                         | 7887239 | 7879075 | 220786 | 131075000 | 131150000 | 2.81940100 |
| 2.036                         | 7805254 | 7797498 | 220601 | 126092000 | 126141000 | 2.82363070 |
| 2.180                         | 7756541 | 7748811 | 220518 | 122856000 | 122900000 | 2.82931780 |
| 2.331                         | 7734050 | 7726212 | 220505 | 121099000 | 121147000 | 2.83035460 |
| 2.482                         | 7728559 | 7720576 | 220535 | 120365000 | 120419000 | 2.83217250 |
| 2.626                         | 7732828 | 7724733 | 220595 | 120260000 | 120320000 | 2.83130910 |
| 2.777                         | 7741992 | 7733817 | 220670 | 120506000 | 120569000 | 2.82910350 |
| 2.928                         | 7753225 | 7744937 | 220749 | 120926000 | 120996000 | 2.82345040 |

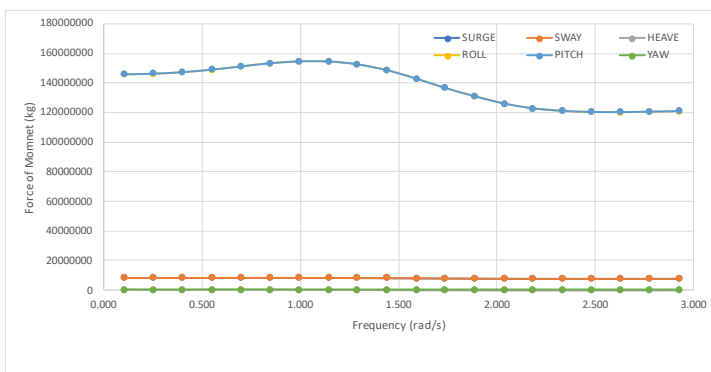
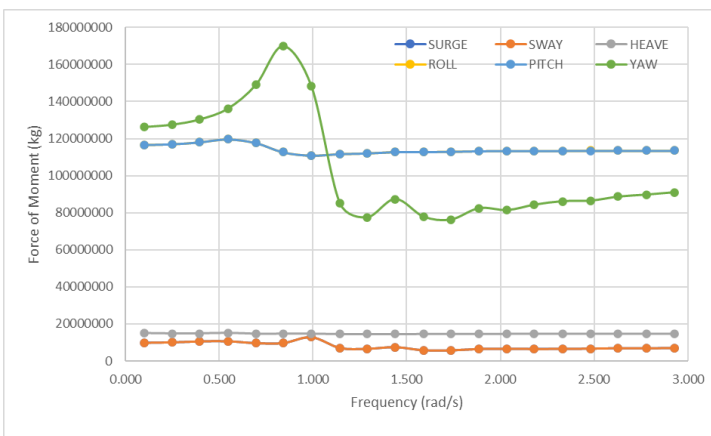
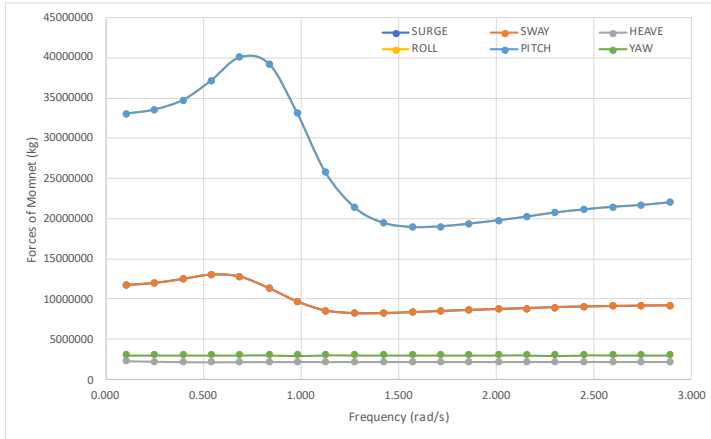
**Lampiran 5.** Tabel hasil *running radiation damping surge, sway, heave, roll, pitch, dan yaw* pada MIT/NREL TLP 5MW, semi-submersible OC4 5MW, dan SPAR OC3 5MW

| MIT/NREL TLP 5MW (RADIATION DAMPING) |            |            |          |             |             |      |
|--------------------------------------|------------|------------|----------|-------------|-------------|------|
| Frequency (rad/s)                    | SURGE      | SWAY       | HEAVE    | ROLL        | PITCH       | YAW  |
| 0.100                                | 225.54     | 225.51     | 8607.10  | 18.38       | 18.38       | 0.00 |
| 0.245                                | 8273.41    | 8272.40    | 24335.19 | 1350.37     | 1350.21     | 0.00 |
| 0.396                                | 120815.63  | 120801.16  | 31245.37 | 48988.16    | 48987.79    | 0.00 |
| 0.540                                | 673965.50  | 673891.44  | 14615.33 | 626959.97   | 626981.61   | 0.04 |
| 0.685                                | 1920253.10 | 1920059.60 | 3049.10  | 3547489.20  | 3547675.20  | 0.48 |
| 0.835                                | 3321258.50 | 3320996.30 | 318.38   | 10359128.00 | 10359661.00 | 1.92 |
| 0.980                                | 3962350.50 | 3961889.30 | 20.68    | 17669980.00 | 17671665.00 | 2.65 |
| 1.124                                | 3369193.00 | 3368966.80 | 1.06     | 19402568.00 | 19403533.00 | 1.39 |
| 1.275                                | 2559166.80 | 2559009.50 | -0.10    | 17577902.00 | 17578613.00 | 0.30 |
| 1.419                                | 1901765.40 | 1901640.60 | 0.08     | 14743506.00 | 14744163.00 | 0.04 |
| 1.570                                | 1433165.50 | 1433107.40 | -0.02    | 12061169.00 | 12061554.00 | 0.01 |
| 1.714                                | 1107804.10 | 1107782.10 | -0.11    | 9842388.10  | 9842572.40  | 0.01 |
| 1.859                                | 889968.88  | 889971.06  | -0.08    | 8090398.60  | 8090381.90  | 0.00 |
| 2.010                                | 874782.94  | 874664.69  | -0.02    | 6843844.30  | 6844185.50  | 0.00 |
| 2.154                                | 528412.81  | 528615.88  | 0.04     | 5532451.90  | 5531893.40  | 0.00 |
| 2.298                                | 466540.44  | 466645.44  | 0.03     | 4691862.80  | 4691473.50  | 0.00 |
| 2.449                                | 386042.28  | 386058.94  | 0.31     | 3947055.10  | 3946911.00  | 0.00 |
| 2.594                                | 313600.13  | 313537.78  | 0.00     | 3290186.60  | 3290461.40  | 0.00 |
| 2.738                                | 151917.44  | 151680.75  | 0.00     | 1956715.30  | 1958154.40  | 0.00 |
| 2.889                                | 257904.39  | 257972.84  | 0.00     | 2672467.10  | 2672051.10  | 0.00 |

| SEMI-SUBMERSIBLE OC4 5MW (RADIATION DUMPING) |           |             |            |             |             |              |
|--|-----------|-------------|------------|-------------|-------------|--------------|
| Frequency (rad/s)                            | SURGE     | SWAY        | HEAVE      | ROLL        | PITCH       | YAW          |
| 0.101  | 234.69551 | 234.636     | 19619.463  | 4.102       | 4.024       | 0.089        |
| 0.251  | 9796.1826 | 9793.607    | 40208.727  | 1408.285    | 1404.542    | 7.052        |
| 0.396  | 161316.61 | 161267.160  | 3885.007   | 101927.850  | 101819.410  | 1551.937     |
| 0.547  | 823395.19 | 823032.380  | 104910.700 | 1358348.800 | 1357715.800 | 117969.130   |
| 0.697  | 1410400.5 | 1409578.600 | 283723.590 | 4614345.300 | 4613228.300 | 2579706.100  |
| 0.842  | 845261.13 | 845248.440  | 114302.940 | 5625829.500 | 5624202.000 | 24075540.000 |
| 0.993  | 3505378.5 | 3511241.800 | 266749.910 | 2666434.200 | 2666528.300 | 86751503.000 |
| 1.144  | 6433424   | 6442902.000 | 244796.550 | 1761296.500 | 1760729.100 | 88348274.000 |
| 1.288  | 3534359.3 | 3535298.800 | 239795.090 | 814782.530  | 814645.550  | 48606909.000 |
| 1.439  | 3707072.8 | 3707557.500 | 38448.289  | 618701.980  | 618158.830  | 47532604.000 |
| 1.590  | 4800244.5 | 4803986.000 | 12917.511  | 993670.820  | 993040.400  | 48052809.000 |
| 1.734  | 1580257.4 | 1580640.900 | 6536.303   | 381917.170  | 383502.520  | 25302270.000 |
| 1.885  | 1177219.9 | 1177067.300 | 6692.227   | 430864.440  | 431848.530  | 22495655.000 |
| 2.036  | 2127009.3 | 2129526.000 | 5452.349   | 957635.140  | 956391.910  | 22086593.000 |
| 2.180  | 1378103   | 1378367.100 | 33196.281  | 553676.210  | 554439.020  | 13429621.000 |
| 2.331  | 1181345   | 1185616.000 | 9650.569   | 402830.090  | 402628.290  | 14639099.000 |
| 2.482  | 862534.69 | 866119.880  | 57829.477  | 166937.500  | 169947.840  | 12805230.000 |
| 2.626  | 688390.31 | 688412.940  | 11314.874  | 470631.030  | 472276.570  | 9017132.200  |
| 2.777  | 718113.94 | 719758.810  | 35961.102  | 480371.860  | 481625.280  | 7188998.300  |
| 2.928  | 469647.91 | 470027.440  | 10961.417  | 360642.900  | 362993.720  | 7169796.900  |

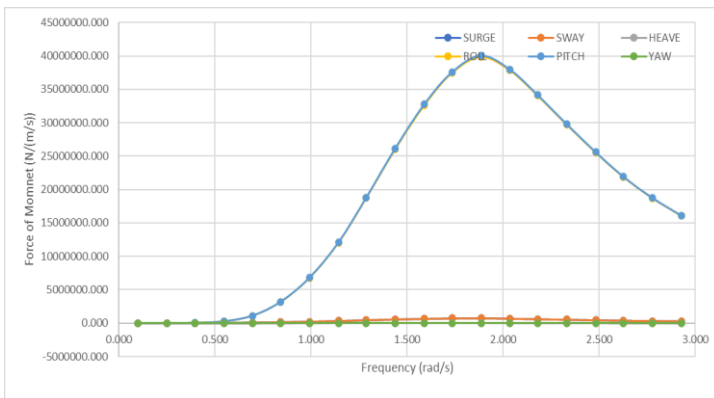
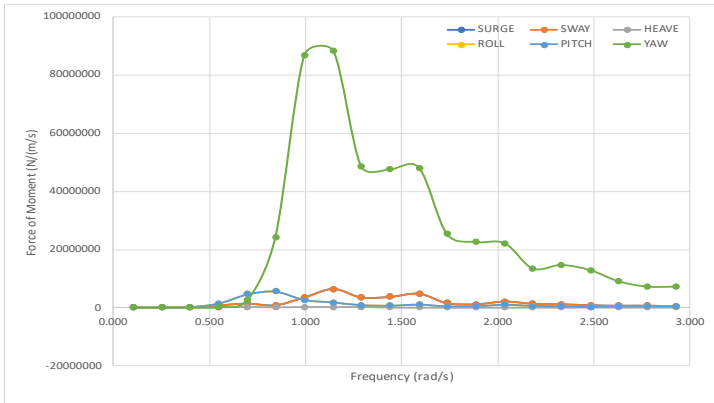
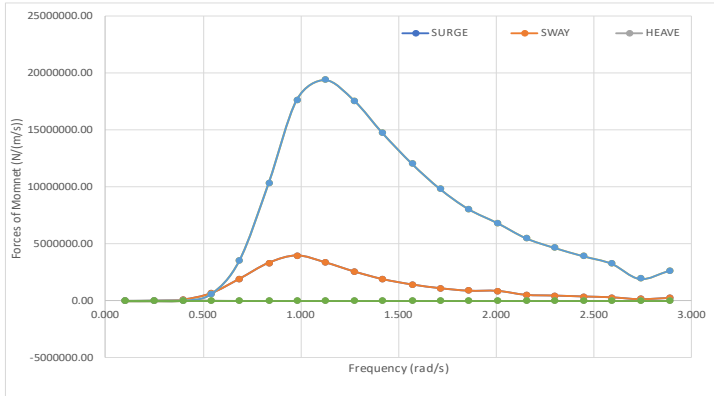
| SPAR OC3 OC4 5MW (RADIATION DUMPING) |            |            |          |              |              |         |
|--------------------------------------|------------|------------|----------|--------------|--------------|---------|
| Frequency (rad/s)                    | SURGE      | SWAY       | HEAVE    | ROLL         | PITCH        | YAW     |
| 0.101                                | 93.852     | 93.734     | 331.570  | 37.620       | 37.693       | 0.00000 |
| 0.251                                | 1238.572   | 1236.989   | 450.504  | 1286.218     | 1288.892     | 0.00001 |
| 0.396                                | 7954.246   | 7943.717   | 117.122  | 25500.292    | 25549.371    | 0.00008 |
| 0.547                                | 30349.076  | 30306.469  | 123.031  | 244883.170   | 245336.940   | 0.00029 |
| 0.697                                | 72525.383  | 72414.055  | 929.252  | 1110052.000  | 1112182.900  | 0.00064 |
| 0.842                                | 134003.610 | 133769.090 | 1912.690 | 3166958.900  | 3173652.000  | 0.00167 |
| 0.993                                | 216034.520 | 215586.520 | 2753.534 | 6782442.700  | 6798913.600  | 0.00159 |
| 1.144                                | 319858.090 | 319600.440 | 3405.238 | 12056155.000 | 12090513.000 | 0.00224 |
| 1.288                                | 441054.410 | 439749.340 | 3856.142 | 18751496.000 | 18813832.000 | 0.00305 |
| 1.439                                | 564704.880 | 562807.190 | 4093.265 | 26083148.000 | 26180837.000 | 0.00407 |
| 1.590                                | 665770.060 | 663403.810 | 4125.217 | 32644826.000 | 32774346.000 | 0.00533 |
| 1.734                                | 730320.880 | 729032.310 | 3964.879 | 37506977.000 | 37589815.000 | 0.00706 |
| 1.885                                | 753306.440 | 750445.440 | 3644.346 | 39898006.000 | 40066058.000 | 0.00941 |
| 2.036                                | 695617.500 | 693870.380 | 3313.226 | 37883419.000 | 37995839.000 | 0.01247 |
| 2.180                                | 611930.940 | 610728.750 | 2968.722 | 34080109.000 | 34163925.000 | 0.01805 |
| 2.331                                | 524382.380 | 523618.440 | 2626.301 | 29754512.000 | 29814086.000 | 0.02683 |
| 2.482                                | 444004.250 | 443318.530 | 2297.433 | 25577390.000 | 25631451.000 | 0.04195 |
| 2.626                                | 374942.030 | 374535.000 | 1994.856 | 21886996.000 | 21923453.000 | 0.06158 |
| 2.777                                | 317150.970 | 316895.630 | 1712.251 | 18719789.000 | 18745384.000 | 0.08507 |
| 2.928                                | 269930.690 | 269375.970 | 1442.061 | 16057267.000 | 16099472.000 | 0.10855 |

**Lampiran 6.** Grafik hasil *added mass surge, sway, heave, roll, pitch, dan yaw* pada MIT/NREL TLP 5MW, semi-submersible OC4 5MW, dan SPAR OC3 5MW

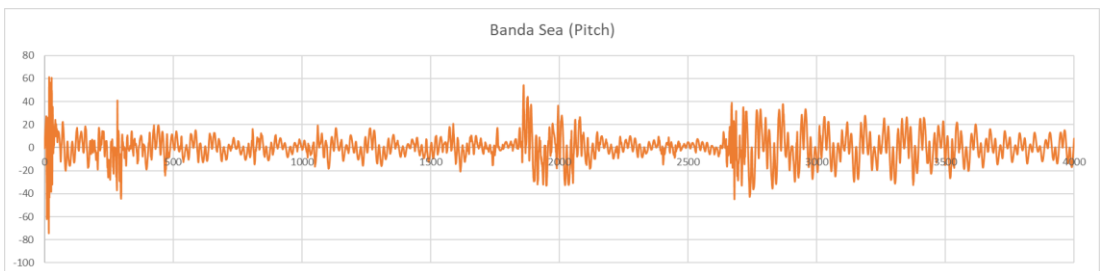
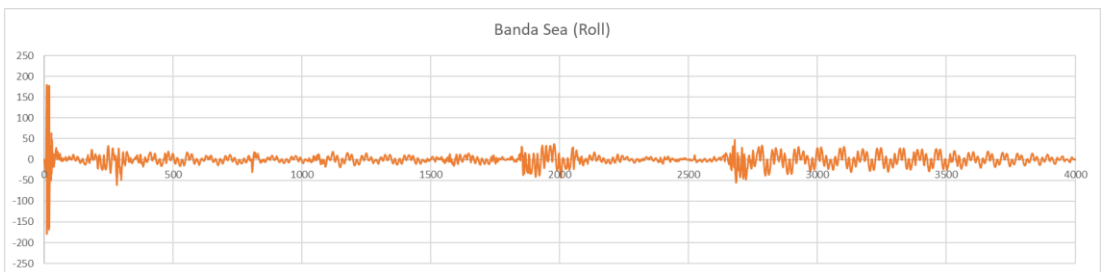
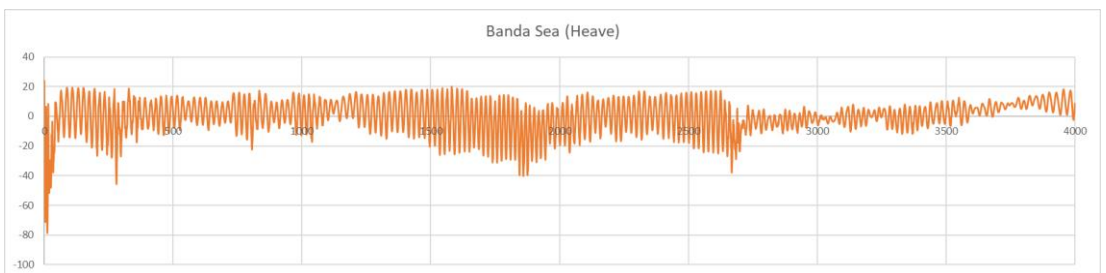
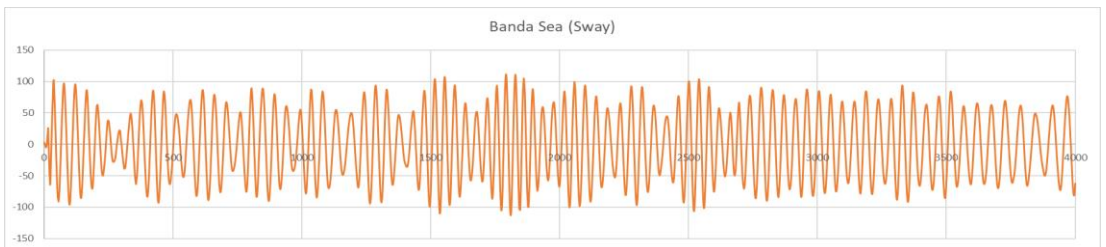
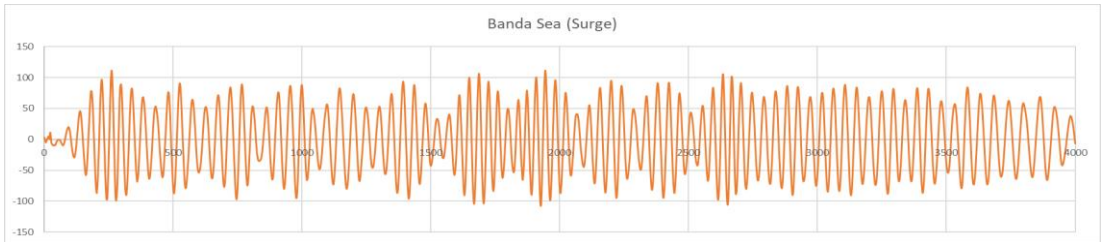


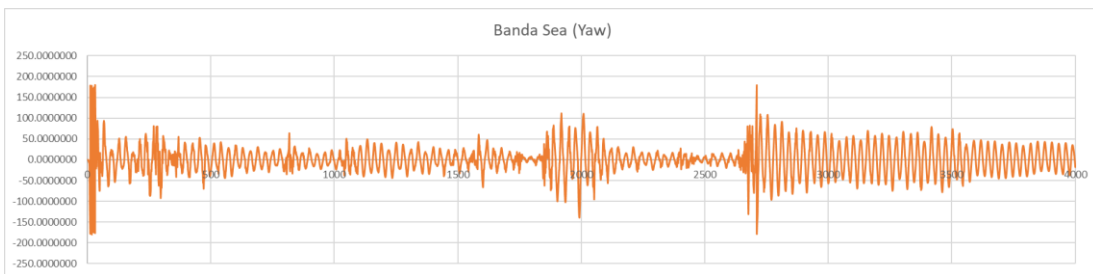


**Lampiran 7.** Grafik hasil *running radiation damping surge, sway, heave, roll, pitch, dan yaw* pada MIT/NREL TLP 5MW, semi-submersible OC4 5MW, dan SPAR OC3 5MW

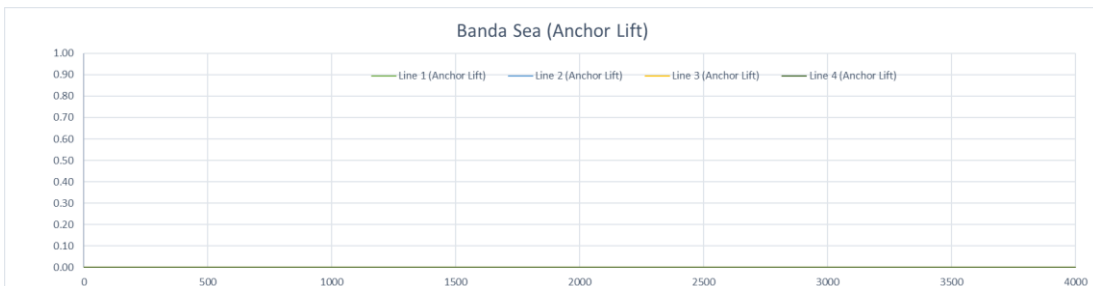
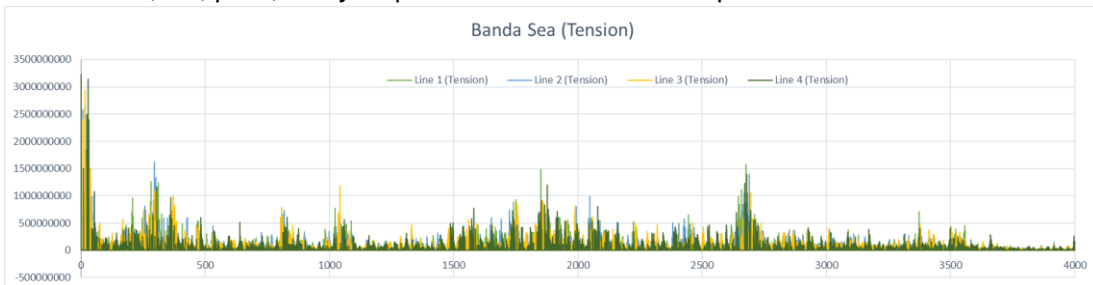


**Lampiran 8.** Grafik hasil *running structure position surge, sway, heave, roll, pitch,* dan yaw pada MIT/NREL TLP 5MW pada Laut Banda

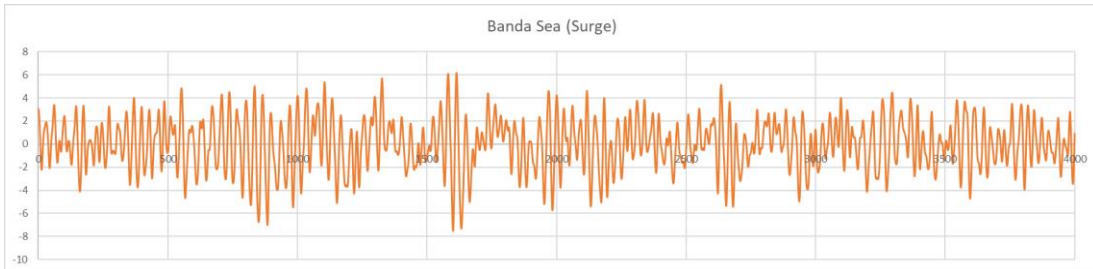


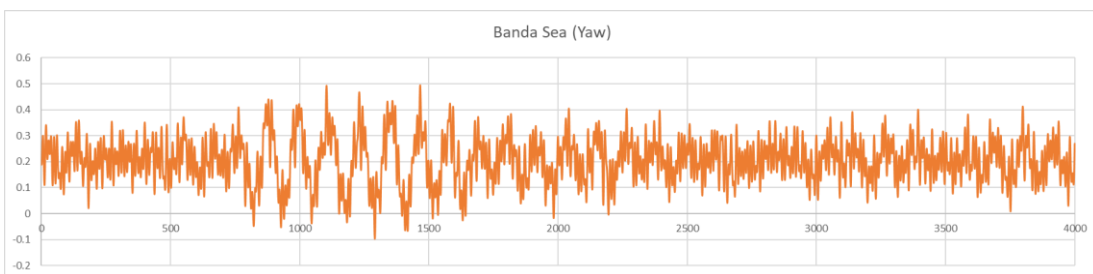
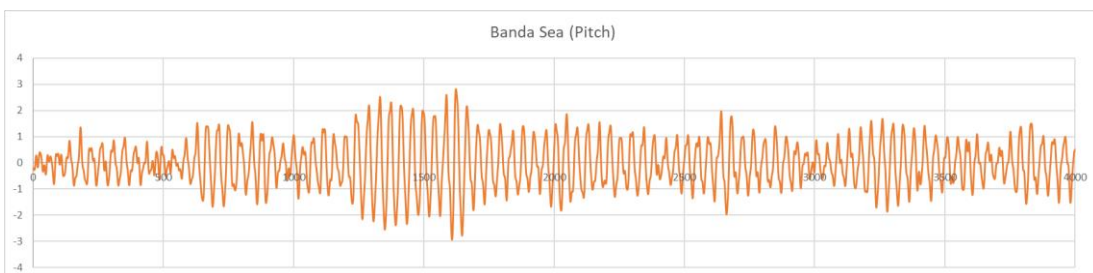
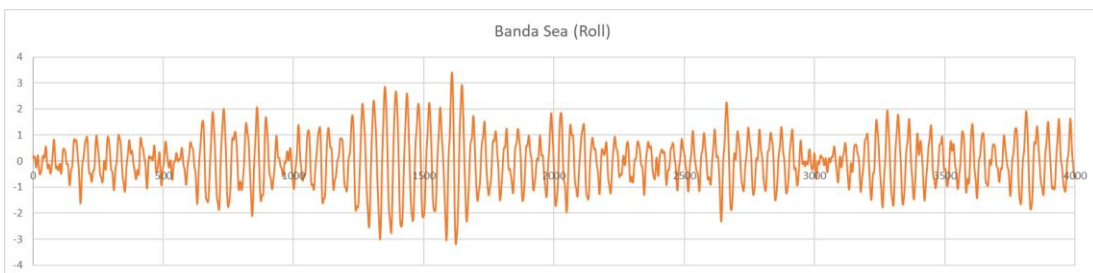
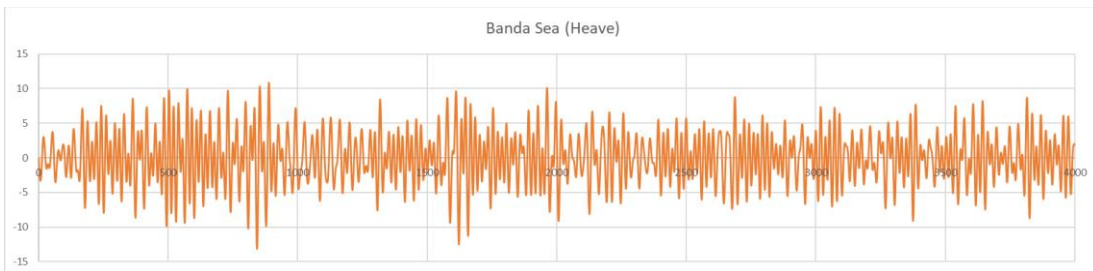
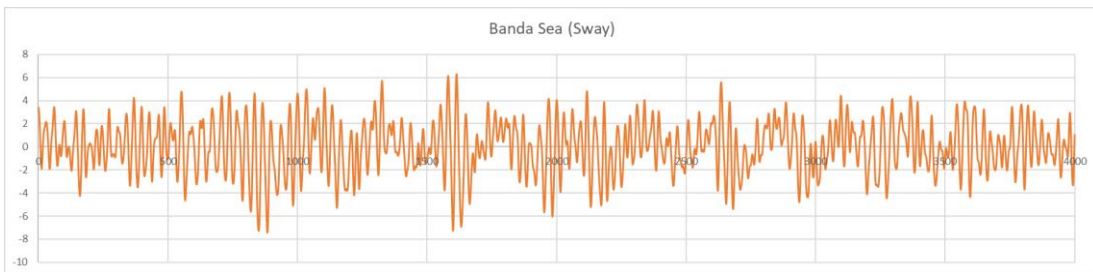


**Lampiran 9.** Grafik hasil *running tension mooring line* dan *anchor lift surge, sway, heave, roll, pitch,* dan *yaw* pada MIT/NREL TLP 5MW pada Laut Banda



**Lampiran 10.** Grafik hasil *running structure position surge, sway, heave, roll, pitch,* dan *yaw semi-submersible OC4 5MW* pada Laut Banda

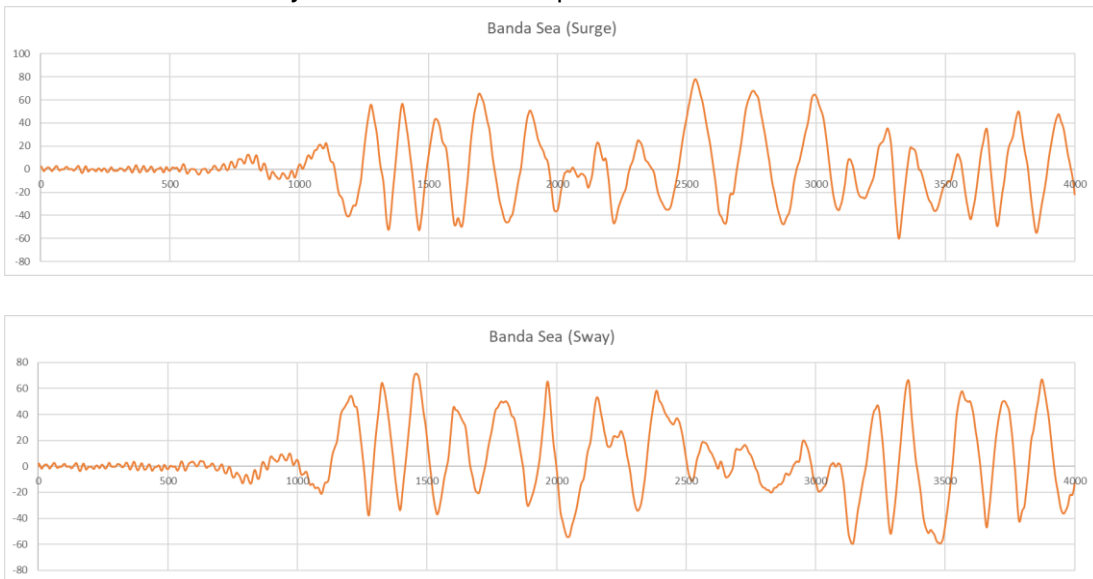


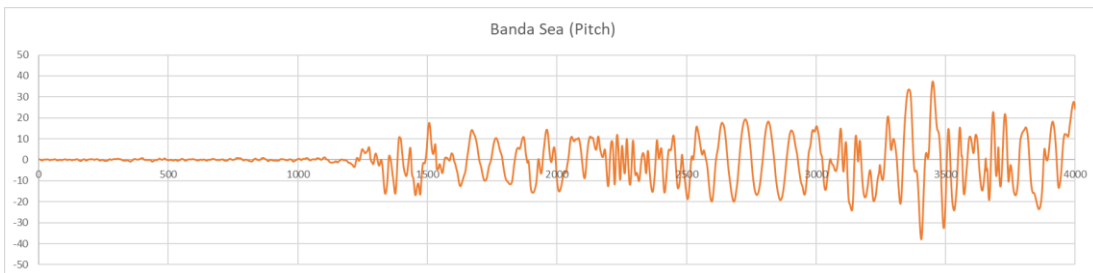
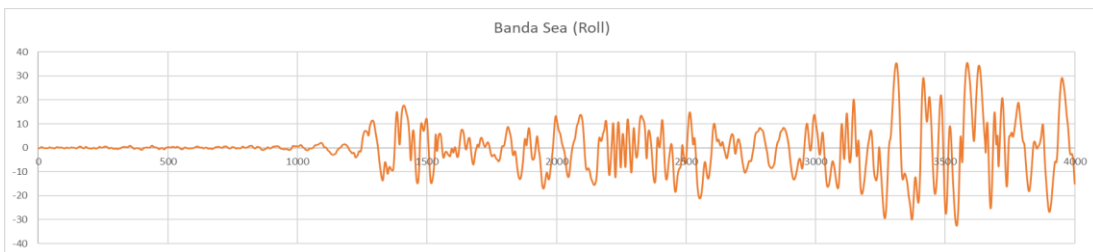
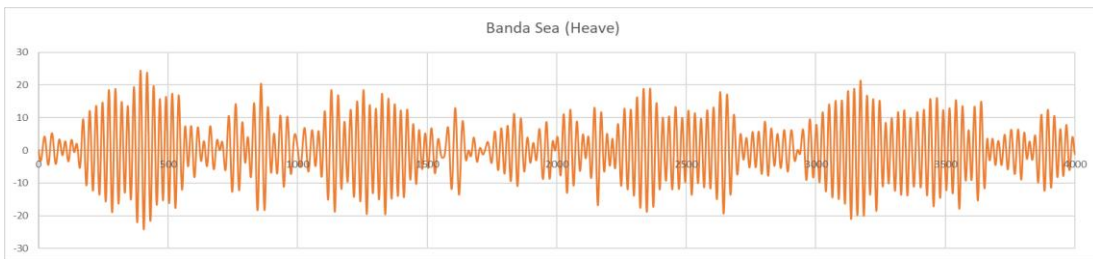


**Lampiran 11.** Grafik hasil *running tension mooring line* dan *anchor lift semi-submersible OC4 5MW* pada Laut Banda

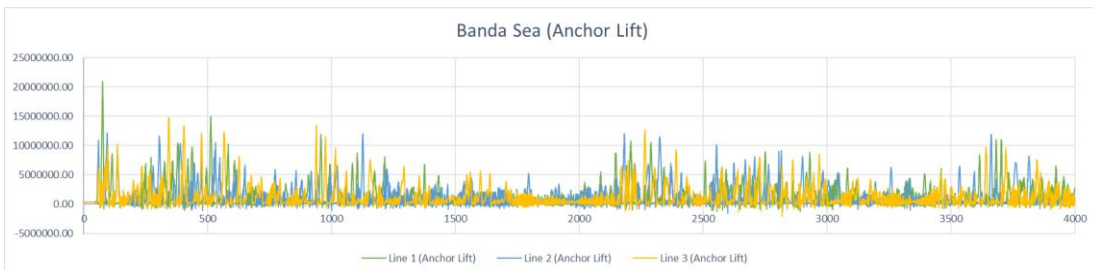
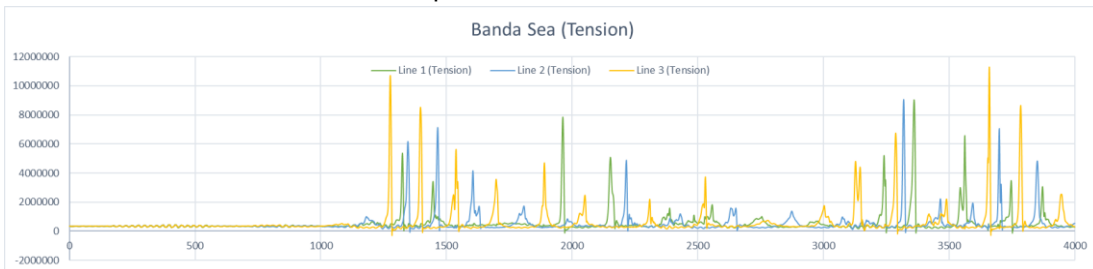


**Lampiran 12.** Grafik hasil *running structure position surge, sway, heave, roll, pitch,* dan *yaw SPAR OC3 5MW* pada Laut Banda

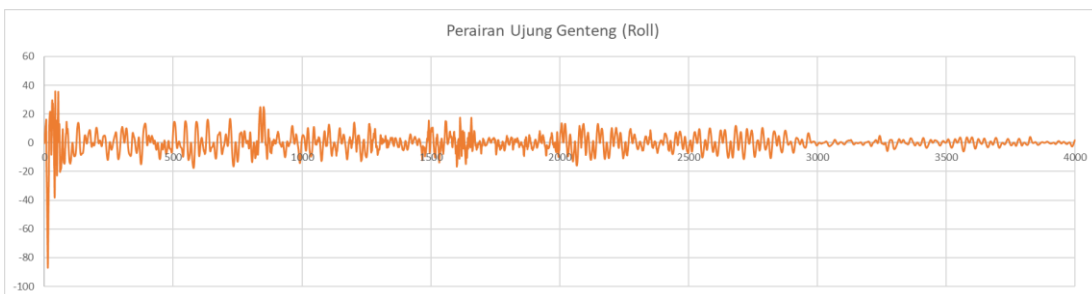
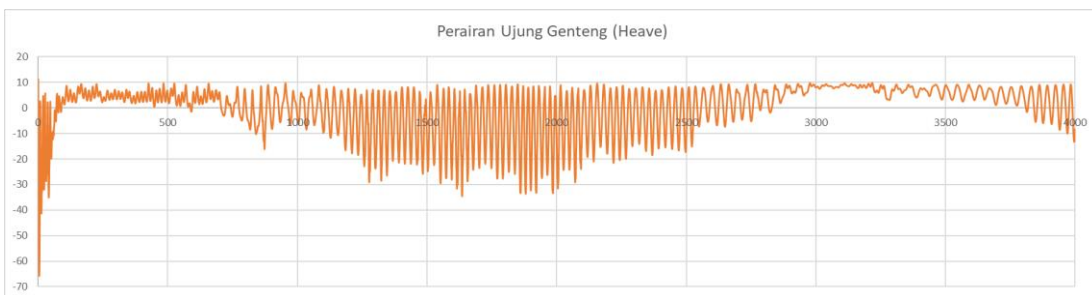


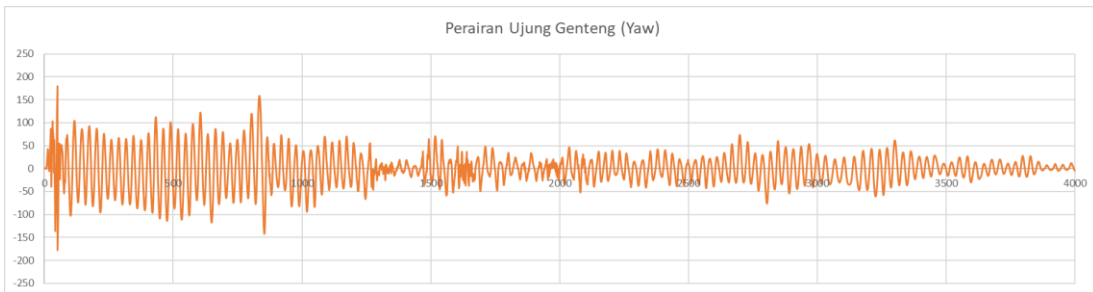
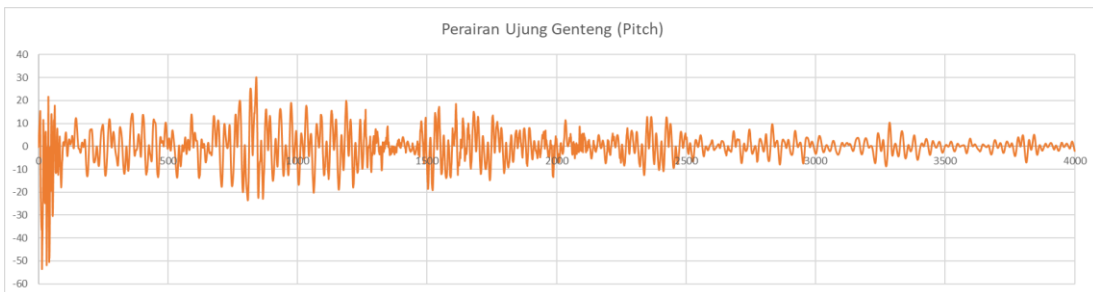


**Lampiran 13.** Grafik hasil *running tension mooring line* dan *anchor lift* SPAR OC3 5MW pada Laut Banda

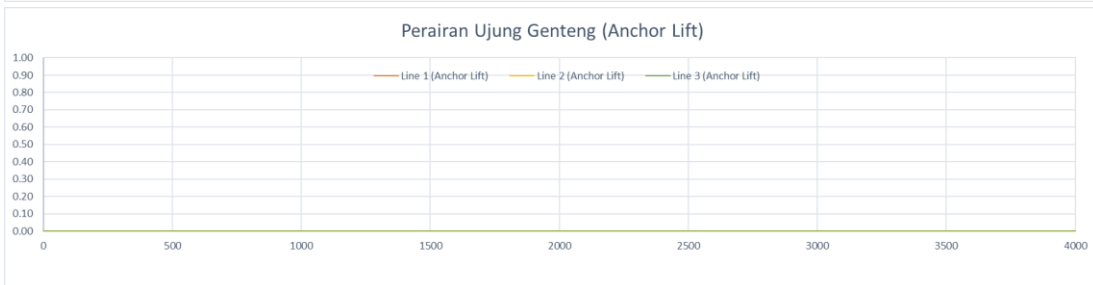
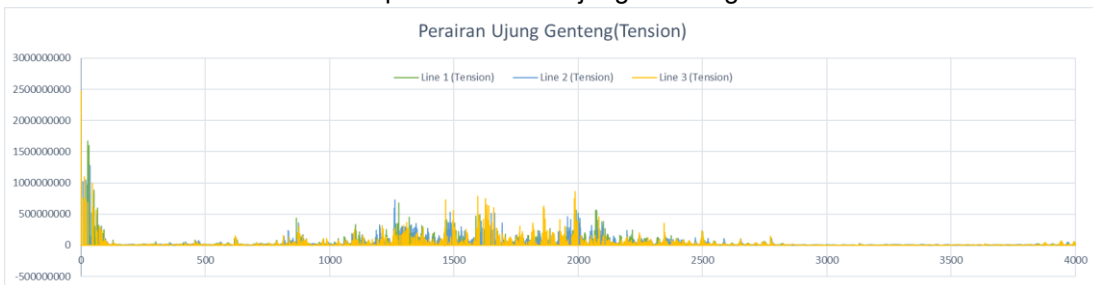


**Lampiran 14.** Grafik hasil *running structure position surge, sway, heave, roll, pitch,* dan *yaw* MIT/NREL TLP 5MW pada Perairan Ujung Genteng



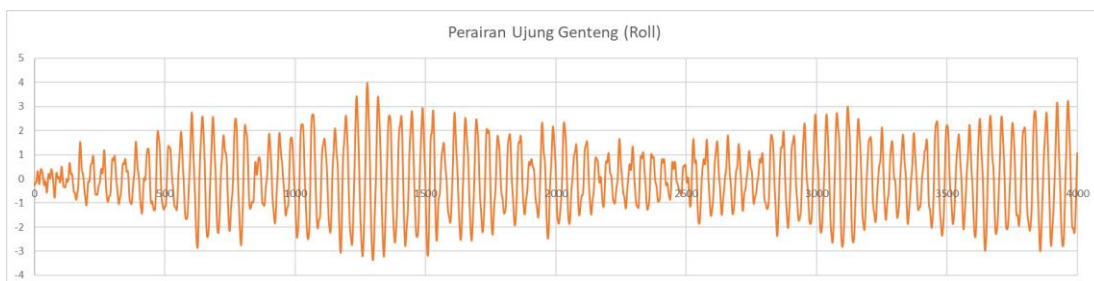
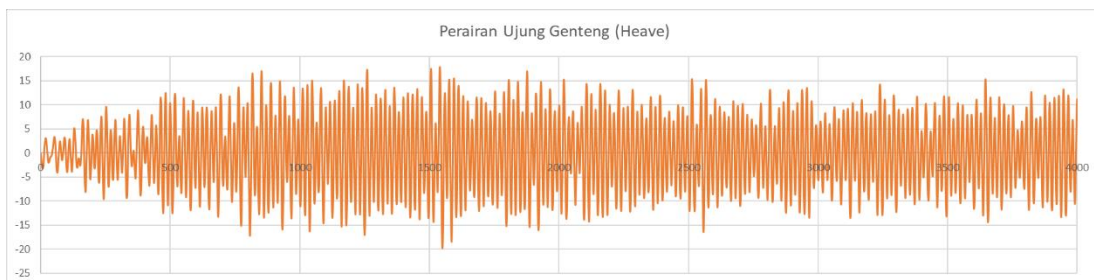


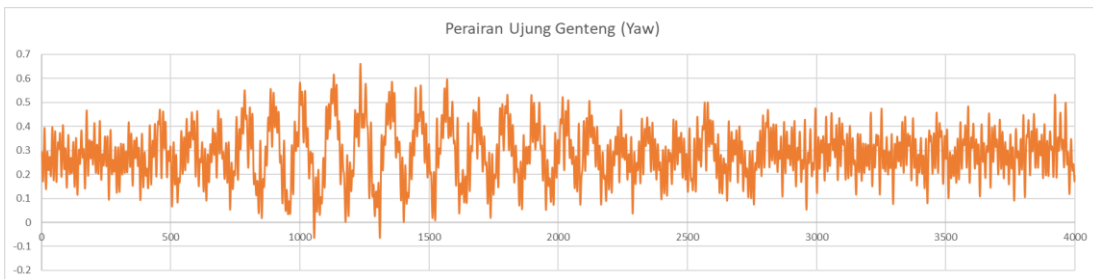
**Lampiran 15.** Grafik hasil *running tension mooring line* dan *anchor lift* MIT/NREL TLP 5MW pada Perairan Ujung Genteng



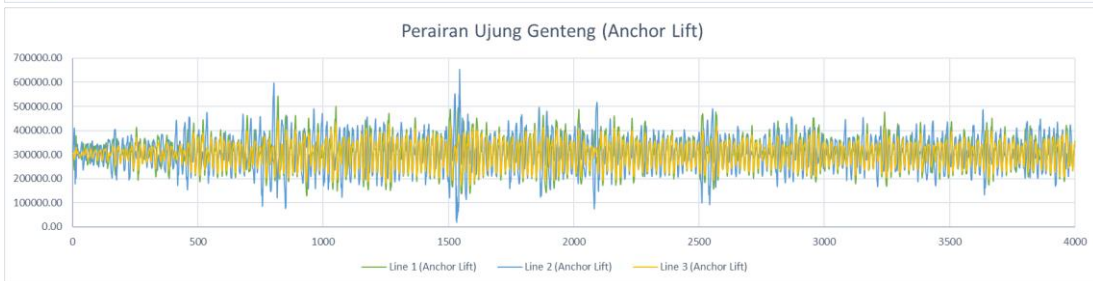
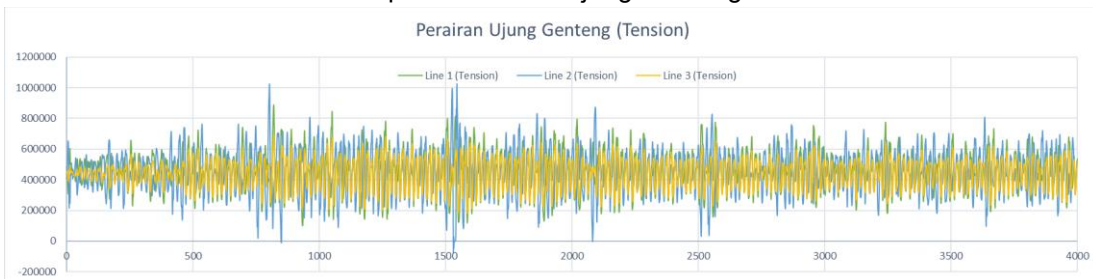


**Lampiran 16.** Grafik hasil *running structure position surge, sway, heave, roll, pitch,* dan *yaw semi-submersible OC4 5MW* pada Perairan Ujung Genteng

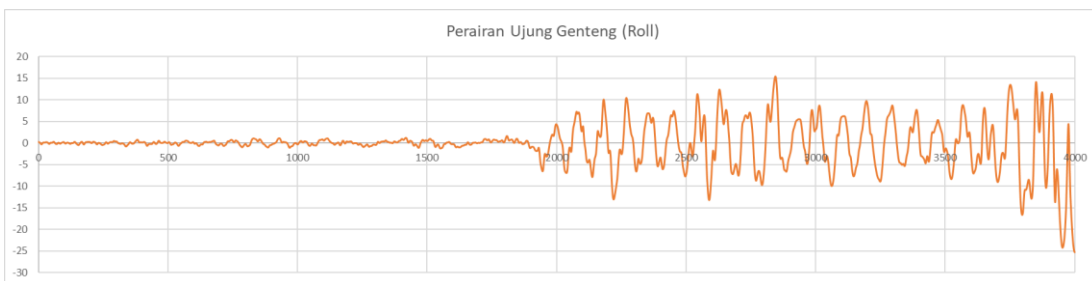
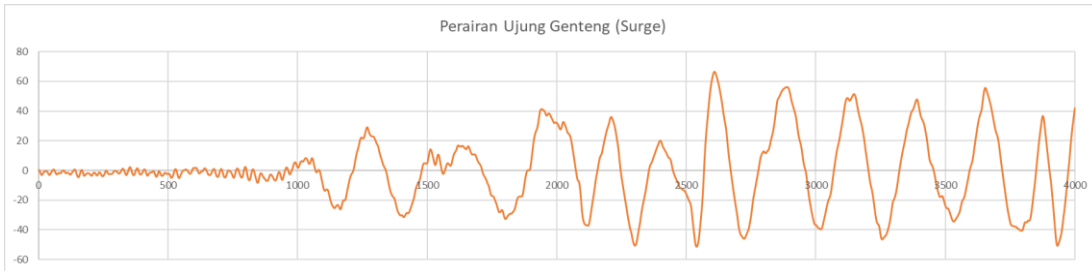


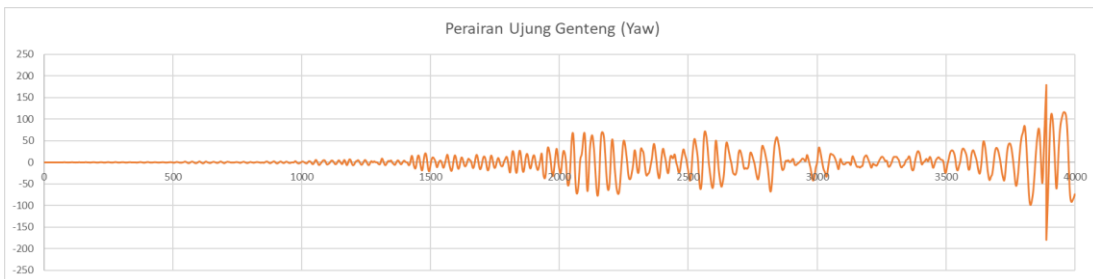


**Lampiran 17.** Grafik hasil *tension mooring line* dan *anchor lift semi-submersible* OC4 5MW pada Perairan Ujung Genteng

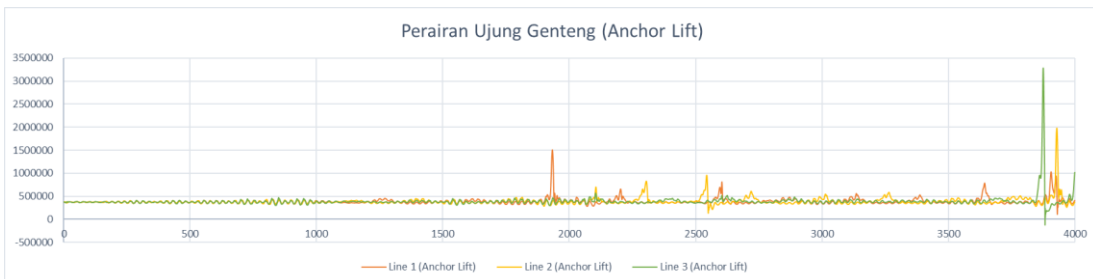
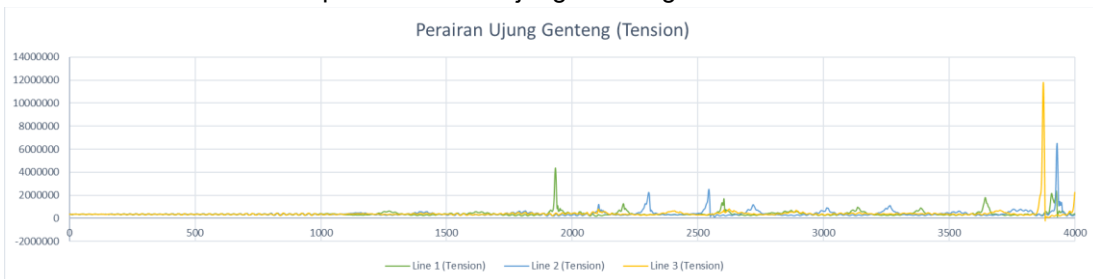


**Lampiran 18.** Grafik hasil *running structure position surge, sway, heave, roll, pitch,* dan *yaw* SPAR OC3 5MW pada Perairan Ujung Genteng

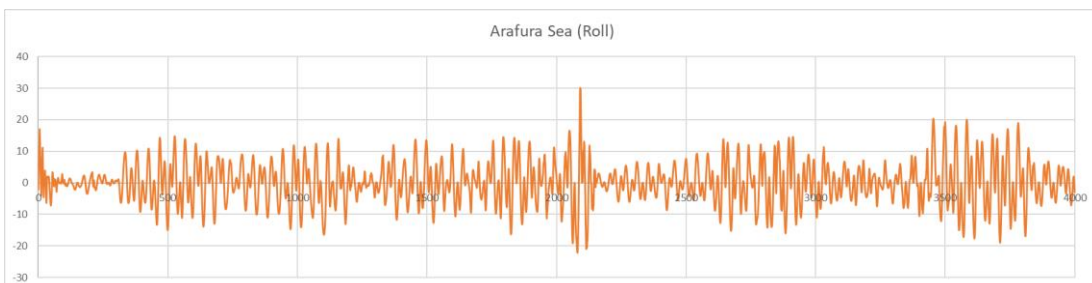
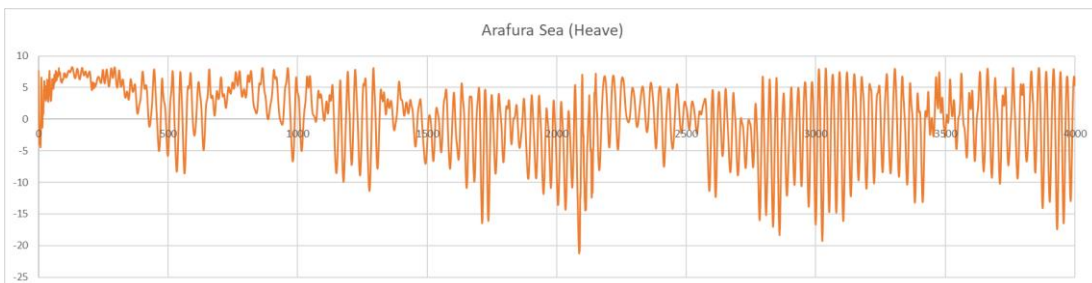
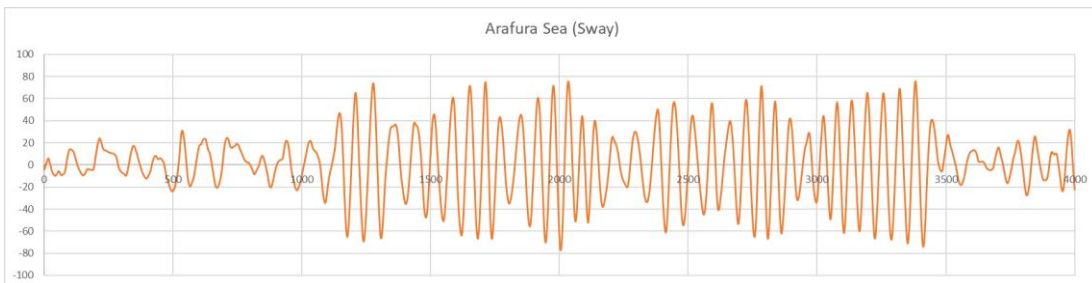
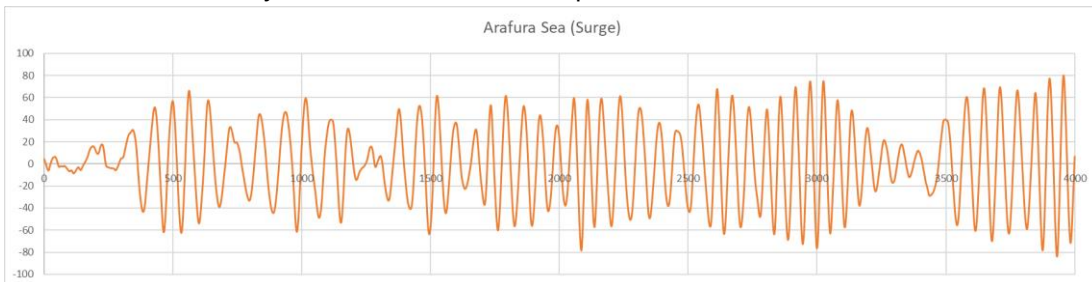


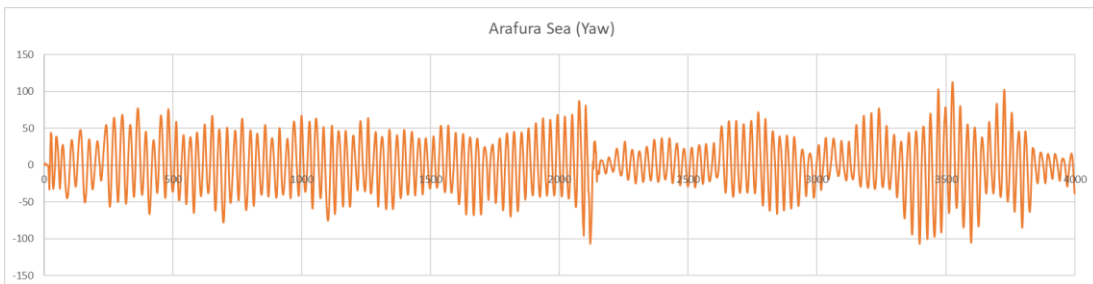
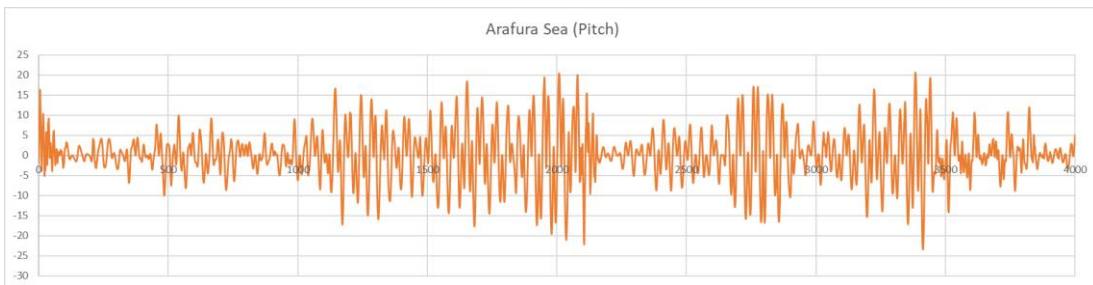


**Lampiran 19.** Grafik hasil *tension mooring line* dan *anchor lift* SPAR OC3 5MW pada Perairan Ujung Genteng

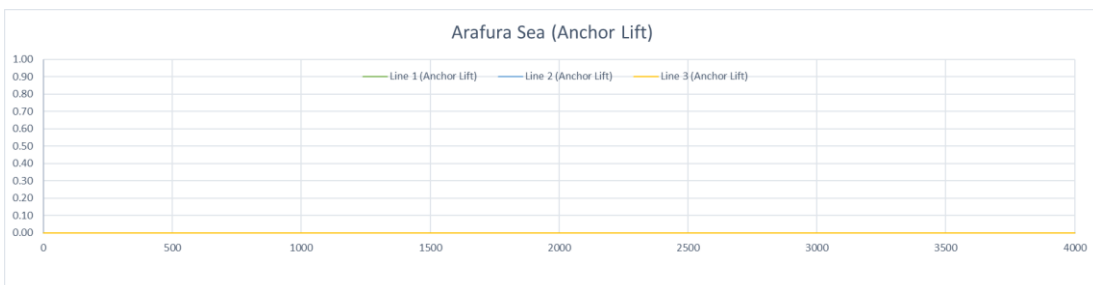
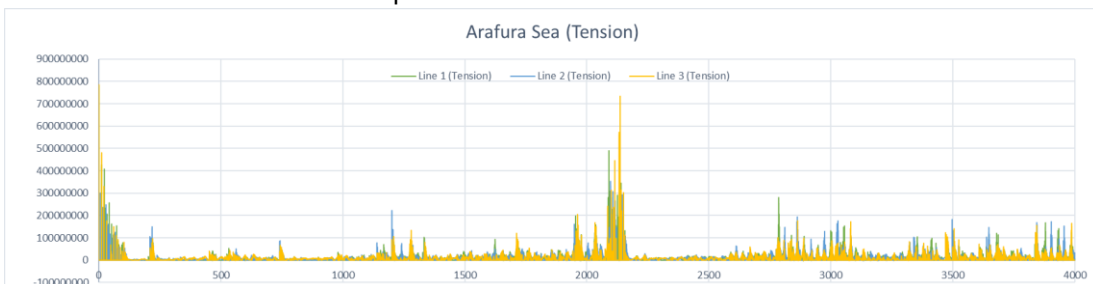


**Lampiran 20.** Grafik hasil *running structure position surge, sway, heave, roll, pitch,* dan *yaw* MIT/NREL TLP 5MW pada Laut Arafura

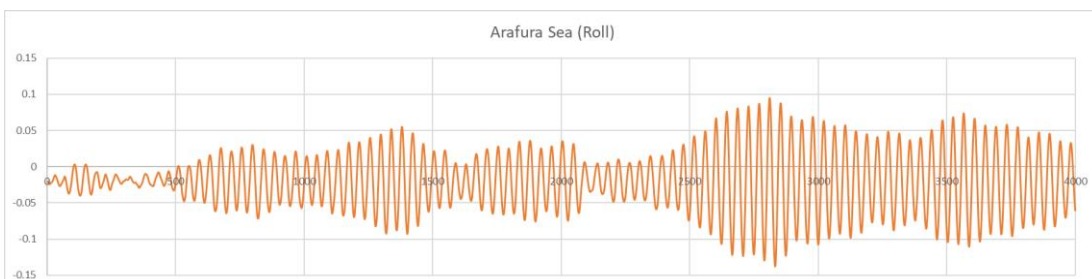
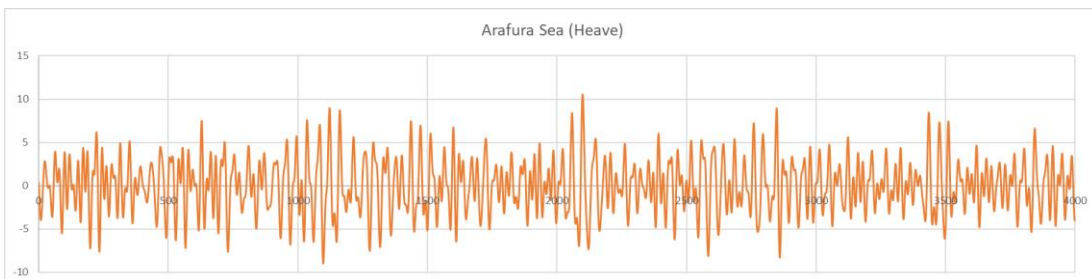
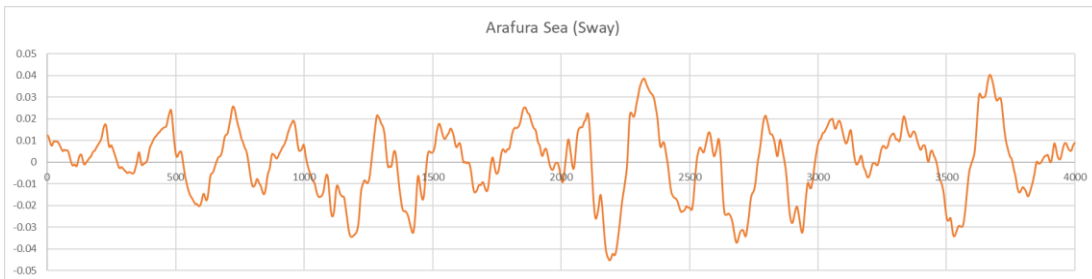
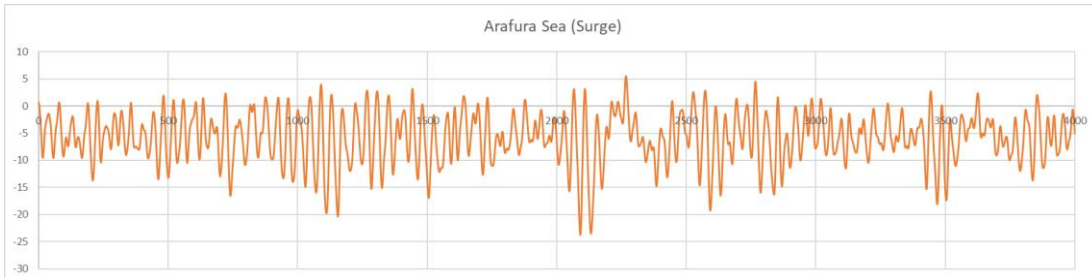


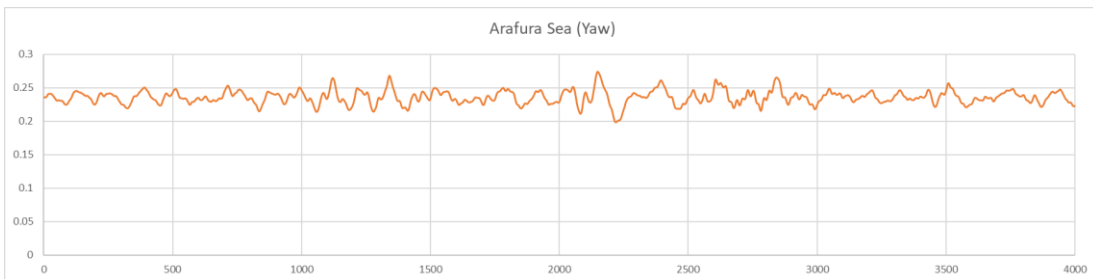
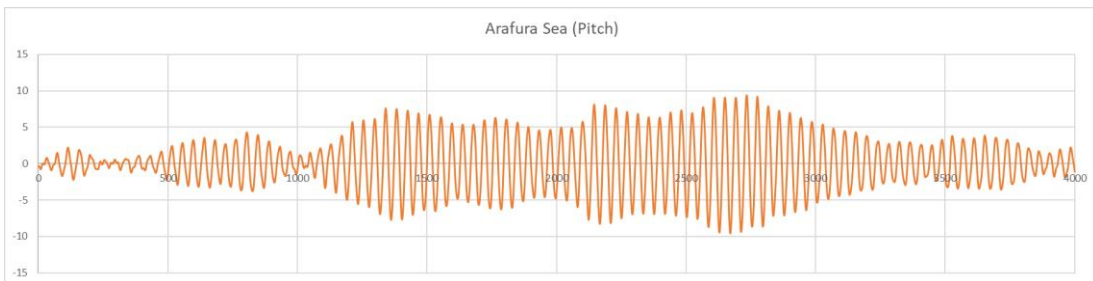


**Lampiran 21.** Grafik hasil *tension mooring line* dan *anchor lift* MIT/NREL TLP 5MW pada Laut Arafura

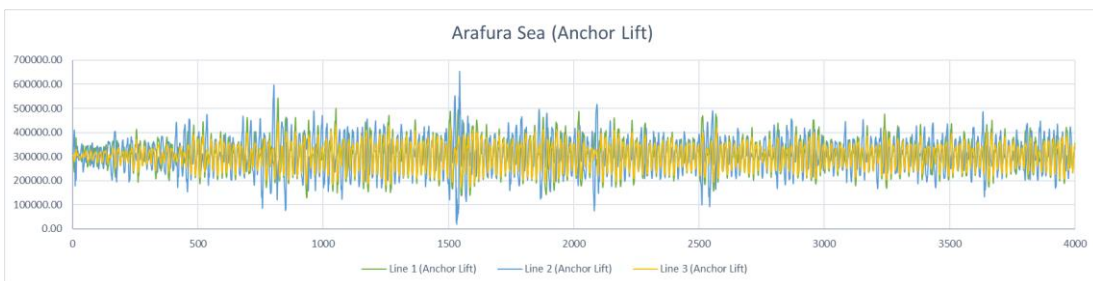
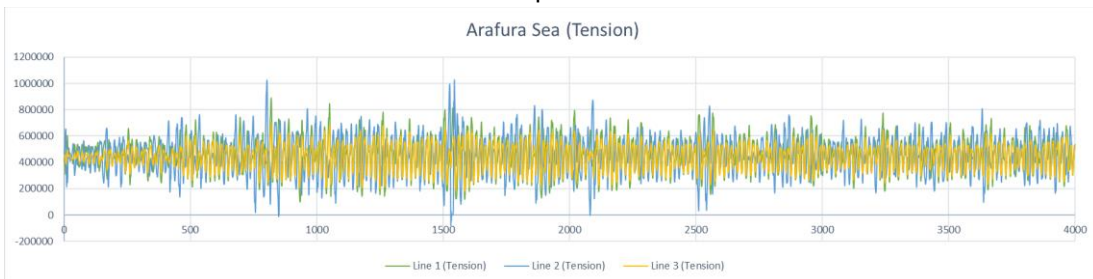


**Lampiran 22. Grafik hasil running structure position surge, sway, heave, roll, pitch, dan yaw semi-submersible OC4 5MW pada Laut Arafura**



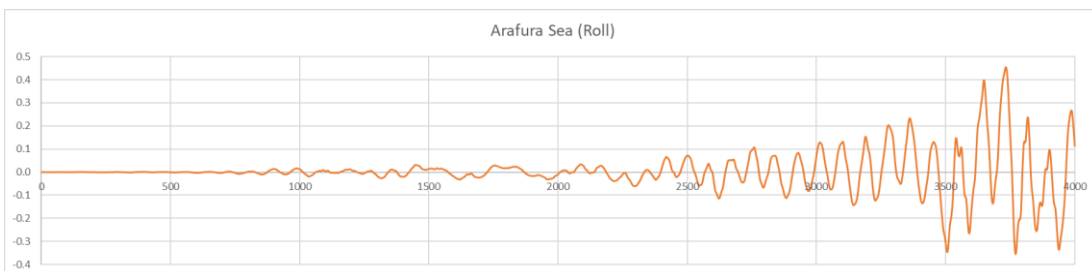
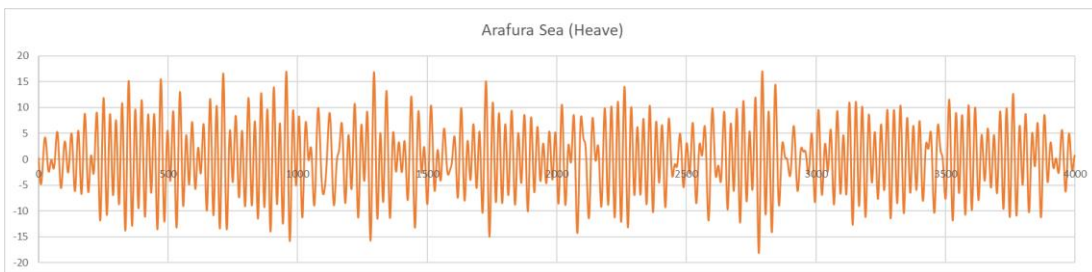
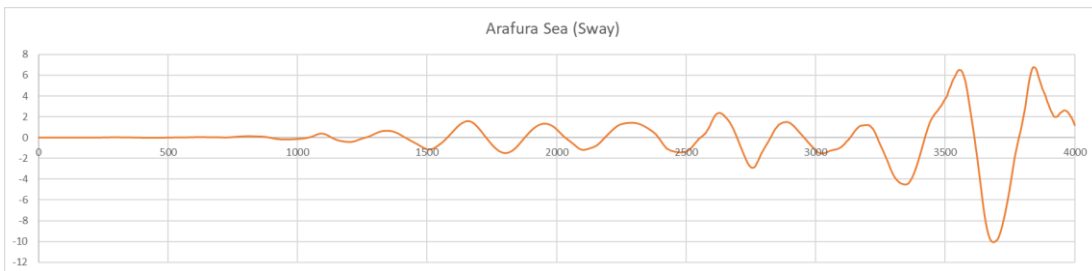
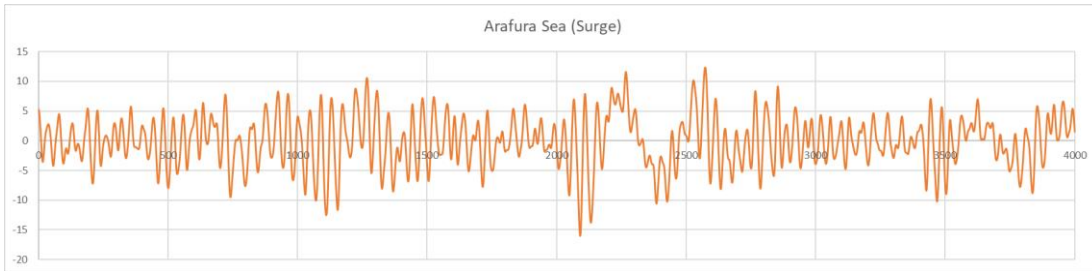


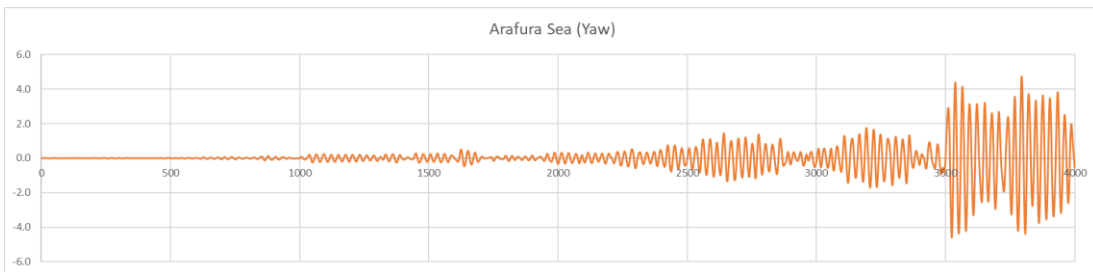
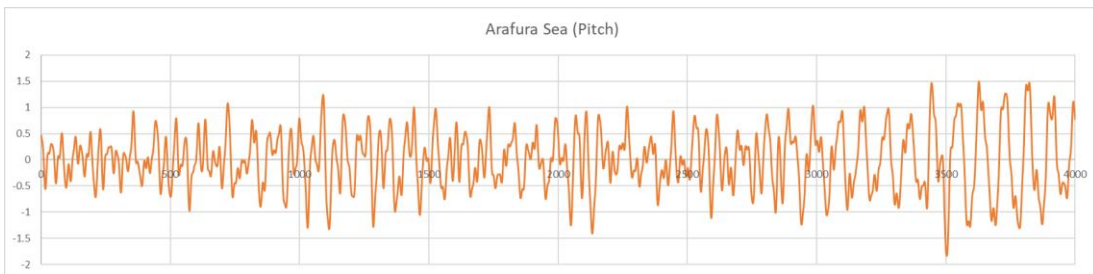
**Lampiran 23.** Grafik hasil *running tension mooring line* dan *anchor lift semi-submersible OC4 5MW* pada Laut Arafura





**Lampiran 24.** Grafik hasil *running structure position surge, sway, heave, roll, pitch,* dan yaw SPAR OC3 5MW pada Laut Arafura





**Lampiran 25.** Grafik hasil *running tension mooring line* dan *anchor lift* SPAR OC3 5MW pada Laut Arafura

