DeepStar Theme Stuctures Model Tests

REVIEW OF THE TESTS WITH TURRET MOORED FPSO

MARIN Test No.	Description	Environment
Tests in Hurricane set-up		
101047 to 050	Surge static load displacement	-
101051	Surge decay	Calm water
101055	Roll decay	Calm water
102006	Wind only (one-hour mean)	Hurricane (0.5 hours)
102007	Current only	Hurricane (0.5 hours)
101054	Surge decay in current	Hurricane
102008	Current + Wind (one-hour mean)	Hurricane (0.5 hours)
102009	Waves + Current + Wind - Seed 1	Hurricane (3 hours)
103001	Waves + Current + Wind - Seed 2	Hurricane (3 hours)
104001	Waves + Current + Wind - Seed 3	Hurricane (3 hours)
105001	Waves only - Seed 1	Hurricane (3 hours)
106002	Waves only - Seed 2	Hurricane (3 hours)
107001	Waves only - Seed 3	Hurricane (3 hours)
Tests in Loop-Current set-up		
101002 to 005	Surge static load displacement	-
101006	Surge decay	Calm water
101008	Roll decay	Calm water
108002	Wind only (one-hour mean)	Loop-Current (0.5 hours)
108010	Current only	Loop-Current (0.5 hours)
101012	Surge decay in current	Loop-Current
108011	Current + Wind (one-hour mean)	Loop-Current (0.5 hours)
108012	Waves + Current + Wind - Seed 1	Loop-Current (3 hours)
109001	Waves + Current + Wind - Seed 2	Loop-Current (3 hours)
110001	Waves + Current + Wind - Seed 3	Loop-Current (3 hours)

DeepStar Theme Structures Model Tests

REVIEW OF PRESENTATION OF RESULTS FPSO MOORING TESTS

Loop-Current Condition (part A)

Test No. 108002 : Wind only (0.5 hour)
FPSO position plot: top view (1)
Statistical analysis (2)

Test No. 108010 : Current only (0.5 hour)
FPSO position plot: top view (1)
Statistical analysis (2)

Test No. 108011 : Wind and Current (0.5 hour)
FPSO position plot: top view (1)
Statistical analysis (2)

Test No. 108012 : Waves, Wind and Current – Seed 1 (3 hours)
FPSO position plot: top view (1)
Statistical analysis (3)
Time traces (21)
Spectra of riser axial forces forces (12)

Test No. 109001 : Waves, Wind and Current – Seed 2 (3 hours)
FPSO position plot: top view (1)
Statistical analysis (3)
Time traces (18)
Spectra of riser axial forces (5)

Test No. 110001 : Waves, Wind and Current – Seed 3 (3 hours)
FPSO position plot: top view (1)
Statistical analysis (3)
Time traces (18)
Spectra of riser axial forces (5)

DeepStar Theme Structures Model Tests

REVIEW OF PRESENTATION OF RESULTS FPSO MOORING TESTS

Loop-Current Condition (continued)

Comparison of the results of the three different wave trains (Seed 1, 2 and 3)

Response functions:
Six d.o.f. motions (6)

Weibull distributions:
X TURNTAB – positive values (1)
Y TURNTAB – negative values (1)
YAW FPSO – positive values (1)
FX TURNTAB – positive values (1)
FY TURNTAB – negative values (1)
FZ TURNTAB – positive and negative values (2)
MX TURNTAB – positive values (1)
MY TURNTAB – positive values (1)
Mooring line forces; F LINE 7, 8, 9, 2 – positive values (4)
Riser forces; F RISER 15, 19, 21, 24, 25 – positive values (5)
REL BOW – positive and negative values (2)

Rayleigh distributions:
REL BOW – crests and troughs (1)

DeepStar Theme Structures Model Tests

REVIEW OF PRESENTATION OF RESULTS FPSO MOORING TESTS

Hurricane Condition (part B)

Test No. 102006 : Wind only (0.5 hour)
FPSO position plot: top view (1)
Statistical analysis (2)

Test No. 102007 : Current only (0.5 hour)
FPSO position plot: top view (1)
Statistical analysis (2)

Test No. 102008 : Wind and Current (0.5 hour)
FPSO position plot: top view (1)
Statistical analysis (2)

Test No. 102009 : Waves, Wind and Current – Seed 1 (3 hours)
FPSO position plot: top view (1)
Statistical analysis (3)
Time traces (20)
Spectra of riser axial forces forces (4)

Test No. 103001 : Waves, Wind and Current – Seed 2 (3 hours)
FPSO position plot: top view (1)
Statistical analysis (3)
Time traces (18)
Spectra of riser axial forces (4)

Test No. 104001 : Waves, Wind and Current – Seed 3 (3 hours)
FPSO position plot: top view (1)
Statistical analysis (3)
Time traces (18)
Spectra of riser axial forces (4)

DeepStar Theme Structures Model Tests

REVIEW OF PRESENTATION OF RESULTS FPSO MOORING TESTS

Hurricane Condition (continued)

Comparison of the results of the three different wave trains (Seed 1, 2 and 3)

Response functions:
Six d.o.f. motions (6)

Weibull distributions:
X TURNTAB – negative values (1)
Y TURNTAB – positive values (1)
YAW FPSO – positive values (1)
FX TURNTAB – positive values (1)
FY TURNTAB – negative values (1)
FZ TURNTAB – positive and negative values (2)
MX TURNTAB – positive values (1)
MY TURNTAB – positive values (1)
Mooring line forces; F LINE 1, 2, 3, 8 – positive values (4)
Riser forces; F RISER 13, 20, 22, 25 – positive values (4)
REL BOW – positive and negative values (2)

Rayleigh distributions:
REL BOW – crests and troughs (1)

DeepStar Theme Structures Model Tests

REVIEW OF PRESENTATION OF RESULTS FPSO MOORING TESTS

Hurricane Condition, Waves only (part C)

Test No. 105001 : Waves only – Seed 1 (3 hours)
FPSO position plot: top view (1)
Statistical analysis (3)
Time traces (20)
Spectra of riser axial forces forces (4)

Test No. 106002 : Waves only – Seed 2 (3 hours)
FPSO position plot: top view (1)
Statistical analysis (3)
Time traces (18)
Spectra of riser axial forces (4)

Test No. 107001 : Waves only – Seed 3 (3 hours)
FPSO position plot: top view (1)
Statistical analysis (3)
Time traces (18)
Spectra of riser axial forces (4)

Comparison of the results of the three different wave trains (Seed 1, 2 and 3)

Response functions:
Six d.o.f. motions (6)

Weibull distributions:
X TURNTAB – negative values (1)
Y TURNTAB – positive and negative values (2)
YAW FPSO – positive values (1)
FX TURNTAB – positive values (1)
FY TURNTAB – positive and negative values (2)
FZ TURNTAB – positive and negative values (2)
MX TURNTAB – positive and negative values (2)
MY TURNTAB – positive and negative values (2)
Mooring line forces; F LINE 1, 2, 3, 8 – positive values (4)
Riser forces; F RISER 13, 20, 22, 25 – positive values (4)
REL BOW – positive and negative values (2)

Rayleigh distributions:
REL BOW – crests and troughs (1)