

DeepStar Theme Structures Model Tests

**REVIEW OF DECAY TESTS WITH THE SPAR**

MARIN Test No.	Motion SPAR	Test condition	SPAR condition
<b>Tests in Loop-Current set-up</b>			
901015	Surge	calm water	without strakes
901007	Sway	calm water	without strakes
901008	Heave	calm water	without strakes
901009	Roll	calm water	without strakes
901010	Pitch	calm water	without strakes
901018	Surge	current 1.87 m/s	with strakes
901020	Sway	current 1.87 m/s	with strakes
901021	Heave	current 1.87 m/s	with strakes
901022	Roll	current 1.87 m/s	with strakes
901023	Pitch	current 1.87 m/s	with strakes
<b>Tests in Hurricane set-up</b>			
901038	Surge	current 1.07 m/s	with strakes
901040	Sway	current 1.07 m/s	with strakes
901044	Heave	current 1.07 m/s	with strakes
901046	Vertical motion riser A1	-	Position SPAR -32 m
901045	Vertical motion riser E1	-	Position SPAR -32 m
901047	Vertical motion riser C5	-	Position SPAR -32 m
901048	Vertical motion riser A1	-	Position SPAR 0 m
901049	Vertical motion riser E1	-	Position SPAR 0 m
901049	Vertical motion riser C5	-	Position SPAR 0 m

**REVIEW OF TESTS WITH THE SPAR**

MARIN Test No.	Test condition	Test duration [hours]	SPAR condition
<b>Tests in Loop-Current set-up</b>			
911001	Wind only	0.5	With strakes
901017	Current only	0.5	Without strakes
911002	Current only	3.0	With strakes
911003	Current + Wind	1.5	With strakes
911004	Waves + Current + Wind	3.0	With strakes
<b>Tests in Hurricane set-up</b>			
902001	Wind only	1.0	With strakes
902002	Current only	1.0	With strakes
902003	Current + Wind (one-hour mean)	1.0	With strakes
902004	Waves + Current + Wind - Seed 1	3.0	With strakes
903001	Waves + Current + Wind - Seed 2	3.0	With strakes
904001	Waves + Current + Wind - Seed 3	3.0	With strakes
905002	Waves only - Seed 1	3.0	With strakes
906001	Waves only - Seed 2	3.0	With strakes
907001	Waves only - Seed 3	3.0	With strakes

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**REVIEW OF PRESENTATION OF RESULTS, LOOP-CURRENT CONDITION:**

**Test No. 911001** : **Wind only (0.5 hours) with strakes**

SPAR position plot (1)  
Statistical analysis (2)

**Test No. 901017** : **Current only (3.0 hours) without strakes**

SPAR position plot (1)  
Statistical analysis (2)  
Two dimensional plots x-y (top- COG – keel) (3)  
Time traces (4)

**Test No. 911002** : **Current only (3.0 hours) with strakes**

SPAR position plot (1)  
Statistical analysis (2)  
Two dimensional plots x-y (top- COG – keel) (3)

**Test No. 911003** : **Wind and current only (1.5 hours) with strakes**

SPAR position plot (1)  
Statistical analysis (2)

**Test No. 911004** : **Wind, waves and current (3.0 hours) with strakes**

SPAR position plot (1)  
Statistical analysis (2)  
Time traces (20)

**Additional results** :

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

Spectra:

Six d.o.f. motions (6)  
Relative wave height (1)  
Relative heave motions and tension forces buoyancy tanks (2)

Weibull distributions:

X COG EF (1)  
Y COG EF positive and negative (2)  
Z COG EF (1)  
Force line 8 (1)

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**REVIEW OF PRESENTATION OF RESULTS, HURRICANE CONDITION**

**Test No. 902001 :** Wind only (1.0 hours) with strakes  
SPAR position plot (1)  
Statistical analysis (2)

**Test No. 902002 :** Current only (1.0 hours) with strakes  
SPAR position plot (1)  
Statistical analysis (2)

**Test No. 902003 :** Wind and current only (1.0 hours) with strakes  
SPAR position plot (1)  
Statistical analysis (2)

**Test No. 902004 :** Wind, waves and current (3.0 hours) with strakes – seed no. 1  
SPAR position plot (1)  
Statistical analysis (2)  
Time traces (18)

**Test No. 903001 :** Wind, waves and current (3.0 hours) with strakes – seed no. 2  
SPAR position plot (1)  
Statistical analysis (2)  
Time traces (18)

**Test No. 904001 :** Wind, waves and current (3.0 hours) with strakes – seed no. 3  
SPAR position plot (1)  
Statistical analysis (2)  
Time traces (18)

**Additional results :**  
Response functions of the six d.o.f. motions (6)

Spectra:  
Six d.o.f. motions (6), relative wave height (1), Relative heave motions and tension forces buoyancy tanks (6)

Weibull distributions:  
X COG EF (1), Y COG EF positive and negative (2), Z COG EF (1), Line forces, lines 1, 2, 3, 13 and 14 (5)

**HURRICANE CONDITION (WAVES ONLY)**

**Test No. 905002 :** Waves only (3.0 hours) with strakes – seed no. 1  
SPAR position plot (1)  
Statistical analysis (2)  
Time traces (18)

**Test No. 906001 :** Waves only (3.0 hours) with strakes – seed no. 2  
SPAR position plot (1)  
Statistical analysis (2)  
Time traces (18)

**Test No. 907001 :** Waves only (3.0 hours) with strakes – seed no. 3  
SPAR position plot (1)  
Statistical analysis (2)  
Time traces (18)

**Additional results :**  
Response functions of the six d.o.f. motions (6)

Spectra:  
Six d.o.f. motions (6), relative wave height (1), relative heave motions and tension forces buoyancy tanks (6)

Weibull distributions:  
X COG EF (1), Y COG EF positive and negative (2), Z COG EF (1), Line forces, lines 1, 2, 3, 13 and 14 (5)