

# Ekinox Test Results



TEST ENVIRONMENT

MARINE



PRODUCT ON TEST

Ekinox Series  
**Ekinox-A**  
Motion Sensor



## TEST CONDITIONS

### TESTED PRODUCTS

Ekinox-A Motion Sensor

### TESTED PERFORMANCE

Heave, Roll, and Pitch

### PLACE

Brest (France) at the IFREMER Institute

### CONDITIONS

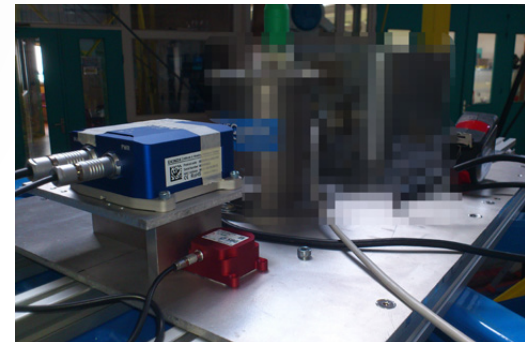
Sea conditions simulated on a Hexapod

The test session simulated a complete 6 degrees of freedom (DOF). The hexapod reproduced various sea conditions while providing accurate reference data. A wide range of heave frequencies and amplitudes have been initiated as well as periods in the range of 5 to 12 s.

The test included eight sessions of five minutes tests and an additional fifteen minutes test to check longer operation periods.

**FULL REPORT :** Send an email to [contact@sbg-systems.com](mailto:contact@sbg-systems.com) to receive the complete version of this test.

Special thanks to IFREMER Institute and Mr. Pierre Merriaux (IRSEEM and ESIGELEC) who conducted this performance test.

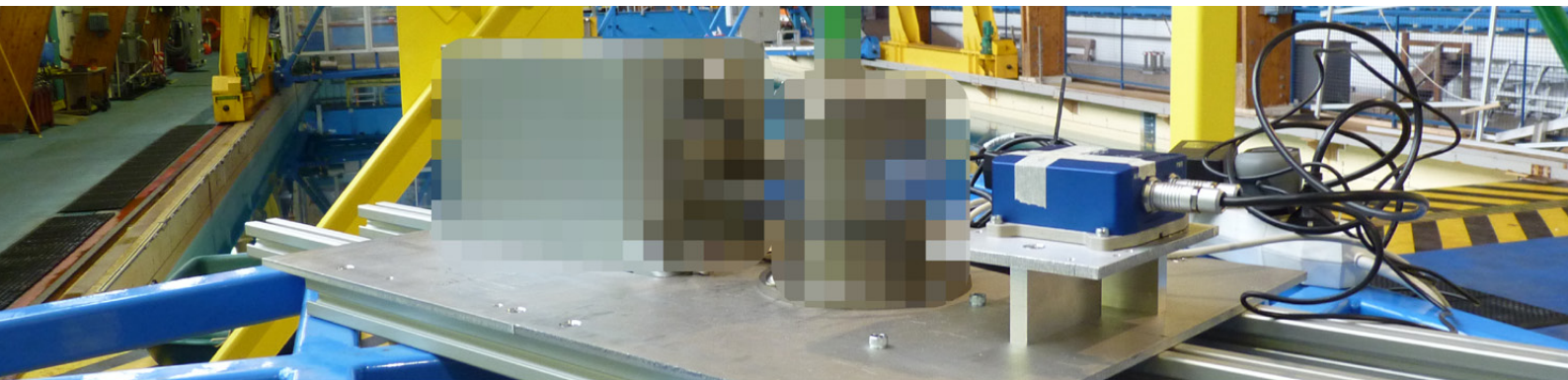


### MOUNTING ON THE HEXAPOD

All tested sensors were mechanically strapped on the Hexapod platform which provides accurate 6 degrees of freedom.

Precision alignment ensured a 0.1° alignment accuracy on roll and pitch angles.

# TEST RESULTS



## Overall Results

### ACCURACY

	Roll	Pitch	Heave
RMS Error	0.028	0.032	2.3

RMS errors above represent the mean error obtained during the whole fifteen minutes test session.

### ROLL, PITCH

A 0.03° RMS accuracy is obtained in roll/pitch angles. This performance level gives a good confidence in reaching the specified 0.05° accuracy under more challenging environments such as rough sea state or vibrating environments.

### HEAVE

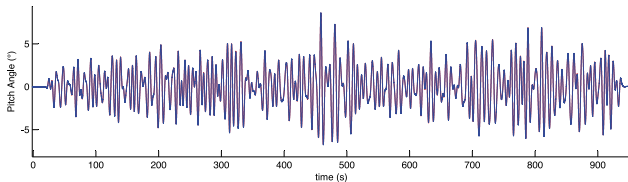
The 5 cm or 5% specification is also reached with a comfortable margin, with less than 2 cm RMS error. Automatic heave period computation ensures that the Ekinox heave filter is always correctly tuned.

## Detailed Results

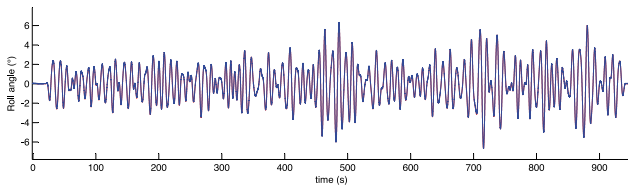
The Hexapod accuracy is much higher than the Ekinox-A. It has been used as a reference for this test.

— Hexapod — Ekinox-A

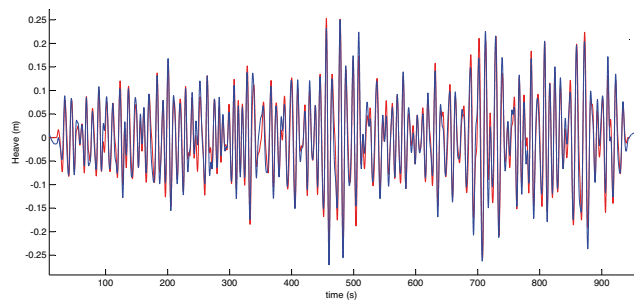
### PITCH



### ROLL



### HEAVE



**Heave Performance can be further improved with GPS Aiding.** The whole test was performed in "Vertical Gyro" mode, where only a vertical reference is used to stabilize the attitude. In case of harsh environments, a GPS aiding can be used to improve orientation and heave accuracy, even during long term turns or accelerations, and high amplitude swell conditions.