Speed trials and field measurements

SINTEF Ocean has over 75 years of experience of ship model testing in our test facility in Trondheim. But we also have a large experience in doing speed trials and field measurements. SINTEF Ocean can provide a wide range of field measurements from testing of new builds to test helping the customer with problem solving of their vessel. Here is a list of the most typical tests SINTEF Ocean can provide:

Delivery trials.

In almost all shipbuilding contracts there are specific requirements for the speed the ship shall obtain at certain engine power levels. There are also very specific and grave consequences for deviations for the contracted speed.

Speed and power trials.

Speed and power trials are according to ITTC "Recommended Procedures and Guidelines -Preparation and conduct of speed power trials".

Bollard pull tests

Common part of delivery trials for tugs and anchor handlers. A very rugged pull meter is applied. Important to minimise effects of boundaries (quay, bottom) and look for effects of water recirculation.

Manoeuvring tests

Turning and manoeuvrability test according to IMO MSC/Circ.1053 "Explanatory notes for ship manoeuvrability" and ABS Guide for Vessel Maneuverability. (Manoeuvring characteristics for ships requesting class notation NAUT-AW.) Turning circle tests, Zig-zag maneuvering tests, direct and reverse spiral tests.

High speed crafts safety testing

Test according to IMO's 2000 HSC Code and Annex 9 testing. Cruise performance in moderate and rough seas. Turning and manoeuvrability tests. Stopping and accelerations tests. Failure testing (FMEA-tests). Tests to document limiting of safe operation of the craft. – (Comfort, motion and acceleration. Operational criteria and limitations).

Free fall life boat testing

New types of free-fall lifeboats are steadily developed.

To verify a free fall lifeboat capacity with respect to structural strength, g-forces on people inside and lifeboat motion from release to surface re-entrance, full scale tests of the boats are required. SINTEF Ocean has since 2005 been involved in the full scale testing by doing all the instrumentation in the boat and the measurements during the drop which in some case are quite extensive by more than 60 sensors installed. The most extreme tests so fare are performed from above 60 m height.

Performance in Seaways in Harsh and extreme weather.

Ship motions, accelerations and performance in seaways. Motion Seasick Index analysis.

Energy Efficiency Measurements, EEDI power testing

Emissions measurement, quantification and documentation (VOC, CO2, NOx, SOx).

Accredited measurement and exhaust emissions measurement

Measurement of emissions to air from ship machinery and gas turbines. NOX, Unburned hydrocarbons (UHC), CO , CO2, O2 measurement, quantification and documentation on diesel engines and gas turbines according to IEC/ISO 17025.

Long term field measurements

Measurements with duration from 1 month to several years. Ship accelerations and motions. Shaft power and torque for documenting of power and fuel consumption. Analysis and presentation of Big data set.

Problem solving tests to help the ship owner finding solution of problems with their vessel. High fuel consumption, vibrations and noise, moonpool response, tuning of roll damping tanks.

Test to look into physical phenomenon as Spin out, broaching, stern slamming and wet deck slamming.

SINTEF

CONTACT PERSON:

Toralf Sundin Hamstad M.Sc.
SINTEF Ocean
+47 934 41 117
toralf.hamstad@sintef.no