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Testing Procedure for R/V Atlantis 0.681 Fiber Optics

Purpose

The purpose of this testing is to determine if a cast using a dead weight will relax the 0.681 cable on the R/V Atlantis. The relaxing of the cable should reduce the attenuation noted in the fiber optic cables.

Procedure

Pre-deployment

1) Using the prescribed testing method measure the optical loss using an OTDR.
2) Perform an end to end test using an optical loss test set (if available and possible)
3) Calibrate the levelwind load cell.
4) Set up to record load cell data.
5) Inspect cable termination and re-terminate as necessary

Deployment

1) Deploy the 0.681 cable using a clump weight.
2) Record levelwind load cell data.
3) Using the OTDR live mode monitor the black fiber optic cable. Use a wave length of 1550nm, range of 15km, and normal mode, Auto-setup by range.
4) At maximum depth use the prescribed testing method.
5) Recover cable and clump weight.

Post Deployment

1) Measure optical loss using the prescribed method.
2) Measure optical loss through the slipring

Optical Loss Testing Methodology Using an OTDR

OTDR Settings:

- Mode: Expert
- Averaging: 60 s
- Range: 15 km
- Resolution: Normal
- Launch Fiber Length: 0
- Wavelength: 1310/1550nm

Setup:

- Use a launch fiber, 50 meters or longer, between OTDR and EOM fiber
- do not OTDR test through the slip ring.

Measurements:

- Use a 100ns pulse width, measure all 3 EOM fibers. Record SOR files.
- Use a 300ns pulse width, measure all 3 EOM fibers. Record SOR files.
- Use a 1us pulse width, measure all 3 EOM fibers. Record SOR files.