

Title: Improving GNSS Sensor Reliability

Author: David Russell, *Veripos*

Abstract

The GNSS sensor provides a real-time position feed to the DP system and is essential for safe and reliable operations on a global basis. This paper will look at how the reliability of the GNSS sensor as a PME (Position Measuring Equipment) can be improved through various approaches as outlined below.

It will examine the impact of new GNSS satellite signals and constellations, focusing on the potential signal combinations and the benefits that will bring in terms of positioning resilience and robustness. This will also have an impact in the augmentation data required to be generated and subsequently sent to users.

Delivery of data to the user is also considered with particular focus on providing augmentation to vessels operating at high latitudes where reception of data from the L-band geo-stationary satellites can become problematic because of visibility to the satellite. In addition, extending the validity of the correction data can help maintain reliable GNSS positioning.

Reliability can be improved by integrating a complementary sensor with the GNSS such as an INS. This paper will look at the results from the VERIPOS Axiom system in an operational environment which has helped in facilitating further development of the system with particular focus on the particular information provided to the DP system and DP operator in terms of data interface and visualization.

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