

Title: **Location, Location, Location – Antenna Installation**

Author: Dr. David Russell
 Veripos

Abstract

To ensure optimal performance of the positioning system, a suitable antenna needs to be chosen and installed in an un-obstructed location to provide clear visibility of the sky. By the time the signals arrive at the vessel antenna they are weak which makes them susceptible to interference, whether intentional or unintentional, so again location of the antenna is important as is the choice of an appropriate antenna.

This paper will examine the factors that should be considered for installing any antenna associated with a positioning system. It not only considers the physical location to prevent blockage or interference but addresses other areas that can often be overlooked but which can have implications on the installation and performance of the system. Examples include cable type and length of cable run, lighting protection and even the selection of the most appropriate antenna.

An overview of antenna design will be presented to highlight some of the issues that are faced when using multi-constellation GNSS or combined GNSS/L-band antennas which can impact system performance through multipath, signal to noise or interference.

Another topic covered is that of GNSS interference which is something that is gaining more press coverage with stories about the availability of low-cost jammers and wireless broadband networks and the impact on GPS. It will consider un-intentional and intentional interference in the offshore environment using real world case studies to highlight the impact on positioning and how a systematic approach was used to identify the source of interference.

The paper will look at some of the research and development being conducted into the field of antenna and receiver design to help protect GNSS receivers from interference. Finally, consideration of multi-antenna systems and additional sensors may help mitigate any potential issues to provide the user with a reliable position will be examined.

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