

Title: **RadaScan Applied to Vessel Underway Replenishment at Sea DP Operations**

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Abstract

The accurate control of two vessels at sea whilst personnel and materials are transferred from one to the other is emerging as an important DP operation in both military and civilian circles. This paper firstly introduces the 'RadaScan' system, explaining how X-band FMCW radar technology has been combined with the use of transponders for the very accurate measurement of range and bearing to two or more locations. This includes details of the latest development to the RadaScan product, 'Mini RadaScan', a miniaturized version of the original RadaScan sensor which provides extended market access to microwave technology.

By combining sensor measurements into a position and heading solution that is then supplied to the dynamic positioning system for vessel maneuvering control, this unique radar sensor allows one vessel to track and follow the other vessel at close quarters and in heavy sea states whilst the transfer operations are conducted. A real life example is described, presenting data showing a successful track and follow replenishment at sea operation involving an OSV and a US Coastguard vessel for straight line and turning maneuvers.

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