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SharpEye™, the “Extra Dimension” from Kelvin Hughes

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At this year's Euronaval exhibition in Paris, Kelvin Hughes launches the naval variant of SharpEye™, the world's first new technology radar. SharpEye™ features unprecedented performance against small targets in clutter, unparalleled reliability with little or no maintenance, and low through life cost. SharpEye™ is the most revolutionary innovation in the marine navigation radar market in the last 60 years.

For 60 years marine navigation radar has relied upon short high power pulses of microwave energy to detect contacts on the sea surface. SharpEye™ changes all that. With patented SharpEye™ technology, Kelvin Hughes has eliminated the magnetron and high voltage modulator from its latest series of radar transceivers, taking detection & tracking performance and reliability to a level unrivalled by the competition. Kelvin Hughes' radical new approach enables more information to be extracted from radar returns within the transceiver before they are processed in the display system, allowing detection techniques normally found only in multi-million dollar military surface & air search systems to be made available in a navigation radar – the Extra Dimension!

SharpEye™ delivers exactly what today's and tomorrow's tactical environments demand – I & F Band navigation radar that, in addition to meeting IMO mandated requirements for safe navigation and collision avoidance, will detect & track small, fast moving targets in high clutter conditions. Similarly, SharpEye™ enables intermittent helicopter contacts to be tracked without the need for transponder enhancement.

SharpEye™ I & F Band radar will detect small targets in clutter long before conventional navigation radar. It achieves this major performance advantage by employing a monostatic pulse doppler solid state transceiver, in which the doppler effect is used to measure target velocities. SharpEye™ employs advanced pulse compression techniques to process received data into velocity bands, enabling it to separate valid, wanted targets from clutter.

SharpEye™, the “Extra Dimension” from Kelvin Hughes - continues

The SharpEye™ radar's solid state power amplifier has a peak output of just 170W (10% duty). This contrasts with typical navigation radar systems in which the magnetron has a 25kW (0.05% duty) or 30kW (0.05% duty) peak output. Whilst SharpEye™ produces more energy than magnetron based systems, thereby greatly exceeding conventional radar detection ranges, it offers low probability of intercept attributes approaching those available only in expensive covert radar systems which cannot meet IMO mandated navigation radar requirements.

SharpEye™ continuously measures key performance parameters such as RF output power, Voltage Standing Wave Ratio (VSWR), oscillator frequencies and receiver sensitivity and informs the operator that the radar is operating within its performance envelope. The system automatically alarms if there is any degradation in radar performance and removes the need for periodic performance checks. With no high power or 'lifer' items requiring periodic replacement, SharpEye™ is a truly 'fit and forget' technology, with reliability being maximized and routine maintenance minimised.

SharpEye™ I and F Band radar systems can be fitted in every type and size of naval vessel, and are fully compatible with existing Kelvin Hughes Navigation & Tactical Display (NTD) and Colour Tactical Display (CTD) systems.

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