Taksakorn Tantawutho, Lt. 2014: Efficiency Improvement of Warship Radar Maintenance by Using Infrared Thermography Technique. Master of Engineering (Engineering Management), Major Field: Engineering Management, Department of Industrial Engineering. Thesis Advisor: Associate Professor Patcharaporn Yanpirat, D.Tech.Sc. 63 pages.

The objective of this research was to improve efficiency of warship radar predictive maintenance with a case study of 8 I-band fire control radars by using infrared thermography technique. Design of experiment using Full Factorial experiment was employed to analyze the main effect as well as interaction effect to the radar temperature of each factors. The highest good conditioned radar temperature model was analyzed using regression analysis. Finally, cost reduction was estimated by net present value method and incremental analysis between current corrective maintenance and thermography technique under the risk of uncertain time between failure. The findings revealed the infrared thermography technique was used to locate failure parts of transmission system, receiver system and display system. The highest good conditioned radar temperature model was used to predict the standard highest temperature of radar system, to compare with the inspected sample for failure part locating. Infrared thermography can improve warship radar maintenance by reducing the failure part inspected time and reducing personnel exposure to hazards.

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