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Detection and Countermeasures » Active & Passive Radar Detection & Equipment

MEASUREMENTS USING A POLARIZATION INSTRUMENTATION RADAR ON SELECTED TARGETS

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Abstract: An X-band pulsed radar system designed to measure echoing area and target-polarization characteristics was built. Transmission of any one of four polarized components is possible (vertical, horizontal, right circular, and left circular), and the system is capable of receiving simultaneously along all four resolved components. Tests were conducted on a variety of ships, and polarized component return was calibrated and recorded for different transmitted polarizations. Tests on propeller-driven aircraft (Convair 240 and a T-28) indicate the behavior of such factors as propeller modulation on polarized component return. An F3H jet aircraft was examined during flight and while dispensing **chaff**. Echo-area calibration indicates nose-on and broadside cross- section areas on the order of 120 and 12,000 sq ft, respectively. The characteristics of **chaff** and sea return were examined in detail. Although the return from **chaff** and the sea appears equally noisy, sea return displays prominent power fading, whereas the **chaff** also displays polarization changes. (Author)

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