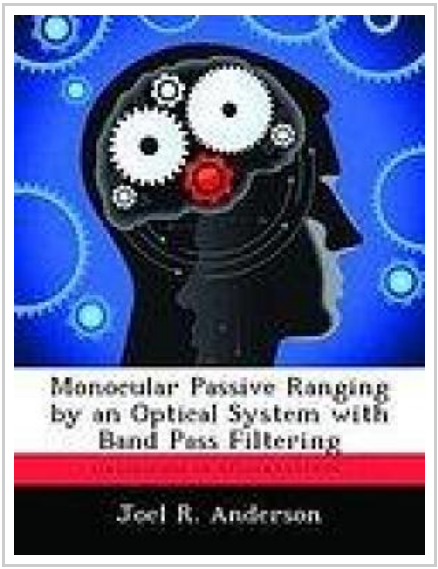

Monocular Passive Ranging by an Optical System with Band Pass Filtering

By Joel R. Anderson

Bibliioscholar Nov 2012, 2012. Taschenbuch. Book Condition: Neu. 246x189x4 mm. This item is printed on demand - Print on Demand Neuware - An instrument for monocular passive ranging based on atmospheric oxygen absorption near 762 nm has been designed, built and deployed to track emissive targets, including the plumes from jet engines or rockets. An intensified CCD array is coupled to variable band pass liquid crystal display filter and 3.5 - 8.8 degree field of view optics to observe the target. By recording sequential images at 7 Hz in three 6 nm width bands, the transmittance of the R-branch of the O2 (X-b) (0,0) band is determined. A metric curve for determining range from transmittance is developed using the HITRAN spectral database. A low cost system was designed and ground tested at ranges of 50 -380 m using halogen and incandescent light sources, establishing an average range error of 12%. The system was first deployed for a ground test viewing an F-16 in afterburner at ranges of 0.35 - 4.8 km, establishing a range error of 15% despite the presence of optical turbulence and a structured source spectrum. Finally, the instrument was flight tested in a C-12 imaging an F-16...

Reviews

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