Abstracts

Optically Controlled Phased Array Radar Receiver Using SLM Switched Real Time Delays

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We report the results of a demonstration of a real time delay, optically controlled phased array radar receiver. This implementation employed a free space configuration based upon an optical switching network using liquid crystal spatial light modulators (SLM's). A three-delay unit, two-antenna array receiver was implemented at an optical wavelength of 1.3 μm and demonstrated "squint-free" operation over the entire X-band (8-12 GHz) with an angular accuracy of 1.4°. Finally, a novel configuration for the two-antenna element SLM architecture was proposed and demonstrated equivalent system performance with a reduction in the number of components.

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