

STRATEGIC LASER COMMUNICATIONS

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ABSTRACT

The possibility of using visible laser beams to communicate with strategic forces has recently been proposed. Two approaches to implementing such a communication system have been discussed. One approach uses a spaceborne laser with a radio frequency uplink. The other approach uses a ground-based laser with one or more space-based relay mirrors. The downlink problems for both approaches are nearly identical. The space-based laser approach must overcome problems associated with space qualifying a large laser, while the ground-based laser approach must overcome the problem of transmitting the uplink optical beam through the turbulent atmosphere. Adaptive optics are used to solve this problem by compensating for the degrading effects imposed on the uplink laser beam as it propagates through the atmosphere.