

Aero-Optics Beacon Corrects Turbulence Around Aircraft Platform

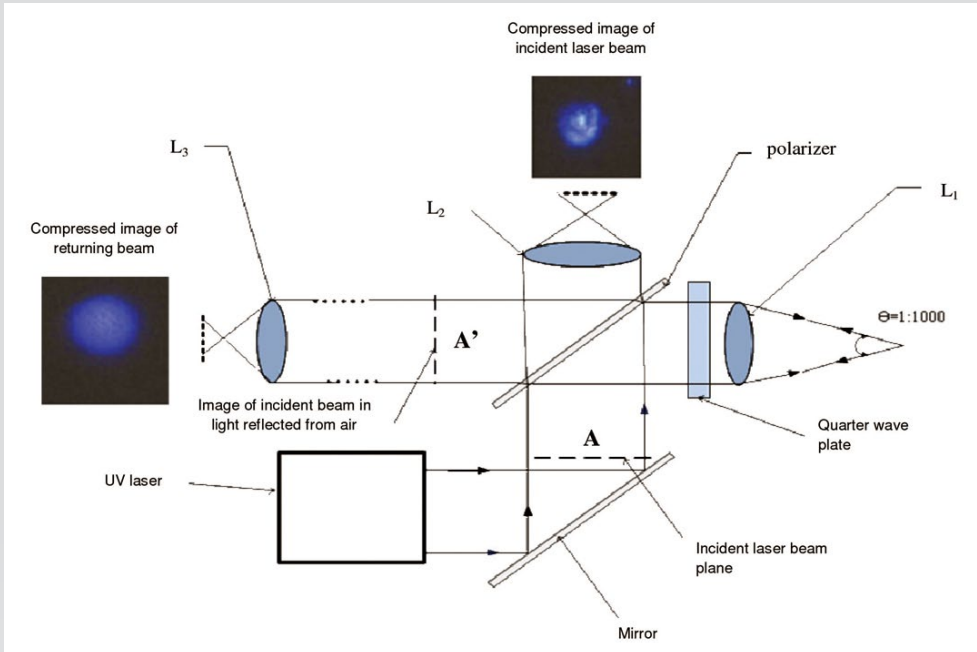


Diagram showing demonstration of excitation of a local beacon in air, via backward stimulated scattering which are realized in beam cleanup geometry in the form of coherent spherical waves. (Passat Inc. Image)

In response to an Air Force need for a beacon to correct for the near-field turbulence around an aircraft platform, the Air Force Research worked with Passat Inc. through a Small Business Innovation Research (SBIR) project to develop a technology that would assist in this correction. This Phase II SBIR project allows for the building of two kinds of imaging systems: (1) an airborne system for target imaging in turbulent atmospheres; and (2) a ground system for both satellite imaging and adaptive telescope adjustments for turbulent atmospheres. It is clear that the Air Force and the Department of Defense can use this technology to record existing interference patterns as well as to build sets of imaging recognition systems (i.e., ground - for satellites; airborne - for air and ground targets).

When an aircraft is in motion, a great deal of atmospheric turbulence is created and encountered. Aircraft with laser systems

must address this turbulence as well as the distance to a target when performing various missions. Unfortunately, the combination of atmosphere and distance tends to greatly reduce the overall quality and effectiveness of the laser system. The end results include degraded end output and lowered energy-to-target measurement levels.

This SBIR innovation raises the possibility of accounting for atmospheric turbulence and disturbances. By correcting encountered turbulence and disturbances, a cleaner path from point A to point B can be achieved. This provides laser-system enabled aircraft with greater missile self-defense coverage and overall higher mission success rates.