Western-Pacific Region

P.O. Box 92007
Worldway Postal Center
Los Angeles, CA 90009

U.S. Department
of Transportation

**Federal Aviation
Administration**

March 17, 2006

Dr. Richard Dekany
Associate Director for Development
Caltech Optical Observatories
105-24, Caltech
Pasadena, CA 91125

Dear Dr. Dekany:

This office has performed an aeronautical study regarding your request for outdoor laser testing of the Laser Guide Star System at the Palomar Observatory. Limitations on laser beam propagation into navigable airspace are necessary in order to integrate your laser operation into the National Airspace System.

The Federal Aviation Administration (FAA) has no objection to the proposed outdoor laser operations provided the operator complies with the enclosed conditions and/or special provisions.

- Operations will be conducted at the following locations, dates, and times:

  Palomar Observatory
  35899 Canfield Rd.
  Palomar Mountain, CA
  Latitude 33°21'22.3"N/longitude 116°51'52.7"'W
  Julian/JLI VORTAC 299 degree radial at 19 nautical miles
  Dates: April 13, 2006 – April 15, 2006
  Time: 8:00 PM to 5:30 AM PDT (ZULU: 0300-1230 April 14-16)
  Dates: June 12, 2006 – June 14, 2006
  Time: 9:00 PM – 4:45 AM PDT (ZULU: 0400-1145 June 13-15)
  Dates: July 11, 2006 – July 13, 2006
  Time: 9:00 PM – 4:45 AM PDT (ZULU: 0400-1145 July 12-14)

- The laser beam angle will not exceed 45 degrees. It is understood that this angle will create a 9 NM footprint at 60,000 ft. MSL, a 3 NM footprint at 45,000 ft. MSL and a .7 NM footprint at 10,000 ft. MSL.

- Five certified aircraft observers will operate at or in the vicinity of the laser beam.

- Observers are to be equipped with instantaneous means of communications with the laser operator to terminate laser emission if aircraft appear to be approaching the outer limits of adverse laser effects.

- Laser beams are to be terminated or directed away from any aircraft that could be adversely affected by the laser beams. This means, within the full distance of any adverse affects to pilots or passengers on aircraft. This stoppage can be at the discretion of the operator, or as the result of directions from the responsible air traffic control facility, which is the Los Anglees Air Route Control Center (ZLA ARTCC).

- It is understood that the onsite person responsible for safety and operating the laser equipment can be instantly accessible during the laser operation at phone numbers 760-742-2106 or 760-742-2108.

- The operator will use additional airspace safety monitoring systems consisting of a Visual All Sky Camera with a range of 100 to 100,000 feet and a boresighted thermal IR camera with a range of 100 to 60,000 feet.

- The operator will provide notification of any cancellation of laser tests to ZLA ARTCC at 661-265-8205.

- The operator will advise the Los Anglees Air Route Control Center in the event the test is cancelled. ZLA will coordinate these changes with the notice to airmen (NOTAM) section of the U. S. NOTAM Office (USNOF) at (888) 876-6826 in accordance with FAA Order 7930.2.

This Letter of Determination is only applicable to FAA requirements. Any other necessary approvals must be obtained from the appropriate authorities. This determination does not relieve the sponsor/operator of compliance responsibilities related to laws, ordinances, or regulation of any federal, state, or local government agency.

For further information concerning this matter, please contact Jeane Tomlinson, Western Terminal Services Area, Airspace Project Office at (858) 537-5833.

Sincerely,

Leonard A. Mobley
Manager, Airspace Branch
Air Traffic Division

cc: ATA-400
ANM-520
ZLA ARTCC
SCT