U.S. Department
of Transportation
**Federal Aviation
Administration**

Office of the Air Traffic Organization
Western Service Area

1601 Lind Avenue Southwest
Renton, Washington 98057

August 28, 2008

Dr. Antonin Bouchez
California Institute of Technology
Palomar Observatory
35899 Canfield Road
Palomar Mountain, CA 92060
EMAIL: abouchez@astro.caltech.edu

Dear Dr. Bouchez:

This letter amends the FAA Letter of Non Objection issued August 12, 2008, to include additional laser testing dates in September, October, 2008, and incorporate January 2009 testing dates, as noted below.

The Western Service Area, Operations Support Group and Flight Standards have performed an aeronautical study regarding your request for operation of the Laser Guide Star system at the Caltech Optical Observatories in Palomar Mountain, California on the dates and times indicated below. Limitations on laser operations are required to ensure that laser light beams are not propagated into navigable airspace and illuminate aircraft.

We have no objection to your laser operation, provided the operator complies with the following conditions:

- Operations will be conducted at the following location, date, and times:

  Caltech Optical Observatories
  Palomar Observatory
  35899 Canfield Road
  Palomar Mountain, CA 92060
  Latitude 33° 21' 22.3"N/ Longitude 116° 51' 52.7"W
  Planned laser projection schedule:

September 15, 2008 19:48 – September 16, 2008, 05:38 PDT
September 16, 2008 19:46 – September 17, 2008, 05:38 PDT
September 18, 2008 19:43 – September 19, 2008, 05:40 PDT
September 19, 2008 19:42 – September 20, 2008, 05:40 PDT
September 20, 2008 19:41 – September 21, 2008, 05:41 PDT
September 21, 2008 19:39 – September 22, 2008, 05:42 PDT
September 22, 2008 19:38 – September 23, 2008, 05:43 PDT
September 23, 2008 19:36 – September 24, 2008, 05:43 PDT
September 24, 2008 19:35 – September 25, 2008, 05:44 PDT
September 25, 2008 19:34 – September 26, 2008, 05:45 PDT

September 26, 2008 19:32 – September 27, 2008 05:45 PDT

October 10, 2008 19:14 – October 11, 2008, 05:55 PDT
October 11, 2008 19:12 – October 12, 2008, 05:56 PDT
October 12, 2008 19:11 – October 13, 2008, 05:57 PDT
October 13, 2008 19:10 – October 14, 2008, 05:57 PDT
October 14, 2008 19:09 – October 15, 2008, 05:58 PDT
October 15, 2008 19:08 – October 16, 2008, 05:59 PDT
October 16, 2008 19:07 – October 17, 2008, 06:00 PDT

January 09, 2009 18:25 – January 10, 2009, 05:54 PST
January 10, 2009 18:26 – January 11, 2009, 05:54 PST
January 11, 2009 18:26 – January 12, 2009, 05:54 PST
January 12, 2009 18:27 – January 13, 2009, 05:54 PST
January 13, 2009 18:28 – January 14, 2009, 05:54 PST
January 14, 2009 18:29 – January 15, 2009, 05:54 PST
January 15, 2009 18:29 – January 16, 2009, 05:54 PST
January 16, 2009 18:30 – January 17, 2009, 05:54 PST

- The laser beam angle will not exceed 45 degrees.

- Five certified aircraft spotters (observers) will operate at or in the vicinity of the laser beam, two outside, two inside and one on standby, supplemented by three electronic sensors; a visible all-sky CCD camera, a bore sighted infrared camera and a bore sighted radar.

- 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 Angeles Air Route Control Center (ZLA ARTCC) Military Operations desk at (661) 265-8287 and Southern California TRACON (SCT TRACON) (858) 537-5900.

- 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) 742-2106/2108.

- The operator will use additional airspace safety monitoring systems consisting of a Visual All Sky Camera with a range of 500 to 100,000 feet and a boresighted thermal IR camera with a range of 100 to 60,000 feet and a narrow-beam RADAR.

- The operator will provide notification of any cancellation of laser tests to ZLA ARTCC and SCT TRACON at the phone numbers listed above.

- The operator will advise Prescott Automated Flight Service Station (PRC AFSS) at (877) 487-6867, ZLA ARTCC and SCT TRACON, in the event the laser test is canceled.

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 Rebecca Shelby, Operations Support Group, Western Service Center, at (425) 203-4535.

Sincerely,

for Clark Desing
Manager, Operations Support Group
Western Service Center

cc: CDRH
ZLA ARTCC
SCT
PRC AFSS

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