



Laser Safety Permit

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| PERMIT NUMBER: 10-002 | ISSUE DATE: 1/22/2010 | EXPIRATION DATE: 12/31/2010 |
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| LOCATION (BUILDING, ROOM, AIRCRAFT NO., ETC.) NASA 872, Hangar 4801 | DRAWING AND PROCEDURE NUMBERS: | CLASS OF LASER: 3B |
| | | LASER TYPE: Diodes (5) |

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| ACTIVITIES REQUIRING APPROVALS (i.e., Facilities, Equipment, etc.): These diode lasers are part of the Nuclei-Mode Aerosol-Size Spectrometer (NMASS) experiment being flown as part of an experimental suite during the GloPac mission on NASA 872. The diode lasers are fully contained in the experiment and is used in measuring the diameter and concentration of particles between 4 to 100 nm diameter. Activities are to include both air and ground operation of the laser. | LASER MANUFACTURER: Sony Semiconductor |
| | MODEL NUMBER: SLD201V-3 |
| | SERIAL NUMBER: N/A |
| | BEAM TYPE: CW |

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| ACTIVITY APPROVED SUBJECT TO THE FOLLOWING CONDITIONS: Do not operate laser with experimental enclosure opened. | POWER: 40 mW each (200mW Total) |
| | BEAM WAVELENGTH: 780 nm |
| | BEAM DIAMETER: 3 mm |
| | BEAM DIVERGENCE: 25 mrad |
| | PULSE FREQUENCY: N/A |
| | PULSE DURATION: N/A |

PERSONS AUTHORIZED TO OPERATE LASER SYSTEM UNDER THIS PERMIT:

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|----|-------------------------------------|----|--|
| 1. | James C. Wilson (Denver University) | 5. | |
| 2. | John M. Reeves (Denver University) | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

REVIEW AUTHORITY ACTION

ACTIVITY COMPLETED (Complications / Incidents / Comments)

APPROVAL TO OPERATE LASER

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| LASER SAFETY OFFICER: <i>John A. Piatt</i> | DATE: 1/22/2010 | LASER SAFETY OFFICER: | DATE: |
|---|--------------------|-----------------------|-------|

OPERATION IS COMPLETE

- Instructions:
1. A copy of this permit must be posted in a conspicuous place at the location described prior to laser operations.
 2. Submit a request for a new permit at least 30 days prior to the expiration date if:
 - a. The activity will not be completed by the expiration date.
 - b. Any changes are made in the conditions as described in the permit.
 3. When the activity is completed, remove this permit, indicate the completion date and return permit to the Laser Safety Officer, Mail Stop 4850.
 4. For questions concerning this permit or laser operations contact the Laser Safety Office at X2307.



Laser Safety Permit

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|---------------------------------|--------------------------|--------------------------------|
| PERMIT NUMBER: 10-001 | ISSUE DATE: 1/22/2010 | EXPIRATION DATE: 12/31/2010 |
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| LOCATION (BUILDING, ROOM, AIRCRAFT NO., ETC.) NASA 872, Hangar 4801 | DRAWING AND PROCEDURE NUMBERS: | CLASS OF LASER: 3B |
| | | LASER TYPE: HeNe |

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| ACTIVITIES REQUIRING APPROVALS (i.e., Facilities, Equipment, etc.): This laser is part of the Focused Cavity Aerosol Spectrometer (FCAS) experiment being flown as part of an experimental suite during the GloPac mission on NASA 872. The laser is fully contained in the experiment and is used in measuring the diameter and concentration of particles between 100 to 2000 nm diameter. Activities are to include both air and ground operation of the laser. | LASER MANUFACTURER: Research Electro-Optics, Inc |
| | MODEL NUMBER: LTRR-1200M-NS |
| | SERIAL NUMBER: Installed-N/A; Spare - 5088-1896-02 |
| | BEAM TYPE: CW |

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| ACTIVITY APPROVED SUBJECT TO THE FOLLOWING CONDITIONS: Do not operate laser with experimental enclosure opened. | POWER: 15 mW |
| | BEAM WAVELENGTH: 632.8 nm |
| | BEAM DIAMETER: 100 microns |
| | BEAM DIVERGENCE: 20 mrad |
| | PULSE FREQUENCY: N/A |
| | PULSE DURATION: N/A |

PERSONS AUTHORIZED TO OPERATE LASER SYSTEM UNDER THIS PERMIT:

| | | | |
|----|-------------------------------------|----|--|
| 1. | James C. Wilson (Denver University) | 5. | |
| 2. | John M. Reeves (Denver University) | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

REVIEW AUTHORITY ACTION

ACTIVITY COMPLETED (Complications / Incidents / Comments)

| APPROVAL TO OPERATE LASER | | OPERATION IS COMPLETE | |
|---------------------------|--|-----------------------|--|
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|---|--------------------|-----------------------|-------|
| LASER SAFETY OFFICER: <i>John A. Pratt</i> | DATE: 1/22/2010 | LASER SAFETY OFFICER: | DATE: |
|---|--------------------|-----------------------|-------|

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