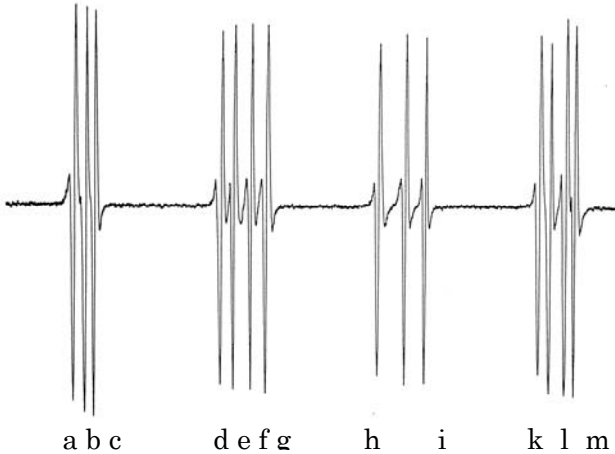


Compact Iodine Stabilized He-Ne Laser

★ Meets all the requirements of the 1992 and 1997 CIPM Mise en Pratique.

★ Relative standard uncertainty of 2.5×10^{-11}



NEO-92SI-NF

■ Introduction

The MODEL NEO-92SI-NF is the most accurate and downsized portable Iodine-stabilized He-Ne laser among the commercially available lasers.

It was developed in cooperation with National Metrology Institute of Japan (NMIJ), National Institute of Advanced Industrial Science and Technology (AIST), and meets all the requirements of the 1992 and 1997 CIPM Mise en Pratique. The MODEL NEO-92SI-NF is traceable to the NATIONAL STANDARD LASER in NMIJ and confirmed to accomplish a relative standard uncertainty of less than 2.5×10^{-11} .

The standard operating condition of the MODEL NEO-92SI-NF is as follows;

TEMPERATURE RANGE : 15-25°C

RELATIVE HUMIDITY : LESS THAN 70%

And the laser can be operated with the frequency uncertainty 2.5×10^{-11} .

The MODEL NEO-92SI-NF is adopted as the NATIONAL STANDARD LASER (NRLM-P1) for length at NMIJ as of the first of April 1998

■ Principal

The principal of the stabilization is to keep the laser wavelength resonant one of 14 hyper fine transition of molecular iodine by adjusting the length of the cavity.

When the lasing wavelength locking a specific iodine peak, the frequency locking indicator of the laser controller shows green. Frequency unlocking indicator shows red when locking is off by a disturbance and etc.

Also, Iodine peak pattern is recognized and specific iodine peak can be detected by new developed automatic frequency locking method. The reliability of laser is ensured by this new method

■ Features

1. Operates as a true primary laser wavelength standard
2. Compact and durable
3. Operates in wide temperature range
4. Easy operation

■ Main specifications

1. Meets all the requirements of the 1992 and 1997 CIPM Mise en Pratique.
2. Relative standard uncertainty of 2.5×10^{-11}

■ Specifications**A Compact iodine Stabilized He-Ne Laser**

1. Wave length	632.991 nm
2. Uncertainty of Frequency(σ)	2.5×10^{-11}
3. Lock Method	AUTO LOCK: Iodine peak spectrum pattern is recognized by sweeping of Laser wavelength resonance and specific iodine peak is detected and locked. MANUAL LOCK: hyper fine components(a-n) are observed on oscilloscope and iodine peak is locked on real time.
4. Output Beam Power	$50 \pm 25 \mu\text{W CW}$
5. One Way Intracavity Beam Power	$10 \pm 5\text{mW}$
6. Optical Polarization	Linear horizontal plane
7. Modulation Frequency	3.255kHz sine wave
8. Frequency Modulation Width	$6 \pm 0.3\text{MHz}$
9. Iodine Cell Cold-Finger	$15 \pm 0.2^\circ\text{C}$
10. Temperature Warm-Up Time	approx.2 hours
11. Interface	GPIB
12. Environmental Conditions	
Temperature Range	Operation : $15\text{-}25^\circ\text{C}$ Storage : $0\text{-}40^\circ\text{C}$
Relative Humidity Range	Operation : $<70\%\text{RH}$ Storage : $<80\%\text{RH}$
13. Physical Dimensions	Laser head: $110(\text{W}) \times 115(\text{H}) \times 420(\text{D})\text{ mm}$ Controller head: $216(\text{W}) \times 132.5(\text{H}) \times 450(\text{D})\text{mm}$
14. Weight	Laser head : 7kg Controller : 8kg
15. Power requirements	AC 100V/120V/230V 50/60Hz, 50VA

Subject to change the specifications without notice. 1206B04

NEOARK Corporation, Osaka Office
10-6 Chayamachi, Kita-Ku, Osaka 530-0013, Japan
Phone: 81-6-6371-3527, Fax: 81-6-6376-4560
e-mail: osaka@neoark.co.jp, Web: <http://www.neoark.co.jp>