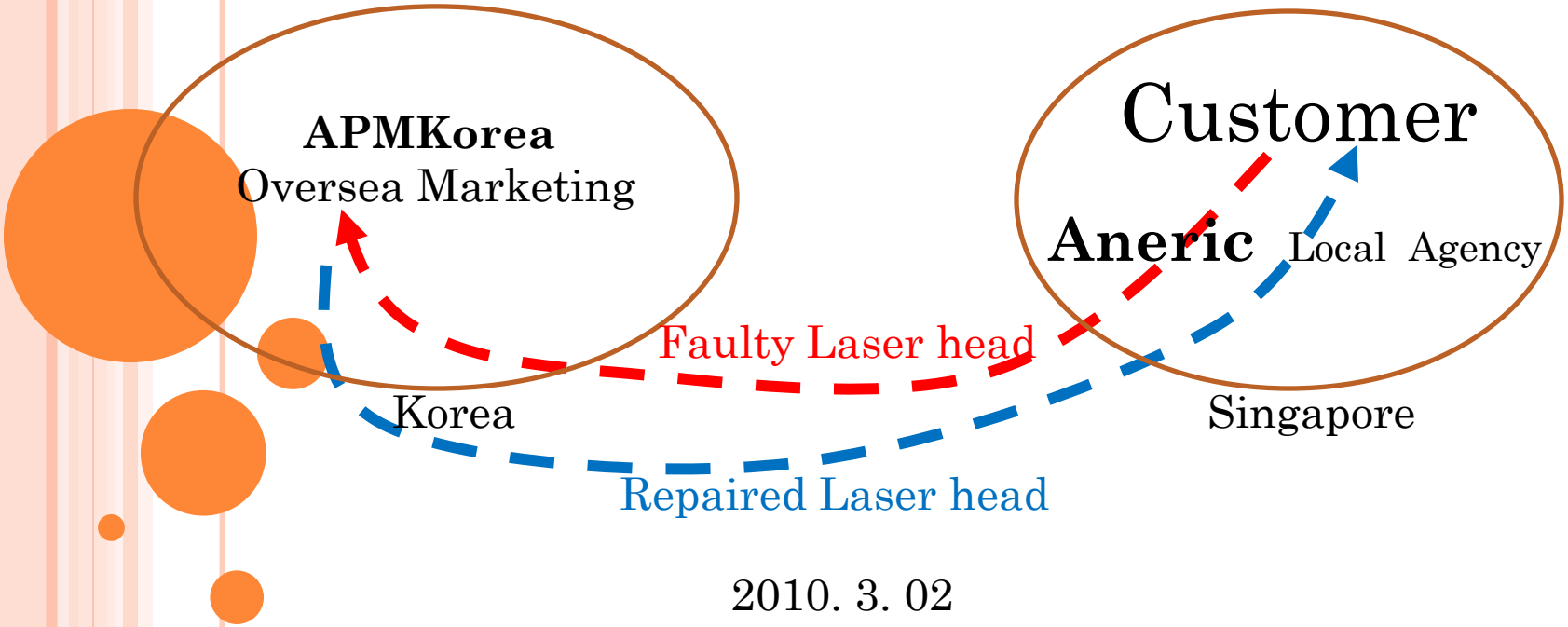
Supply Flow for Laser Repair Service



2010. 3. 02

Main Products

1. HIGH-INTENSITY STABILIZED LASER BEAM GENRATOR

- Generates two wavelengths of beam through the AOM if existing products
- Generates two wavelengths of stabilized beam without the use of expensive parts
- Application and development of PLL is in the complete stage for production, satisfying the requirement of a laser beam generator to be used for displacement measuring with a maximum output power of 1mW and wavelength stability of not more the 10^{-9}

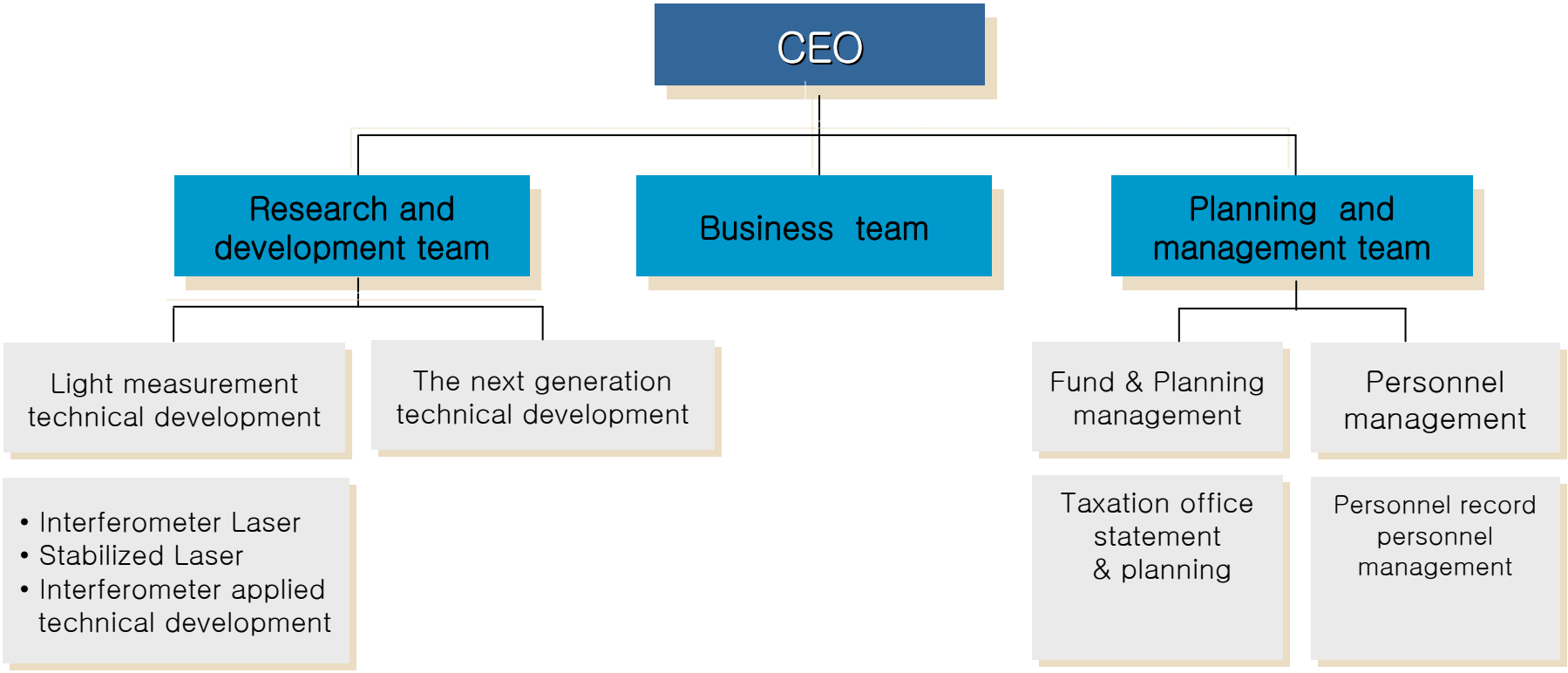
2. REAL-TIME METROLOGY ELECTRONIC BOARD

- Aims to measure the displacement if moving objects at a maximum speed of 4.2m/s, with a 3nm rage of accuracy and instant acceleration if approximately 100g.
- Equipped with a filtering to eliminate noise, up to the second or third harmonic wave, as well as a digitizing pressure signal to measure phase displacement with high accuracy, leading to algorithm completion that enables information extraction and circuit simulation is in progress to test it.

3. LASER MEDICAL INSTRUMENT

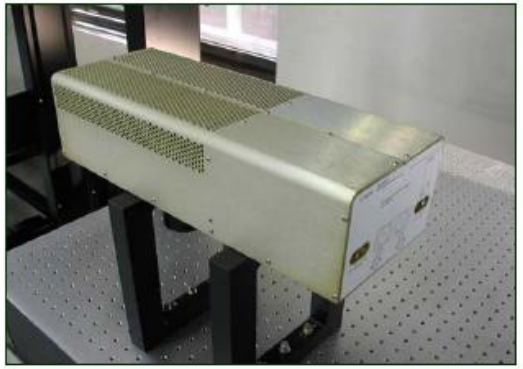
- The laser medical devices is handy, portable, and excellent for treatment if alopecia and rhinitis.
- Laser treatment for alopecia has been verified in clinical trials by the U.S FDA.

Company Organization



Acousto-**O**ptical **M**odulator Laser Repair Service for 300mm ASML

Z4203B / Z4203D



Repair items and performance test data

Repair items

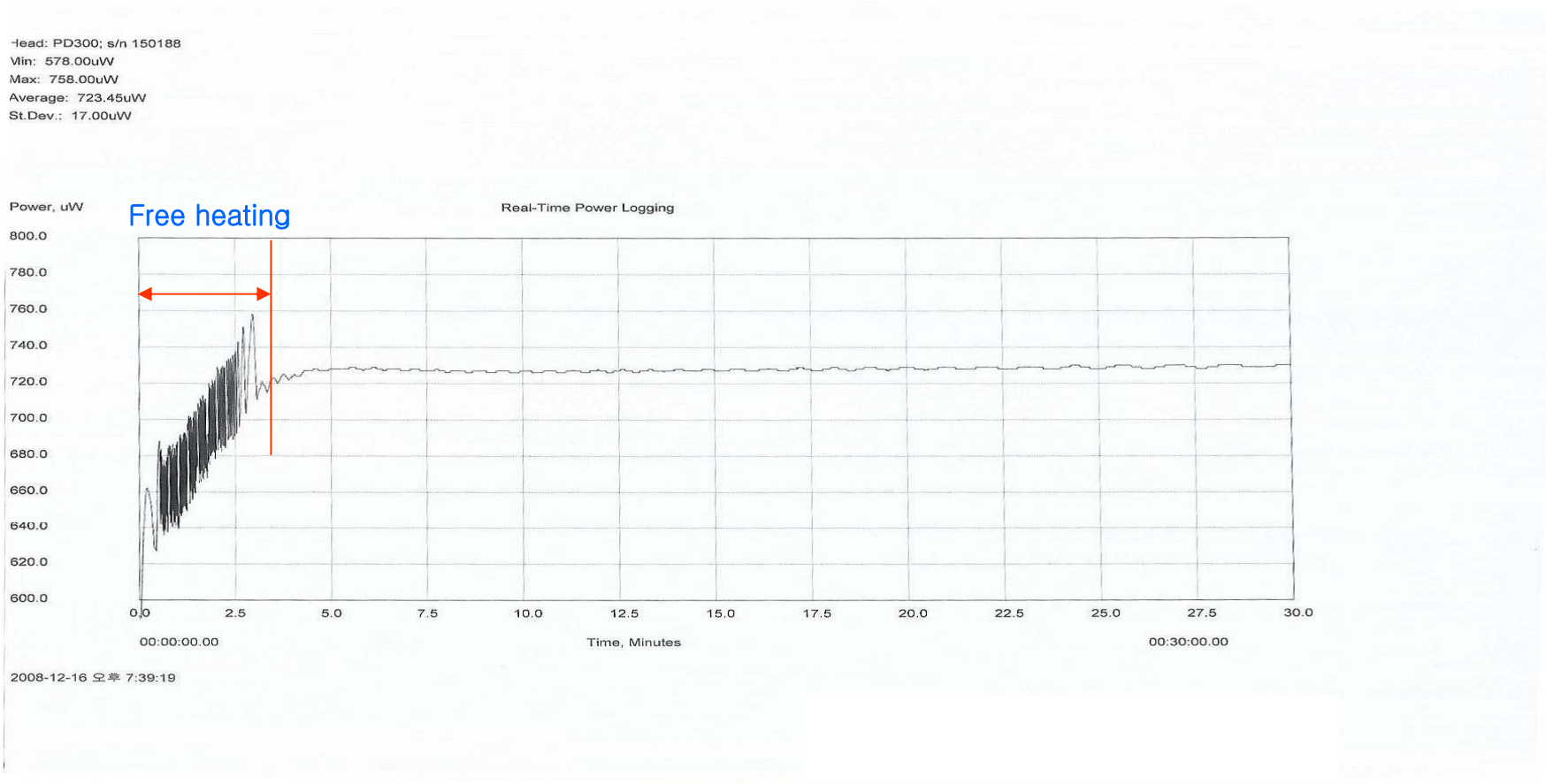
- Replacement laser tube module & alignment
- Replacement high voltage power supply
- Optics realignment
- Repair control PCB
- Inspection & test

Performance test data

- Total beam intensity: Max. 1.0mW
- Horizontal beam intensity: Max. 0.5mW
- Vertical beam intensity: Max. 0.5mW
- Polarization : linear polarized
- Output stability : ± 0.005 (3-sigma)
- Reference frequency : 7.5MHz (Z4203B), 15.5MHz (Z4203D)
- Operating lifetime : Over 25,000 hours (3 years)
- Guaranteed lifetime : After operation, 1 year

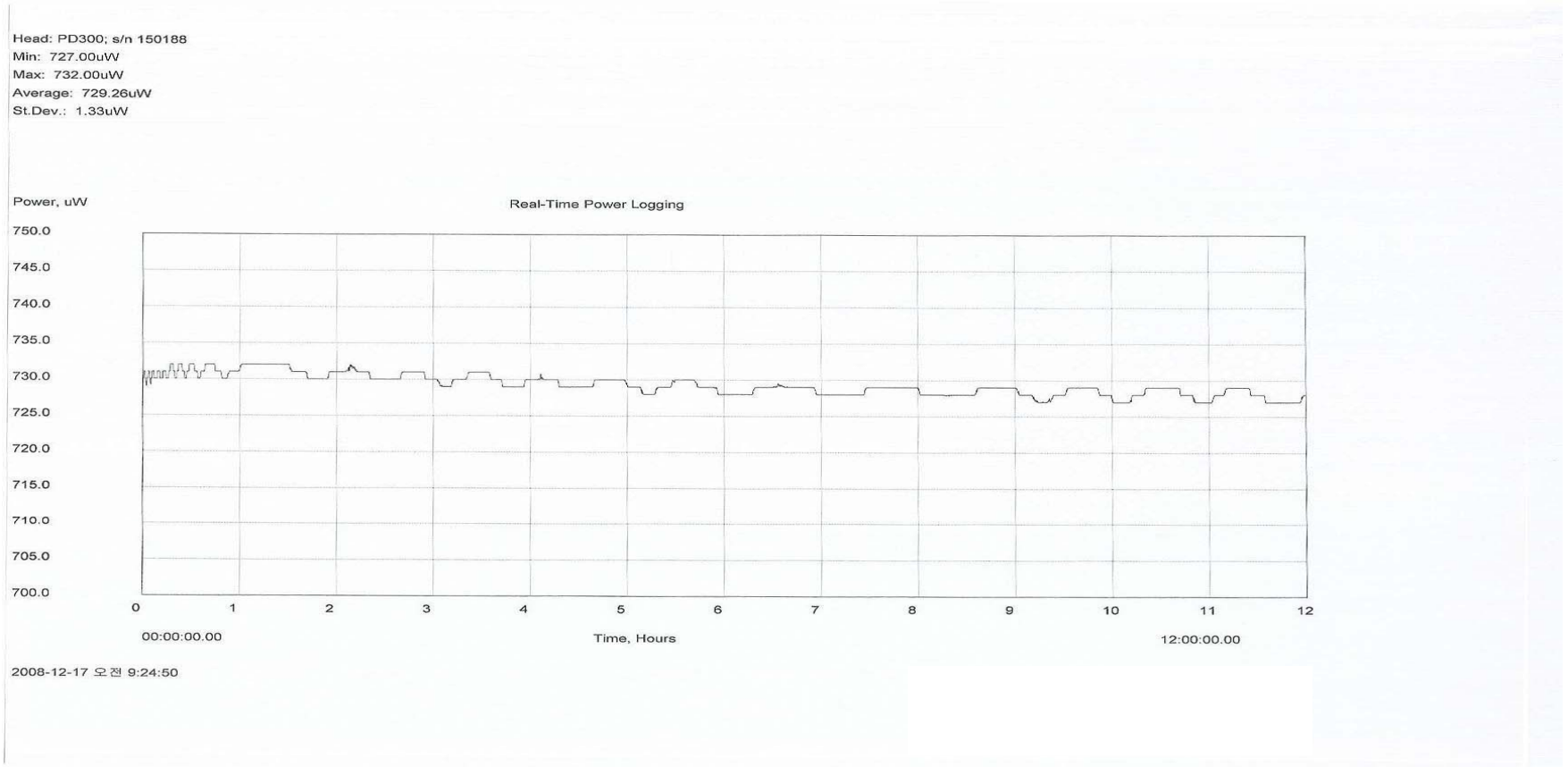
Intensity measurement after refurbishment

- Total laser beam intensity : 730uW
- 30min monitor after turn on

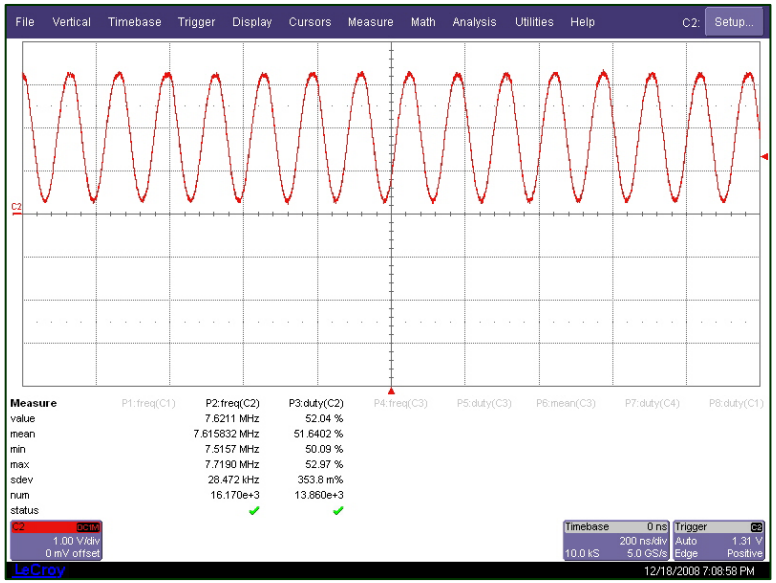


Intensity measurement after refurbishment

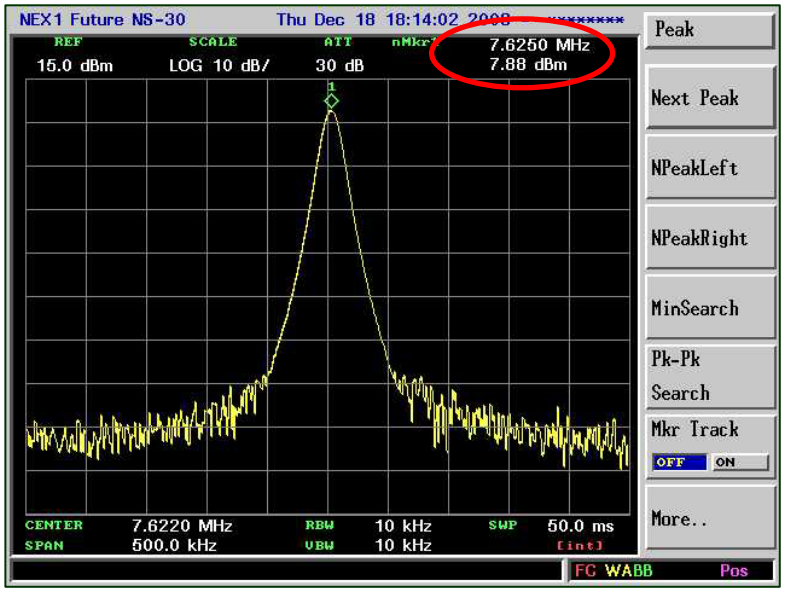
- Total laser beam intensity : 730uW
- 12hours monitor



Beat frequency measurement



Measurement By Oscilloscope



Measurement By Spectrum Analyzer

Zygo Laser Refurbishment Business

(Model : 7701A/C, 7702, 7702PPD)

With our craftsmanship in the laser design and alignment experience, Wavetronics Inc. expand availability of our services to the semiconductor manufacturing industry. We developed the stabilized He-Ne laser refurbishment. More over, we have refined technique for complete repair of the He-Ne laser head of Zygo laser head for stepper/scanner controller. We have replacement component for many of those systems.

- Type : Helium-Neon, Continuous Wave, Two-Frequency
- Output Power : 7701A/C, 7702 : Over 550 µW
  7702PPD : Over 1mW
- Wavelength : 632.8nm
- Polarization : Collinear, Orthogonally linear polarized
- Output Beat Frequency : 20MHz ± 1600Hz
- Beam Diameter : 6 mm or 3 mm
- Usable Beam Length : 25 meters (6mm beam)
  2 meters (3mm beam)
- Guaranteed Lifetime : 1 year

Zygo Laser Refurbishment Business

(Model : 7712)

With our craftsmanship in the laser design and alignment experience, Wavetronics Inc. expand availability of our services to the semiconductor manufacturing industry. We developed the stabilized He-Ne laser refurbishment. More over, we have refined technique for complete repair of the He-Ne laser head of Zygo laser head for stepper/scanner controller. We have replacement component for many of those systems.

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Model : 7712

- Type : Helium-Neon, Continuous Wave, Two-Frequency
- Output Power : Over 1.35mW
- Wavelength : 632.8nm
- Polarization : Collinear, Orthogonally linear polarized
- Output Beat Frequency : 20MHz ± 1600Hz
- Beam Diameter : Typical 6 mm
- Usable Beam Length : 25 meters (6mm beam) , 2 meters (3mm beam)
- Guaranteed Lifetime : 1 year

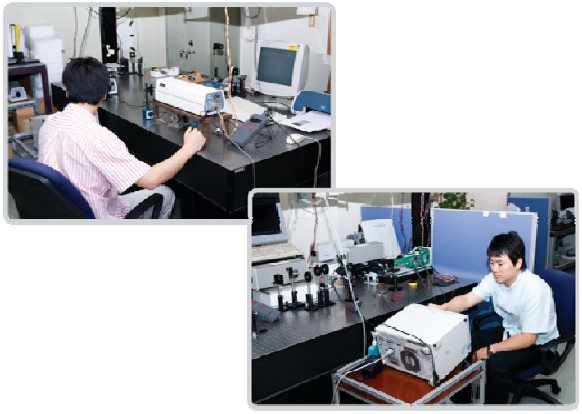
HP5517 series

Laser head refurbishment

With our craftsmanship in the laser head design and alignment experience, Wavetronics, Inc. expands availability of our service to fields of semiconductor manufacturing industry.
We developed the stabilized He-Ne laser head refurbishment.
More over, we have refined technique for complete repair of the He-Ne laser head of Hewlett-Packard(Agilent) laser heads for stepper /scanner controller.

We have built all the necessary equipment in order to repair various problems that are related laser head. (precision alignment tools, precision wavemeter, laser spectrum analyzer and glass working equipment, etc)

We also have replacement tube and magnets for those systems.



HP5517A

- Reference Frequency : 1.5 ~ 2.0 MHz
- Output Laser Beam Power : Max. 1mW
- Velocity : 400mm/sec
- Nikon or Canon Stepper

HP5517B/C

- Reference Frequency : 1.9 ~ 2.4 MHz (5517B)
  2.4 ~ 3.0 MHz (5517C)
- Output Laser Beam Power : Max.1mW
- Velocity : 500mm/sec(HP5517B)
  700mm/sec(HP5517C)
- Nikon, ASML Stepper or Scanner

HP5517D

- Reference Frequency : 3.4 ~ 4.0 MHz
- Output Laser Beam Power : Max.1mW
- Velocity : 1,000mm/sec
- Nikon, ASML Stepper or Scanner

Other Laser Refurbishment Business

LSA Laser

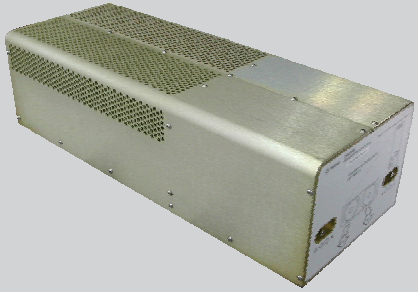
- Model : 3225H-PC
- Wavelength : 632.8nm
- Output Power : over 5mW, 10mW
- Polarization : 500 : 1 Linearly Polarized
- Intensity Stability : 0.1%(24hr)
- Applied Equipment : Nikon stepper or Scanner
- Guaranteed Lifetime : 1 year

Red Laser Head

- Wavelength : 632.8nm
- Output Power : over 10mW
- Beam Diameter : 0.68mm
- Polarization : 500 : 1 Linearly Polarized
- Expected Lifetime : 2.5~3.0years
- Applied Equipment : ASML
- Guaranteed Lifetime : 1 year

WGA Laser

- Model : 3222H-PC
- Wavelength : 632.8nm
- Output Power : over 2mW
- Polarization : 500 : 1 Linearly Polarized
- Intensity Stability : 0.1%(24hr)
- Applied Equipment : Nikon stepper or Scanner
- Guaranteed Lifetime : 1 year



AOM Laser Head

- Wavelength : 632.8nm
- Output Power : Max, 0.5mW
- Ref frequency : 7.5MHz (Z4203B)
  15.5MHz (Z4203D)
- Expected Lifetime : 2.5~3.0years
- Applied Equipment : ASML
- Guaranteed Lifetime : 1 year