ORGANISATION NAME:

University of Technology, Sydney

CHIEF CONTACT PERSON:

Professor Geoff Smith

POSTAL ADDRESS:

University of Technology
Dept. of Applied Physics
PO Box 123
BROADWAY NSW 2007

PHONE: **(02) 330 2224** FAX: **(02) 330 2219**

E-MAIL: **gbs@phys.uts.edu.au**

ONE PARAGRAPH SUMMARY OF ACTIVITIES INVOLVING OPTICS AND LASERS:

Thin films, solar energy materials including electrochromics, solar absorbers and angular selective window coatings. Daylight collection and distribution systems, and luminescent concentrators. Optical defects in ceramics including spectroscopy, gemstones and doped laser materials. Ellipsometry, cathodoluminescence. Theory of electromagnetic response in nano composites, arrays, response, cluster effects. Atmospheric optics (infra-red) image processing (medical).Materials, vision, spectroscopy, colour, theory, medical.

ORGANISATION NAME:

Optical Communications Group

CHIEF CONTACT PERSON:

Professor P.L. Chu

POSTAL ADDRESS:

Optical Communications Group
School of Electrical Engineering
University of New South Wales
PO Box 1
KENSINGTON NSW 2033

PHONE: **(02) 697 5304** FAX: **(02) 662 2087**

E-MAIL: **PLCHU@UNSW.EDU.AU**

ONE PARAGRAPH SUMMARY OF ACTIVITES INVOLVING OPTICS AND LASERS:

Analysis, design and fabrication of application specific optical fibres. Research and development of optical fibre devices such as optical switches, fibre amplifiers and fibre lasers. Research and development of optical fibre sensing especially fibre hydrophones and fibre current sensing. Research and development of optical fibre sensing especially fibre hydrophones and fibre current sensing. Research and development of optical waveguides in the area of ion-exchanged waveguides and silica-based waveguides.

ORGANISATION NAME:

CSIRO Division of Applied Physics

CHIEF CONTACT PERSON:

Dr Chris Walsh

POSTAL ADDRESS:

Division of Applied Physics, CSIRO
PO Box 218
LINDFIELD NSW 2070

PHONE: **(02) 413 7156** FAX: **(02) 413 7200**

E-MAIL: **cjw@dap.sciro.au**

ONE PARAGRAPH SUMMARY OF ACTIVITES INVOLVING OPTICS AND LASERS:

Optical fabrication and thin film coatings, interferometric optical testing, development of non optical testing facilities. Optical profiling using Moire, holography, ESPI with phase shifting and image processing techniguqes. Also grating manufacture. Optical length measurement using frequency stable lasers, heterodyne optical interferometry. Radiometric and photometric standards. Development of laser vooled ions for frequency standards. R and D for optical fibre sensors (9n collarobation with photonics CRC).

ADDITIONAL INFORMATION:

50% of optics R & D directed towards activities related to maintenance of national standards of length, radiometry and photometry.

ORGANISATION NAME:

Visiray Pty Ltd

CHIEF CONTACT PERSON:

Dr. A.I. McIntosh

POSTAL ADDRESS:

Visiray Pty Ltd
Unit 9, 42 Leighton Place
HORNSBY NSW 2077

PHONE: **(02) 482 1580** FAX: **(02) 482 1581**

E-MAIL:

ONE PARAGRAPH SUMMARY OF ACTIVITES INVOLVING OPTICS AND LASERS:

Visiray designs, manufactures and markets internationally laser systems for medical and industrial applications. Present products are based on metal vapour lasers (copper, gold, copper laser pumped dye lasers) but expansion into other types of lasers is anticipated. Fabrication, lasers, design, fibres, laser applications, medical, non-linear optics.

ADDITIONAL INFORMATION:

Company commenced operations in January 1990. Exports have grown at more than 50% for three consecutive years.

ORGANISATION NAME:

Plasma Physics Department

CHIEF CONTACT PERSON:

Dr Brian James

POSTAL ADDRESS:

Plasma Physics Department
School of Physics
University of Sydney, NSW 2006

PHONE: **(02) 692 2599** FAX: **(02) 660 2903**

E-MAIL: **james@physics.su.oz.au**

ONE PARAGRAPH SUMMARY OF ACTIVITES INVOLVING OPTICS AND LASERS:

The relevant activities are spectroscopic, interfometric and laser-based diagnostics of high temperature plasmas and processing plasmas. The spectral regions of interest are UV, visible and FIR.

ADDITIONAL INFORMATION:

Collaborations/grants includes external funds only; budget includes university sources.

ORGANISATION NAME:

Testing & Certification Australia

CHIEF CONTACT PERSON:

Leo Barnes (medical) Geoff King (photometry)

POSTAL ADDRESS:

Testing & Certification Australia
14 Nelson St
CHATSWOOD NSW 2067.
PO Box 841
ARTARMON NSW 2064.

PHONE: **(02) 410 5170** FAX: **(02) 415 1567**

E-MAIL:

ONE PARAGRAPH SUMMARY OF ACTIVITES INVOLVING OPTICS AND LASERS:

Medical Lasers - testing for electrical and performance safety in accordance with Australian Standards. Both surgical and therapeutic lasers are evaluated. Local and foreign certification of equipment available (AS3200.1 and IEC601-1). Photometry - testing to Australian Standards.

ADDITIONAL INFORMATION:

IECEE CB Scheme accreditation for medical equipment testing to IEC601-1 standard i.e. test reports issued in Australia by Test & Cert. Aust, recognised in Europe and other countries in CB Scheme such as Canada.

ORGANISATION NAME:

Chatterton Astronomy Dept.

CHIEF CONTACT PERSON:

J. Davis

POSTAL ADDRESS:

Chatterton Astronomy Dept.
School of Physics A28
University of Sydney. NSW 2006

PHONE: **(02) 692 3604** FAX: **(02) 660 2903**

E-MAIL: **davis@physics.su.oz.au**

ONE PARAGRAPH SUMMARY OF ACTIVITES INVOLVING OPTICS AND LASERS:

The principal research activity is the operation of the Sydney University Stellar Interferometer (SUSI) to obtain astronomical data with high angular resolution of SUSI uses custom precision optics, lasers, and quantum imaging devices in its operation.

ADDITIONAL INFORMATION:

(1) Includes electronic & mechanical eng. & tech. staff.

ORGANISATION NAME:

Physical Optics Department

CHIEF CONTACT PERSON:

Professor Colin Sheppard

POSTAL ADDRESS:

Physical Optics Department
School of Physics
University of Sydney. NSW.

PHONE: **(02) 692 2553** FAX: **(02) 660 2903**

E-MAIL: **colin@physics.su.oz.au**

ONE PARAGRAPH SUMMARY OF ACTIVITES INVOLVING OPTICS AND LASERS:

Research interests - scanning laser microscopy, fourier optics, image processing, industraial inspection, adaptive optics, quantum optics. Astronomy, fibres, laser applications, quantum optics, diffraction, imaging, microscopy.

ADDTIONAL INFORMATION:

Department was only formed in 1989.

ORGANISATION NAME:

Francis Lord Optics

CHIEF CONTACT PERSON:

Alan Fry

POSTAL ADDRESS:

Francis Lord Optics
33 Higginbotham Rd
GLADESVILLE NSW 2111

PHONE: **(02) 807 1444** FAX: **(02) 809 7136**

E-MAIL:

ONE PARAGRAPH SUMMARY OF ACTIVITES INVOLVING OPTICS AND LASERS:

Custom and off the shelf optical component manufacturers and suppliers (windows, lenses, prisms, windows, etc.) for UV-visible-IR and far infrared.

ORGANISATION NAME:

Narellan Truck Wheel Align Pty Ltd

CHIEF CONTACT PERSON:

Bruce J. Reilly

POSTAL ADDRESS:

Narellan Truck Wheel Align. Pty Ltd
1-5 Campbell St.
NARELLAN NSW 2567.

PHONE: **(046) 461 811** FAX: **(046) 462 500**

E-MAIL:

ONE PARAGRAPH SUMMARY OF ACTIVITES INVOLVING OPTICS AND LASERS:

R and D, prototype development -= testing and manufacturer of laser (cordless) wheel axle/chassis measuring systems for car, 4WD and heavy vehicle wheel alignment service. Very innovative in this industry. Hold many patent design and international property rights within industry. Practical applications.

ADDITIONAL INFORMATION:

Info does include other mechanical systems however laser technology.

ORGANISATION NAME:

Centre for Lasers and Applications

CHIEF CONTACT PERSON:

Professor Jim Piper

POSTAL ADDRESS:

Centre for Lasers Applications
Macquarie University NSW 2109.

PHONE: **(02) 805 8977** FAX: **(02) 805 8983**

E-MAIL:

ONE PARAGRAPH SUMMARY OF ACTIVITES INVOLVING OPTICS AND LASERS:

Lasers: frequency-modulated semiconductor and solid state (Ti:S) lasers. Physics and development of pulsed metal vapour lasers, (copper and barium), blue-green excimer lasers, novel dye lasers, diode-pumped solidstate lasers, midinfrared solid state lasers, novel solid state laser materials, CO_2 laser waveguide components. Non-linear optics: non linear frequency conversion high average power lasers, optical parametric oscilators, non-linear optical measurements of novel materials. Laser applications: development of laser flow cytometry, high precision machining of polymers using high luse rate UV lasers, laser based diagnostics of industrial processes, laser photochemistry, interferometer developments. Spectroscopy: IR-US double resonanace spectroscopy of molecular beams, coherent spectroscopy, laser pestiobateen spectroscopy. Quantum optics: cavity quantum electrodynamics, entangled coherent states, fundamental studies of interference, computer modeling of gas laser and solid state lasers.

ORGANISATION NAME:

CSIRO Division of Exploration & Mining

CHIEF CONTACT PERSON:

Dr L.B. Whitbourn

POSTAL ADDRESS:

Laser Applications Group
PO Box 218
LINDFIELD NSW 2070

PHONE: **(02) 413 7733/7211** FAX: **(02) 413 7202/7631**

E-MAIL: **lbw@dap.csiro.au**

ONE PARAGRAPH SUMMARY OF ACTIVITIES INVOLVING OPTICS AND LASERS:

CSIRO Division of Exploration and Mining is doing research on the use of optics and lasers for mineral mapping from aircraft and space platforms, short range sensing of ore grade on conveyor belts, and medium range mapping of mineface structures. This research involves design and fabrication of specialised lasers, optical components and optical systems, high-level information processing and studies of laser applications. Current projects involve the development of better image processing techniques for mineral mapping using visible, near infrared and short wave infrared wavelengths (0.4-14 μm), an airborne mid-infrared remote sensing system using a rapidly tuned CO2 laser (9.1-11.2 μm), and a vision system for mapping mineface structures in daylight.

ORGANISATION NAME:

Unisearch - School of Optometry, Optics & Radiometry Lab.

CHIEF CONTACT PERSON:

Assoc. Prof. S.J. Dain

POSTAL ADDRESS:

PO Box 1
KENSINGTON NSW 2033

PHONE: **(02) 697 4622** FAX: **(02) 313 8602**

E-MAIL: **76b1169@csdvax.csd.unsw.edu.au**

ONE PARAGRAPH SUMMARY OF ACTIVITIES INVOLVING OPTICS AND LASERS:

Photometry, radiometry, calibration of instrumentation, Spectrophotometry and spectroradiometry. Vision assessment. Testing to Australian Standards.

ORGANISATION NAME:

Moonbeamers
Laser Light Expressions Pty Ltd
Optical Security Systems.

CHIEF CONTACT PERSON:

John A. Tobin

POSTAL ADDRESS:

1/5 Gibbons Street
TELOPEA NSW 2117

PHONE: **(02) 890 1233** FAX: **(02) 890 1243**

E-MAIL:

ONE PARAGRAPH SUMMARY OF ACTIVITIES INVOLVING OPTICS AND LASERS:

Custom designed embossed, silver halide & photopolymer holograms products. Design, manufacture and wholesale holographic and diffraction products. Holographic optical element design, manufacture and research. P.V. cells, etc. Holographic security design, manufacture and research. Visible & machine scan. Holographic displays designed, manufactured and researched. Holographic educational products designed, manufactured and researched.

ORGANISATION NAME:

Warsash Pty Ltd

CHIEF CONTACT PERSON:

Bill McFadden

POSTAL ADDRESS:

PO Box 1685
STRAWBERRY HILLS NSW 2012

PHONE: **(02) 319 0122** FAX: **(02) 318 2192**

E-MAIL:

ONE PARAGRAPH SUMMARY OF ACTIVITIES INVOLVING OPTICS AND LASERS:

Manufacturers, representatives and importers of: electronics; optics components; optoelectronics, systems & subsystems; photo diodes - emitters/detectors; reflectance stds. - spheres etc; micropositioning systems - optical benches and motion control systems; spectrum analysers, etalons etc.; flashlamps - laser pumping - light sources; lasers, MVL, dye, excimer, HeNe spectrometers etc.

ORGANISATION NAME:

CSIRO - Division of Manufacturing Technology

CHIEF CONTACT PERSON:

Dr M. Brandt

POSTAL ADDRESS:

PO Box 218
LINDFIELD NSW 2070

PHONE: **(02) 413 7194** FAX: **(02) 413 7637**

E-MAIL: **mlb@syd.dmt.csiro.au**

ONE PARAGRAPH SUMMARY OF ACTIVITIES INVOLVING OPTICS AND LASERS:

The group is engaged in the R & D of novel laser processing technology for processing of metals and non-metals (i.e. surfacing cutting, welding, and drilling). The lasers used involve a high average power (500w) Nd:YAG laser machine, 50 average power Nd:YAG laser and a 200 W CW CO2 laser. We also use optic fibres in conjunction with a robot to process components remote from the laser source.

ORGANISATION NAME:

CSIRO Division of Mineral & Process Engineering

CHIEF CONTACT PERSON:

John Eberhardt

POSTAL ADDRESS:

Private Mail Bag #5
MENAI NSW 2234

PHONE: **(02) 710 6723** FAX: **(02) 710 6789**

E-MAIL: **76b1169@csdvax.csd.unsw.edu.au**

ONE PARAGRAPH SUMMARY OF ACTIVITIES INVOLVING OPTICS AND LASERS:

We apply lasers & optical techniques to develop instruments for the on-line analysis of minerals & coal and for the control of minerals processing & metal production. Currently we are mounting a field trial of a long path (300m) infrared laser absorption technique for the monitoring & control of hydrogen fluoride emissions from aluminium smelters.

ORGANISATION NAME:

Actionlaser Pty Ltd

CHIEF CONTACT PERSON:

Dr Ken Crane

POSTAL ADDRESS:

PO Box 53
LINDFIELD NSW 2070

PHONE: **(02) 887 8290** FAX: **(02) 887 8291**

E-MAIL:

ONE PARAGRAPH SUMMARY OF ACTIVITIES INVOLVING OPTICS AND LASERS:

Produces advanced laser manufactured products. Has unique capabilities to produce finely perforated high performance stainless steel laser-drilled (SSL) screns, sieves, aerators and a wide range of other products.

ORGANISATION NAME:

Cornea and Contact Lens Research Unit

CHIEF CONTACT PERSON:

Arthur Ho

POSTAL ADDRESS:

University of New South Wales
PO Box 1
KENSINGTON NSW 2033

PHONE: **(02) 931 0311** FAX: **(02) 931 0202**

E-MAIL: **A.Ho@CCLRU.UNSW.EDU.AU**

ONE PARAGRAPH SUMMARY OF ACTIVITIES INVOLVING OPTICS AND LASERS:

Opthalmic and contact lens instruments design and development

ORGANISATION NAME:

Fibreoptic Lightguides

CHIEF CONTACT PERSON:

John Cowley

POSTAL ADDRESS:

14A Warandoo St
WAITARA NSW 2077

PHONE: **(02) 489 6903** FAX: **(02) 489 5395**

E-MAIL:

ONE PARAGRAPH SUMMARY OF ACTIVITIES INVOLVING OPTICS AND LASERS:

Fabrication of optical systems for use with fibreoptic related products, for light delivery in medical systems and in sensing (industrial) and endoscopic instruments.

ORGANISATION NAME:

CSIRO Division of Wool Technology

CHIEF CONTACT PERSON:

Dr W. Humphries

POSTAL ADDRESS:

PO Box 7
RYDE NSW 2112

PHONE: **(02) 809 9444** FAX: **(02) 809 9476**

E-MAIL: **W. HUMPHRIES@syd.dwt.csiro.au**

ONE PARAGRAPH SUMMARY OF ACTIVITIES INVOLVING OPTICS AND LASERS:

Development of instruments for measuring fibre, web, yarn and fibre properties. Instruments developed include a laser device for measuring diameter and diameter distribution of wool fibres and a number of image analyses lased instruments.

ORGANISATION NAME:

Optical Fibre Technology Centre

CHIEF CONTACT PERSON:

Dr Simon Poole, Technical Director
Dr Mark G. Sceats, Director

POSTAL ADDRESS:

Building GO5, Maze Crescent
University of Sydney
NSW 2006

PHONE: **(02) 335 0901** FAX: **(02) 692 4671**

E-MAIL: **spoole@oftc.su.oz.au**

ONE PARAGRAPH SUMMARY OF ACTIVITIES INVOLVING OPTICS AND LASERS:

Specialised facility for design, fabarication and testing of application specific optical fibre, including rare-earth doped, highly birefringent and highly photosensitive fibres. Supply of fibre for projects within the Australian Photonics CRC. Capabilities include in-fibre grating writing, fibre coupler fabrication, together with strong theoretical support for development of next-generation components and devices. Optical signal processing, optical switching, dispersion compensators etc. The OFTC erbium-doped fibre amplifier (EDFA) ongoing program covers both amplifier fundamentals and their applications in photonic systems. The OFTC has a major programme to provide a comprehensive education and training service in the area of optical fibres.

ORGANISATION NAME:

BHP Research

CHIEF CONTACT PERSON:

Ross Barrow

POSTAL ADDRESS:

PO Box 188
WALLSEND NSW 2287

PHONE: **(049) 510 527** FAX: **(049) 502 126**

E-MAIL:

ONE PARAGRAPH SUMMARY OF ACTIVITIES INVOLVING OPTICS AND LASERS:

Research and development of optical instrumentation and systems for industrial monitoring in the areas of steelmaking and minerals industries including mining and exploration.

ORGANISATION NAME:

Macnaught Medical Pty LTd

CHIEF CONTACT PERSON:

Zoran Milijasevic

POSTAL ADDRESS:

Unit 1/29-35 Gibbes St
CHATSWOOD NSW 2067

PHONE: **(02) 417 7822** FAX: **(02) 417 7906**

E-MAIL:

ONE PARAGRAPH SUMMARY OF ACTIVITIES INVOLVING OPTICS AND LASERS:

We are currently developing laser technology in Australia. Our alternative is to use suppliers overseas. The company is involved in medical product development.

ORGANISATION NAME:

Optus Communications

CHIEF CONTACT PERSON:

James Hislop

POSTAL ADDRESS:

GPO Box 1512
SYDNEY NSW 2001

PHONE: **(02) 238 7943** FAX: **(02) 238 8634**

E-MAIL:

ONE PARAGRAPH SUMMARY OF ACTIVITIES INVOLVING OPTICS AND LASERS:

Optus uses semiconductor lasers and optical fibres in high capacity communications systems.