COHERENT INC
Form 10-K
February 06, 2008

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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM 10-K

(Mark One)

ý **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the Fiscal Year Ended September 29, 2007

or

o **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

Commission File Number: 0-5255

COHERENT, INC.

Delaware (State or other jurisdiction of incorporation or organization)	**94-1622541** (I.R.S. Employer Identification No.)
5100 Patrick Henry Drive, Santa Clara, California (Address of principal executive offices)	**95054** (Zip Code)

Registrant's telephone number, including area code: **(408) 764-4000**

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
	None

Securities registered pursuant to Section 12(g) of the Act:

Common Stock, $0.01 par value
(Including associated Common Stock Purchase Rights)

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes o No ý

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes o No ý

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports) and (2) has been subject to such filing requirements for the past 90 days. Yes o No ý

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ý

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer or a non-accelerated filer. See definition of "accelerated filer and large accelerated filer" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ý Accelerated filer o Non-accelerated filer o

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes o No ý

As of January 15, 2008, 31,544,990 shares of common stock were outstanding. The aggregate market value of the voting shares (based on the closing price reported by the NASDAQ National Market System on March 31, 2007) of Coherent, Inc., held by nonaffiliates was $806,431,289. For purposes of this disclosure, shares of common stock held by persons who own 5% or more of the outstanding common stock and shares of common stock held by each officer and director have been excluded in that such persons may be deemed to be "affiliates" as that term is defined under the Rules and Regulations of the Act. This determination of affiliate status is not necessarily conclusive.

PART I.

This Annual Report contains forward-looking statements. These forward-looking statements include, without limitation, statements regarding our future:

- net sales;
- bookings;
- results of operations;
- gross profits;
- access to new markets;
- research and development projects and expenses;
- selling, general and administrative expenses;
- optimization of financial returns;
- warranty reserves;
- legal proceedings;
- claims against third parties for infringement of our proprietary rights;
- liquidity and sufficiency of existing cash, cash equivalents and short-term investments for near-term requirements;
- success or impact of new product offerings;
- maintenance of customer relationships and the development of new relationships;
- capital spending as a percentage of net sales;
- development and acquisition of new technology and market share;
- write-downs for excess or obsolete inventory;
- competitors and competitive pressures;

capital spending as a percentage of net sales;

growth of applications for our products, new product introductions and increase of market share;

obtaining components and materials in a timely manner;

identifying alternative sources of supply for components;

achieving adequate manufacturing yields;

the impact of recent acquisitions;

leveraging of power and energy management products into our next generation products;

compliance with environmental regulations;

enhancement of our market position;

focus on organizational efficiency;

focus on adjusted earnings before interest, taxes, depreciation and amortization (EBITDA) improvement;

impact on laser industry;

- opportunities in microscopy, flow cytometry, lab-on-a-chip, and DNA sequencing;
- participation in the bio-agent detection market;
- leveraging of our technology portfolio and application engineering;
- optimization of our leadership position in existing markets;
- maintenance of collaborative customer and industry relationships;
- enhancement of our market position through our existing technology, as well as developing new technologies;
- emphasis on supply chain management;
- use of financial market instruments;
- simplifications of our foreign legal structure and reduction of our presences in certain countries;
- listing of our common stock on Nasdaq or other national exchange; and
- focus on long-term improvement of adjusted EBITDA as a percentage of net sales.

In addition, we include forward-looking statements under the "Our Strategy" and "Future Trends" sections set forth below in "Business."

You can identify these and other forward-looking statements by the use of the words such as "may," "will," "could," "would," "should," "expects," "plans," "anticipates," "estimates," "intends," "potential," "projected," "continue," or the negative of such terms, or other comparable terminology. Forward-looking statements also include the assumptions underlying or relating to any of the foregoing statements.

Our actual results could differ materially from those anticipated in these forward-looking statements as a result of various factors, including those set forth below in "Business," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and under the heading "Risk Factors." All forward-looking statements included in this document are based on information available to us on the date hereof. We undertake no obligation to update these forward-looking statements as a result of events or circumstances or to reflect the occurrence of unanticipated events or non-occurrence of anticipated events.

ITEM 1. BUSINESS

GENERAL

Business Overview

Our fiscal year ends on the Saturday closest to September 30. Fiscal years 2007, 2006 and 2005 ended on September 29, September 30 and October 1, respectively, and are referred to in this annual report as fiscal 2007, fiscal 2006 and fiscal 2005 for convenience. Fiscal years 2007, 2006 and 2005 all included 52 weeks.

We are one of the world's leading suppliers of photonics-based solutions in a broad range of commercial and scientific research applications. We design, manufacture and market lasers, precision optics and related accessories for a diverse group of customers. Since inception in 1966, we have grown through internal expansion and through strategic acquisitions of complementary businesses, technologies, intellectual property, manufacturing processes and product offerings.

During the second quarter of fiscal 2007, we established a new organizational and reporting structure whereby our previously single reportable operating segment was separated into two operating segments: Commercial Lasers and Components ("CLC") and Specialty Lasers and Systems ("SLS"). The new segmentation reflects the go-to-market strategies for various products and markets. While both segments work to deliver cost-effective photonics solutions, CLC focuses on higher volume products that are offered in set configurations. The product architectures are designed for easy exchange at the point of use such that substantially all product service and repairs are based upon advanced replacement and depot (i.e., factory) repair. CLC's primary markets include OEM components and instrumentation and materials processing. SLS develops and manufactures configurable, advanced-performance products largely serving the microelectronics and scientific research markets. The size and complexity of many of the SLS products require service to be performed at the customer site by factory-trained field service engineers. Prior period segment information has been restated to conform to the current presentation.

Operating income (loss) is the measure of profit and loss that our chief operating decision maker ("CODM") uses to assess performance and make decisions. Operating income (loss) represents the sales less the cost of sales and direct operating expenses incurred within the operating segments as well as allocated expenses such as shared sales and manufacturing costs. We do not allocate to our operating segments certain operating expenses, which we manage separately at the corporate level. These unallocated costs include stock-based compensation, corporate functions (certain research and development, management, finance, legal and human resources) and are included in Corporate and Other. Management does not consider unallocated Corporate and Other costs in its measurement of segment performance.

We were originally incorporated in California on May 26, 1966 and reincorporated in Delaware on October 1, 1990.

Additional information about Coherent, Inc. (referred to herein as the Company, we, our, or Coherent) is available on our web site at *www.coherent.com*. We make available, free of charge on our web site, access to our annual report on Form 10-K, our quarterly reports on Form 10-Q, our current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), as soon as reasonably practicable after we file them electronically with or furnish them to the Securities and Exchange Commission ("SEC"). Information contained on our web site is not part of this annual report or our other filings with the SEC.

INDUSTRY BACKGROUND

The word "laser" is an acronym for "light amplification by stimulated emission of radiation." A laser emits an intense beam of light with some unique and highly useful properties. Most important, a laser is orders of magnitude higher in brightness than any lamp. This means that the beam can be focused to a very small and intense spot, useful for applications requiring very high power densities for cutting and other materials processing procedures. The laser's high spatial resolution is also useful for microscopic imaging and inspection applications. Laser light can also be very monochromatic all the beam energy is confined to a narrow wavelength band, which can be important in biomedical and other medical-related applications. Some lasers also produce highly polarized outputs while other lasers have unique phase properties that can be used to create ultrafast output a series of pulses with pulse durations as short as 10's of femtoseconds (i.e., 10^{-15} seconds).

There are many types of lasers and one way of classifying them is by the material used to create the lasing action. This can be in the form of a gas, liquid, semiconductor or solid-state crystal. We manufacture all of these types of lasers. Lasers can also be classified by their output wavelength: ultraviolet, visible, infrared or wavelength tunable. We also manufacture all of these laser types. There are also many options in terms of pulsed output versus continuous wave, pulse duration, output power, beam dimensions, etc. In fact, each application has its specific requirements in terms of laser performance. The broad technical depth at Coherent enables us to offer a diverse product line characterized by lasers targeted at growth opportunities and key technology applications. In all cases, we aim to be the supplier of first choice by offering a high-value combination of superior technical performance and high reliability.

Photonics has taken its place alongside electronics as a critical enabling technology for the twenty-first century. Photonics-based solutions are entrenched in broad industries that include industrial automation, textile processing, microelectronics, flat panel displays and medical diagnostics, with adoption continuing in ever more diverse applications. Growth in these applications stems from two sources. First, there are many applications where the laser is displacing conventional technology because it can do the job faster, better or more economically. Second, there are new applications where the laser is the enabling tool that makes the work possible (e.g. the production of sub 50 micron microvias).

Key laser applications include: microtechnologies and nanotechnology; semiconductor inspection; microlithography; measurement, test and repair of electronic circuits; medical and biotechnology; industrial process and quality control; materials processing; imaging and printing; graphic arts display; and, research and development. For example, ultraviolet ("UV") lasers are enabling the trend towards miniaturization, which is a driver of innovation and growth in many markets. The short wavelength of lasers that emit light in the UV spectral region make it possible to produce extremely small structures-with maximum precision consistent with the latest state-of-the-art technology.

OUR STRATEGY

We strive to develop innovative and proprietary products and solutions that meet the needs of our customers and that are based on our core expertise in lasers and optical technologies. In pursuit of our strategy, we intend to:

Leverage our technology portfolio and application engineering to lead the proliferation of photonics into broader markets We will continue to identify opportunities in which our technology portfolio and application engineering can be used to offer innovative solutions and gain access to new markets.

Optimize our leadership position in existing markets There are a number of markets where we have historically been at the forefront of technological development and product deployment and from which we have derived a substantial portion of our revenues. We plan to optimize our financial returns from these markets.

Maintain and develop additional strong collaborative customer and industry relationships We believe that the Coherent brand name and reputation for product quality, technical performance and customer satisfaction will help us to further develop our loyal customer base. We plan to maintain our current customer relationships and develop new ones with customers who are industry leaders and work together with these customers to design and develop innovative product systems and solutions as they develop new technologies.

Develop and acquire new technologies and market share We will continue to enhance our market position through our existing technologies and develop new technologies through our internal research and development efforts, as well as through the acquisition of additional complementary technologies, intellectual property, manufacturing processes and product offerings.

Focus on long-term improvement of adjusted EBITDA expressed as a percentage of net sales We define adjusted EBITDA as earnings before interest, taxes, depreciation, amortization, stock compensation expenses and other non-operating income and expense items.

APPLICATIONS

Our products address a broad range of applications that we group into the following markets: Microelectronics, Materials Processing, OEM Components and Instrumentation, Scientific Research and Government Programs and Graphic Arts and Display.

Microelectronics

Nowhere is the trend towards miniaturization more prevalent than in the Microelectronics market where portable music and video and wireless communications technology are driving advances in integrated circuits, power management, and displays. In response to market demands and expectations, semiconductor manufacturers are continually seeking to improve their process and design technologies in order to manufacture smaller, more powerful and more reliable devices with a lower cost per function. New laser applications and new laser technologies in existing applications are in high demand to deliver higher resolution and higher precision at lower manufacturing cost.

We support four major markets in the microelectronics industry: (1) semiconductor front-end manufacturing, (2) semiconductor assembly, testing and advanced packaging, (3) flat panel display manufacturing, and (4) other emerging processes.

Microelectronics Front-end manufacturing

The term "front-end manufacturing" refers to the production of semiconductor devices which occurs prior to packaging.

Photomask manufacturing

Semiconductors are created with a process called microlithography, which relies on a high-resolution photomask most often made of quartz and chrome. The mask, which is conceptually similar to a negative in photography, is used in lithography systems to make numerous copies of the pattern image on semiconductor wafers. Our *Innova® Sabre* ion lasers, *Innova FReD* ion lasers, *NovaTex* excimer lasers, and *Rega* ultrafast lasers are all used in the fabrication, inspection and repair of these masks.

Semiconductor inspection, metrology, testing and wafer yield management

As semiconductor device geometries decrease in size, devices become increasingly susceptible to smaller defects during each phase of the manufacturing process and these defects can negatively impact yield. One of the semiconductor industry's responses to the increasing vulnerability of semiconductor devices to smaller defects has been to use defect detection and inspection techniques that are closely linked to the manufacturing process. For example, automated laser-based inspection systems are now used to detect and locate defects as small as 0.01 micron, which may not be observable by conventional optical microscopes.

Detecting the presence of defects is only the first step in preventing their recurrence. After detection, defects must be examined in order to identify their size, shape and the process step in which the defect occurred. This examination is called defect classification. Identification of the sources of defects in the lengthy and complex semiconductor manufacturing process has become essential for maintaining high yield production. Semiconductor manufacturing has become an around-the-clock operation and it is important for products used for inspection, measurement and testing to be reliable and to have long lifetimes.

Our *Azure*, *Paladin*, *Vitesse*, *Verdi*, *Sapphire, and Innova iLine* lasers are used to detect and characterize defects in semiconductor chips. Our *Innova iLine* argon laser is used to inspect patterned wafers and our *Vector* laser is used to repair defects that may occur in the photomask or semiconductor device.

The semiconductor fabrication process typically creates numerous patterned layers on each wafer device. Laser-based systems have been developed to measure the characteristics of metal or opaque layers in order to determine the functionality and conformance of these devices. Our *Vitesse* laser generates an ultrafast laser pulse that produces a localized temperature rise in the materials, which generates a sound wave, a portion of which is reflected back to the surface. By measuring the returning echoes with a second laser pulse, the system can detect layer thickness, adhesion and composition.

Microelectronics Semiconductor assembly, testing and advanced packaging

Wafer scribing and singulation

After a wafer is patterned, there are then a host of other processes, referred to as back-end processing, which finally result in a packaged encapsulated silicon chip. Ultimately, these chips are then assembled into finished products. The advent of high-speed logic and high-memory content devices has caused chip manufacturers to look for alternative technologies to improve performance and lower process costs. In terms of materials, this search includes new types of wafers based on low-k dielectrics and thinner silicon. Our *Avia* and *Prisma* lasers are providing economic methods of cutting and scribing these wafers while delivering higher yields than traditional mechanical methods. Our *Diamond* carbon dioxide ("CO_2") lasers are used for singulating packages and printed circuit boards into individual components for final assembly.

Microvia drilling

These same trends are also driving integration and miniaturization, blurring the traditional lines between formerly discrete applications such as assembly and PCB fabrication. Lasers are playing several enabling roles in this integration and miniaturization. For instance, lasers are now the only economically practical method for drilling microvias in chip assemblies and in both rigid and flexible printed circuit boards. These microvias are tiny interconnects that are essential for enabling high-density circuitry commonly used in mobile handsets and advanced computing systems. Our *AVIA* and *Diamond* lasers are the lasers of choice in this application. The ability of these lasers to operate at very high repetition rates translates into faster drilling speeds and increased throughput in Microvia processing applications.

Other applications are arising as well. For instance, the high density of the latest circuit boards is reaching the limits of conventional technologies, causing wider adoption of laser direct-write methods. Our *Paladin* laser is used for this application. Our lasers are also being increasingly used to trim (selectively cut) components in order to finely adjust their performance. Our *Vector* and *Prisma* lasers are used for this purpose.

Microelectronics Flat panel display manufacturing

The high-volume consumer market is driving the production of flat panel displays ("FPD") in applications such as digital cameras, personal digital assistants ("PDAs"), mobile telephones, car navigation systems, laptop computers and television monitors. There are several types of established and emerging FPDs based on quite different technologies, including plasma ("PDP"), liquid crystal ("LCD") and organic polymers ("OLED"). Lasers have found applications in each of these technologies given that the laser provides higher process speed, better yield, lower cost and/or superior display brightness and resolution.

Excimer Laser Annealing ("ELA") and Sequential Lateral Solidification ("SLS")

Several display types require a high-density pattern of silicon Thin Film Transistors ("TFTs"). If this silicon is polycrystalline, the performance is greatly enhanced. In the past, these polysilicon layers could only be produced on expensive thermal glass at high temperatures. However, excimer-based processes, such as ELA and SLS, have allowed high-volume production of low-temperature polysilicon ("LTPS") on conventional glass substrates. Our excimer lasers provide an invaluable solution for both ELA and SLS because they are the only industrial-grade excimers with the high pulse energy these methods require. The current state-of-the-art product for this application is our *Lambda SX-C* laser.

Our *AVIA* and *Diamond* lasers are also used in other production processes for FPDs. These processes include drilling, cutting, patterning, marking and yield improvement.

Microelectronics Emerging processes

Numerous areas of microelectronics can be grouped as "emerging technologies." Some of these are transitioning to volume production in the present timeframe while others are more forward-looking.

Solar cell technology is one area that is seeing increased interest. Historically, this has been a niche energy source because it could not compete with the low cost of other energy sources, most notably fossil fuels. But today's higher fuel costs have led to heightened interest in solar panels. Crystalline solar cell production capacity has been rapidly ramping up in Germany, Japan, Taiwan & China. Our lasers, such as *Avia* and *Prisma* , are already being used in the production of solar panels for cell isolation and transparent conductive oxide ("TCO") scribing purposes.

The hydrogen cell is another emerging technology currently attracting attention. Originally used in spacecrafts, this could provide a clean alternative power source for automobiles if performance, capacity and cost issues can be successfully addressed. Laser micromachining is likely to play a key role here and our *AVIA* , *Prisma* and *Diamond* lasers are already being used in this area.

Materials Processing

Lasers are widely accepted today as part of many important industrial manufacturing applications including cutting, welding, joining, drilling, perforating, and marking of metals and non-metals. We supply high-power lasers for metal processing as well as low-to-medium power lasers for nonmetals processing, precision micromachining and laser marking.

Light manufacturing and cutting

This area includes such applications as the cutting and joining of plastics using both our *Diamond* CO2 lasers and FAP Systems semiconductor lasers; the cutting, perforating and scoring of paper and packaging materials; and various cutting and patterning applications in the textile industry. In the specific area of textiles and clothing, our *Diamond* lasers service older applications, such as cutting complex shapes in leather for footwear, as well as newer applications such as creating detailed fade patterns on designer denims.

At the opposite end of the size and wavelength spectrum, our *AVIA* and *Matrix* ultraviolet lasers are now being used extensively for machining a wide range of materials (and in a wide range of industries) including glass and plastics. These technically important materials are laser processed to produce medical devices, micro-electromechanical systems ("MEMS"), flat panel display, semiconductor manufacturing, and to aid in rapid prototyping for a variety of end markets including automotive manufacturing.

Laser marking and coding

Laser marking and coding are generally considered part of the precision materials processing applications market for which we remain a leading supplier. One such area where applications are growing rapidly is the displacement of ink-jet coding due to both aesthetic and environmental pressures. The optimum choice of laser depends on the material being marked, whether it is a surface mark (engraved) or a sub-surface mark, and the specific economics of the application. We provide lasers for all-important marking applications. Our fiscal 2005 acquisition of TuiLaser AG has served to significantly expand our product offering and market share in marking and coding. A notable example is the use of our solid-state *Prisma* lasers to create high-quality, gray-scale images for ID cards and *Excistar* for marking diamonds. In fiscal 2007, we released *Matrix* , a new product line of reliable, compact and low-cost diode pumped solid state lasers. These lasers provide lower cost of ownership for marking in high volume manufacturing.

Many marking applications rely on a (scanned) moving laser spot to directly "write" an alphanumeric mark or barcode. Another method is to use the large cross-section beam from an excimer laser to image a photomask of the intended mark. Our *LPXPro* excimer lasers provide the solution for these photomask applications because of their high-duty-cycle operation and exceptional reliability.

Heavy manufacturing

In April 2007, we acquired Nuvonyx, Inc., a technology leader in high-power laser diode components, arrays, and industrial laser systems for materials processing and defense applications. Nuvonyx produces high power arrays with powers in excess of 50 Kilowatts through its proprietary cooling and stacking technologies. The industrial laser systems are used for cladding and hardening of metals, joining materials, and other materials processing applications. Other near-term applications include welding of plastics and direct metal welding. In fiscal 2007, we released *HighLight* , a new line of direct diode systems for metal processing.

Excimer-based processes

The unique properties of excimer lasers have enabled a diverse range of material transformation applications. Examples include drilling and ablating materials to create stents and disposable drug delivery catheters for the medical marketplace. Frequently, our excimer lasers are also used to mark these same products. Other materials processing applications for our excimer lasers include stripping thin wires in disk drives, cleaning bare semiconductor wafers and writing fiber Bragg gratings for optical telecommunications and sensing purposes.

A particularly interesting and environmentally friendly application is the use of our excimer lasers to treat the cylinder liners in high-performance diesel engines. Since its development in 2002, this process has proved so successful that it is now used by a major European automobile manufacturer for several production models. This process delivers a unique surface finish that lowers friction, increases fuel efficiency, and lowers emissions.

OEM Components and Instrumentation

Instrumentation is one of our more mature commercial applications. Representative applications within this market include flow cytometry, confocal microscopy, multi-photon microscopy, high-throughput screening for pharmaceutical discovery, genomic and proteomic analyses, raman spectroscopy forensics, veterinary science and bio-threat detection. Specifically, our *Sapphire* , *Compass* and *CUBE* lasers are used in several bio-instrumentation applications including confocal microscopy, DNA sequencing, flow cytometry and drug discovery. Our *Chameleon* laser is used in multi-photon microscopy and the new emerging area of CARS microscopy while our *Innova* ion lasers serve bio-instrument manufacturers for applications such as cell sorting, DNA and protein sequencing, as well as drug and clinical screening.

We also support the laser-based instrumentation market with a range of laser-related components, including diode lasers for optical pumping, optics, optical coatings and harmonic generation modules. Some of our OEM component business includes sales to other, less integrated laser manufacturers participating in OEM markets such as materials processing, scientific, and medical.

Flow cytometry

Flow cytometry is a laser-based micro-fluorescence technique for analyzing single cells or populations of cells in a heterogeneous mixture, including blood samples. Its numerous applications include cell biology, immunology, reproductive biology, oncology and infectious disease such as Acquired Immune Deficiency Syndrome ("AIDS"). Flow cytometry is both a powerful research method and an indispensable mainstream clinical diagnostic and prognostic tool. Commercially available instruments typically count cells according to six or more simultaneous discriminating factors at analysis speeds of thousands of cells per second. Many instruments also have the capability to selectively sort individual cells for subsequent analysis or cell culture. The recent design trend in flow cytometry is toward more compact, powerful and reliable instruments. As a result, our *Sapphire* , *Compass* and *CUBE* lasers are among the leading solid-state solutions in the current generation of cutting-edge instrumentation.

DNA sequencing

Laser-based instrumentation revolutionized DNA sequencing, providing automation and data acquisition rates that would be impossible by any other method. This technology played a key role in the human genome project. Next generation DNA sequencing machines are now being developed based on all solid-state laser platforms aimed at expanding the applications arena and opening up DNA sequencing services This area continues to be a dynamic area as researchers track and analyze specific genes responsible for various diseases. Our *Sapphire* , *Compass* and *CUBE* lasers were developed to address the needs of this market.

Drug Discovery Genomics and Proteomics

High-speed automation is also essential to the growth of genomics and proteomics, which now enable drug discovery to proceed at very high throughput rates. Over a million compounds can now be screened in weeks instead of years. A challenge to manufacturers of analytical devices is to produce instruments of increasing complexity and capability, while at the same time minimizing their size. This is particularly important where several instruments may be deployed in a single location for parallel processing. Our *Sapphire*, *Compass* and *CUBE* lasers are used in instrument techniques such as micro-array scanning, lab-on-a-chip and fluorescence correlation spectroscopy.

Raman spectroscopy

Raman spectroscopy is a non-contact technique in which a laser beam is used to interrogate the composition of samples. This technique can give unique information about constituent components and their precise concentration, as well as information about crystalline forms (polymorphs), which are particularly important in the pharmaceutical industry. Laser-enabled Raman instruments are useful for process monitoring, environmental