

Keywords: 9 = Environment; 10 = Image Processing & Optics; 17 = Software Services; 20 = Miscellaneous; Pollution Monitoring = 9; Hazardous Gas Detection = 9; Spectral Measuring Devices = 9; Oceanographic Instruments = 9; Water Depth & Quality & Bottom Type Mapping = 10; Airborne Imager = 10; Startracker = 10; Data Acquisition = 17; Data Reduction = 17; Quantitative Interpretation of Airborne & Satellite Imagery = 17; VUV Light Sources = 20.

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MPB TECHNOLOGIES Inc

Code: MPB

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History: MPB is a Canadian owned high technology company that was incorporated in 1976. It is a spin-off from RCA Ltd. There are no other locations in Canada and no US subsidiaries.

Capability: MPB occupies a modern 18,000 sq ft facility which includes a library, central computer room, machine shop, laboratories and production area. They are fully facilitated to conduct experimental, theoretical, and developmental work in a variety of fields. These include lasers, electromagnetics and radars, digital electronics, and instrumentation.

Laser work includes the design and development of CO₂ continuous wave lasers (1-20 watt range, >10,000 hours lifetime, sealed off) and CO₂ waveguide lasers with wide band width and good tunability (sealed off, 10,000 hours lifetime). They have a capability with iodine lasers in conjunction with mode locking experiments, and have conducted laser spectroscopic studies. They have also been involved with heterodyne detection techniques in conjunction with optical fiber hydrophones that can measure 1/500 of a fringe (phase shift: 360/500°). A program is in place for the development of far infrared lasers, a FIR heterodyne receiver breadboard, and the construction of advanced FIR detector packages including reflector mounts. They are involved in a program on the application of lasers to satellite communications (MILSAT-COM) and are developing a laser communications test bed and propagation measurement facility for a Canadian Government laboratory.

In the area of electromagnetics and radar technology, MPB has carried out research with synthetic pulse radar for airborne measurement of sea-ice thickness, and in the area of radar/chaff interaction and target enhancement. They have been involved with communications analysis (cross polarization effects, earth and satellite communications), and oil spill detection using electromagnetic techniques and antenna research (wide-band VLF antennas). The company recently delivered an airborne C-band scatterometer for measurements of ice surface roughness. The company is involved in projects related to target augmentation and to deployment of chaff including the NATO MACE Trials.

In the digital electronics area, MPB has expertise in electronic graphics, displays, training systems, and graphic composition. They have also been involved with special purpose communication terminals (transcontinental telex operator communications) and special purpose data recorders (based on microprocessor technology).

In the area of instrumentation, MPB is involved with a Space Shuttle experiment (wave injection facility), where their main responsibility is the software for the control electronics, the system test equipment, the plasma simulator, and various systems engineering tasks. Other projects include hazardous

gas detection, the Canadian Varennes Tokamak (data acquisition, preionization, diagnostic instrumentation - probes, lasers, microwave interferometry), and software development (controls and on-line data analysis).

MPB products include the VISTA 80 Graphics System, a versatile character generating system which utilizes a standard keyboard for message composition, and a magnetic diskette system for bulk storage of messages. The system is based on microprocessor technology. Primary use is for presenting alphanumeric information in news, weather, sports & election programs, and for titling & credits. The company recently introduced their VISTA 90 electronic graphics and composition system for applications to business and science. The system permits the composition of picture quality graphics by various input devices and hard copy through a choice of 35mm slides, printer, or video tape. Their laser communications system is capable of video, multiple voice channel, or high bit rate digital transmission. The system has a video signal to voice ratio greater than 60 dB and is immune to RF interference. They have made major sales to the US of their sealed-off CO₂ lasers that are long lived (greater than 38,000 hours) and have power ranges from 3 to 12 watts TEM⁰⁰ and 1 to 18 watts multimode. Suggested uses are optical communications, atmospheric research, spectroscopy, far infrared laser excitation, materials processing, surgery, etc. MPB has recently introduced a number of new laser products which include a 60 watt cw CO₂ laser, a low voltage mirror translator with control electronics and a low-cost closed-looped cooler for use with the family of CO₂ lasers. Their final product is a High Intensity Light Source. It is a long (450mm) self-starting vortex stabilized arc discharge. It has a continuous radiation spectrum, can be started instantaneously and can deliver a hundred times more light output than a high power mercury arc lamp light-head of comparable dimensions.

Average Work Force: PhDs - 18
Engs - 16
Others - 14

Gross Sales: 1979 - \$1.3M
1980 - \$1.5M
1981 - \$2.0M
1982 - \$2.7M
1983 - \$3.5M

Plant Size: 18,000 sq ft

Experience: MPB's typical clients include the Canadian Government (Dept of National Defense, Communications Research Center, National Research Council), AFOSR, CBC, SPAR Aerospace Ltd, Telesat Corp, Teleglobe Canada, plus others. Recent US customers have included the Department of Energy (Nevada Div), Hughes Aircraft, RCA Astroelectronics, and National Oceans & Atmospheric Administration.

Keywords: 1 = Aircraft; 5 = Communications; 7 = Electronics; 8 = Energy; 9 = Environment; 11 = Lasers; 15 = Radar; 18 = Space Systems; 20 = Miscellaneous; Digital = 7; Instrumentation = 7, 8, 9; Continuous Wave Lasers = 11; Waveguide Lasers = 11; Iodine Lasers = 11; Far Infrared = 11; Synthetic Pulsed Radar = 1, 15, 20; Communications Analysis = 5, 18; Antennas = 7, 15; Pollution Sensing & Analysis = 9; Graphics = 7; Displays = 7; Training Systems = 7; Satellite Communications = 11, 18; Laser Communications = 11, 18; CO₂ Lasers = 11; Sealed-Off Lasers = 11; High Intensity Light Source = 8; Arc Lamps = 8; Trace Gas Detection = 9; Hazardous Gas Detection = 9; Electromagnetics = 1, 9, 15, 20; Continuous Wave CO₂ = 11.

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