

- **Quality Control** – Valcom's quality assurance plan meets the policies and procedures of DND 1015 specifications and US military standard MIL-Q-9858A. To ensure that the high quality standards set by customers and management are consistently achieved, the quality assurance staff and the engineering department determine product quality and design and implement inspection plans.

- **Manufacturing** –

- **Fiberglass Manufacturing Division:** In 1964, Valcom's management recognized the demand from organizations throughout the world for durable, lightweight antennas for transmitting/receiving applications and developed a line of fiberglass whip antennas which ensure mechanical strength and electrical stability in even the most severe operating conditions. Available in sizes ranging from 29 to 85 ft, these antennas operate in the 10 KHz – 30 MHz range. Having produced over 5,000 whips, Valcom has become the world's leading manufacturer of high quality MF, HF, VHF fiberglass whip antennas. The company's expertise in antenna design and manufacture has resulted in its 35 ft AS2537A/SR whip receiving MIL-A-24319A (EC) approval from the US Navy. The US Coast Guard, the US, Spanish, Greek, Australian, South Korean, Italian, British, and Canadian Navies, and many commercial organizations specify Valcom's free-standing antennas for ground-to-air, ship-to-shore, and ship-to-ship applications. They also manufacture the AS2108ARN directional-finding antenna for the US Army.

- **Electronics Assembly Division:** Valcom's electronics assembly personnel built the company's 1 and 10 kW coupler systems and are skilled in building a wide range of electro-mechanical and avionics equipment to customer's print.

- **Metal Fabricating and Production Machine Shop Division:** Valcom's machine shop staff produce metal assemblies on a custom basis. With a fully equipped machine shop and knowledgeable personnel, Valcom services customers whose production requirements range from several units to thousands of pieces.

Average Work Force: 85 Total

Gross Sales: \$7.5 to 8.0M

Plant Size: 45,000 sq ft
45,000 sq ft (HF, MF & VHF Antenna Facility Testing Site)

Experience: Valcom's customers include the Canadian Department of National Defense; US Navy, Army, and Coast Guard; the Navies of Spain, Greece, Australia, South Korea, New Zealand, Indonesia, Italy, and the UK; and the Canadian Atmospheric Environment Service.

Keywords: 3 = Avionics; 5 = Communications; 12 = Machining; 19 = Testing/Test Equipment; Communications Equipment = 5; Antennas = 5; Controls = 5; Electronic Equipment = 3, 5; Components = 5; Repair & Overhaul = 5, 19; Coupler Control Units = 5; Whip Antennas = 5; Lightweight Antennas = 5; Fiberglass Antennas = 5; Electronic Assembly = 3, 5; Build-to-Print = 3, 5; Machining = 5, 12.

Revised: Dec 83

VARIAN CANADA Inc

Code: VAR

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History: Varian Canada Inc is a wholly owned subsidiary of Varian Associates of Palo Alto, CA. The Canadian operation, located near Toronto, Ontario, was originally incorporated in 1955 to supply microwave tubes to the Canadian military.

The engineering and manufacturing segment of the company, Varian Canada Microwave Division (VCMD), operates under the umbrella of the Electron Device Group of the parent company. This group forms the largest electron tube manufacturing operation in the free world. Since its inception, the Microwave Division has grown steadily and expanded its original charter to include many unique and customized products for world-wide markets (75% of sales are exported). Currently, the product line is split evenly between electron tubes and electronic equipment.

Capability: The following is a brief description of the major products manufactured at Varian Canada Microwave Division. Since many of the products were designed by the Division, full facilities and capabilities exist in-house for customizing to the needs of individual customers. Both MIL and commercial specifications can be met.

Travelling Waves Tubes: These tubes are produced for microwave Line-of-Sight (LOS) Communication applications and cover frequencies ranging from 3.5 GHz to 15 GHz at power levels up to 50 watts. The product line includes a complete selection of conventional technology TWTs as well as metal-ceramic high efficiency and high linearity tubes. The company has the capability to customize existing designs to meet customer's unique requirements, and to develop retrofit packages to upgrade older field installations.

Power Klystrons: This product line consists of a series of power klystrons used primarily as high power amplifiers in satellite earth stations and troposcatter communication applications. These are available at frequencies of 5, 6, and 14 GHz with power levels up to 3 kilowatts. Various channel tuner configurations are available, including a microprocessor-controlled, automatic-channel tuner.

Reflex Klystrons: VCMD has an extensive line of reflex klystrons typically used in communications and radar systems for airborne and ground based applications, plasma diagnostics, spectroscopy, meteorological instrumentation and other experimental and scientific applications. The line ranges from the lower frequency tubes (8 to 25 GHz) with power outputs from 10 to 450 mW up to millimeter reflex klystrons ranging from 30 to 220 GHz with out powers from 5 to 800 mW.

Extended Interaction Klystrons: This product line originated at the VCMD facility and extensive development efforts are continuing. The products address the very high frequency ranges for microwave applications, ranging from 30 GHz to 280 GHz. EIKs are rugged, lightweight, compact and are capable of generating medium rf power levels in either continuous or pulsed modes. The cw power levels of these klystrons range from 1 kW at 18 GHz to 1 watt at 280 GHz. Peak power outputs range from several kilowatts at 30 GHz to 60 watts at 220 GHz. These EIKs are well suited as rf power sources for a wide range of applications such as – Fire control radar; terrain following radar; illuminators; weather radar; plasma heating; radio astronomy; surveillance radar; satellite communications; tracking radar; radar modelling; and fusion diagnostics.

Millimeter Wave Subsystems: VCMD offers a range of millimeter wave transmitter subsystems which consist of a modulator, a power supply and control circuitry driving the Varian line of Extended Interaction Klystrons.