without the graphite Lunar Module cask, was about 7 kg.

Five SNAP-27 powered ALSEPs were placed on the lunar surface. In each case, all of the RTGs exceeded their mission requirements in both power and life-cycle. All five ALSEPs, powered by RTGs, were operating when NASA shut down the stations on 30 September 1977.

Transit-RTG. The Transit-RTG was developed specifically as the primary power source for the DOD TRIAD navigational satellite. Auxiliary power was provided by four solar-cell panels and one 6 Ah nickel-cadmium battery. The objective of the Transit-RTG program was to produce an RTG capable of providing a minimum end-of-mission power of 30 W(e) after five years, at a minimum of 3 V. To do this, the 12-sided converter used light-weight PbTe thermoelectric panels (Isotec) that operated at a low hot-side temperature of 673 K in a vacuum, eliminating the need for hermetic sealing and a cover gas to inhibit the sublimation of thermoelectric material. The Transit-RTG was designed to be modular; each of the 12 Isotec panels contained 36 PbTe 2N/3P couples arranged in a series-parrallel matrix with four couples in a row in parallel and nine rows in series. The panels were supported structurally by 12 webbed, magnesium-thorium corner posts with teflon insulators. The masses of the converter and heat source were 5.98 and 4.2 kg respectively. Including a titanium heat-source cage and support structure, the Transit-RTG had a mass of about 13.6 kg. The short-term objectives of the TRIAD satellite were demonstrated, including a checkout of RTG performance; however, a telemetry-converter failure caused a loss of further telemetry data. The TRIAD satellite continues to operate normally and to provide magnetometer data using power from the RTG.

MHW-RTG. The MHW-RTG was designed to provide a major increase in the power output of a space RTG. The DOD Lincoln Experimental Satellites 8 and 9 required 125 W(e) per RTG, with an output voltage of 30 (± 0.5) V at the end of mission — an operational life of at least five years after launch. The NASA VOYAGER mission required 128 W(e) per RTG, with an end-of-mission output of 30 (± 0.5) V or an operational life of at least four years after launch. To achieve these requirements, the MHW-RTG was equipped with a new heat source of 24 pressed plutonium oxide fuel spheres, each producing about 100 W(t). Electrical conversion was achieved through 312 silicon-germanium (SiGe) thermoelectric couples—high temperature alloys. The converter consisted of a beryllium outer case; end-closure structures that physically held the heat source; thermoelectric elements; a multifoil (molybdenum-Astroquartz) insulation packet and a molybdenum internal frame; and a gas-management system. The gas-management system maintained an argon or xenon gas environment to allow partial power operation on the launch pad; full-power operation in space was effected by venting the gas