

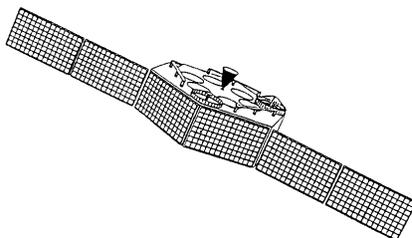


**AMSAT®**

The Radio Amateur Satellite Corporation

# **FACT SHEET**

## ***FACTS ABOUT THE AMSAT PHASE 3-D SATELLITE***



As currently designed, Phase 3-D will receive on the 15, 145, 436, 1270, 2400 and 5600 MHz Bands. It will transmit on the 145, 436, 2400, 10,500 and 24,000 MHz bands. Receive/transmit combinations will be programmable from Earth through the onboard computer and a unique RF matrix arrangement allowing one or more uplink receivers to be linked to one or more downlink transmitters. The satellite will weigh over 600 Kg (1300 pounds) fully loaded with propellants at launch. It will also be about 2.3 meters (7.5 feet) in diameter and about 1 meter (3 feet) high. With its solar panels extended, Phase 3-D's "wingspan" will be over 6 meters (20 feet). Phase 3-D's elliptical orbit will vary from a maximum height of 47,000 Km (29,000 miles) above the Earth to a low of some 4000 Km (2400 miles). On-board antennas will offer gains in the 4 to 19 dBic range which, because of the spacecraft's unique three-axis stabilization, will always point Earthward. When combined with on-board power capability approaching 600 watts, these high-gain antennas will produce effective downlink powers in the 10-20 Kilowatt range.

As Phase 3-D's transmitters and receivers will be programmable, this concept will take the additional satellite mode designators that amateur satellite operators have become used to (such as Modes A, B, and J), virtually obsolete. For example, on Phase 3-D, a Configuration "U/VS" will be possible. That is, amateurs will be able to uplink to the satellite on U-Band (435 MHz) while the satellite transmits downlinks on both V-Band (145 MHz) and S-Band (2400 MHz). Simply looking at the frequency chart for Phase 3-D, it becomes apparent that a *myriad* of different combinations (like Configurations "C/V", "UL/S" and "L/SC") could all be supported! Of course, the traditional Mode B, one of the most popular modes on the current Phase 3 satellites, will become Configuration "U/V" under this concept. It is expected this frequency pair will be one of the more active ones in the first years of Phase 3-D's lifetime. However, as commercially available equipment for the higher bands becomes more available and lower in cost, use of these higher frequency bands is expected to increase. When this happens, Phase 3-D's powerful receiver and transmitter suites for these bands will already be in orbit and available for use.

Other experiments planned for the new satellite include a Global Positioning System (GPS) receiver that may also allow the satellite to tell ground controllers where it's located at any time. Two Earthward-pointing digital cameras are also now slated to be included.