7.7.4 Distribution (Continued)

4,500 W of power at BOL, the power electronics will need to be uprated from this current design. Such a change should not be exceedingly difficult to accomplish with allowances made for mass increases.

7.8 Thermal Control

The Paxsat spacecraft must operate in an arbitrary orbit, and so the thermal control problem is somewhat greater than that for a spacecraft in any one particular orbit.

Spacecraft have been designed though with such a constraint. One example is the MMS bus mentioned earlier.

The basic approach is to thermally decouple the individual modules and provide each with the capability of controlling the internal temperature. For the current Paxsat concept, this philosophy has been largely retained.

The payload face of Paxsat will never see continuous sunlight and neither will the opposite face which houses the power subsystem. The side faces to which the solar arrays are attached may receive continuous sun input, but not beyond a sun angle of 50^{o} or so, due to the change in flight orientation from out-of-plane to zenith. For this reason, the radar transmit chain is spread over the payload face and partway down one of the solar panel faces.

The side faces containing the attitude control and C&DH subsystems can see sunlight in a dawn-dusk orbit. For that reason, units dissipating a relatively small amount of heat are mounted there. The modules also are equipped with louvres to aid in thermal control.

Batteries normally require a tightly controlled thermal environment and are therefore mounted on the aft side of the spacecraft towards the side of one of the solar arrays. In addition, a thermal transport ring is included which can transport heat to whichever face of the spacecraft is cold. This heat transport ring is mounted to a radiator skirt in which the batteries are also attached at the base of the spacecraft.