7.5.1 Requirements (Continued)

itself and satellite body stabilization. In addition, the optical sensor stability requirement itself depends on the sophistication of the image data processing. The present conception assumes an image motion compensation system within the camera itself providing a tracking capability for use when the radar is inoperative.

7.5.2 Implementation of Control Laws

Measurements of range to the target, range rate and azimuth and elevation angles and rates are used by the attitude and orbit control algorithms to maintain Paxsat at a desired distance from the target and in the correct attitude.

The calculations are carried out by the spacecraft computer. As a back-up, when the computer is inoperative, hardwired logic within the attitude and orbit control system will maintain the Paxsat at a safe distance from the target and will execute avoidance maneuvers should the target maneuver towards Paxsat. To this end, radar data is provided directly to the attitude and orbit control subsystem (AOCS) independently of the computer-driven digital network.

The hardwired logic contains the circuitry required to detect faults in the on-board computer not diagnosed by the computer itself and to switch over to the back-up system.

7.5.3 Attitude Sensors

During an interrogation, Paxsat attitude is driven by the radar, the optical sensor and sun sensors. The information from the sun sensor is used to ensure that the solar arrays are aligned to the sun. As such, they do not need to be extremely accurate.

The tightest attitude control requirement comes during the period of time while Paxsat is scanning to acquire the target from a distance of 50 km to 100 km but before the target is found. The smaller the angular extent of the search region, the easier the search. Information will likely be available which pinpoints the target to