



## The Attitude Control System for the Wilkinson Microwave Anisotropy Probe

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By F. Landis Markley

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 36 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. The Wilkinson Microwave Anisotropy Probe mission produces a map of the cosmic microwave background radiation over the entire celestial sphere by executing a fast spin and a slow precession of its spin axis about the Sun line to obtain a highly interconnected set of measurements. The spacecraft attitude is sensed and controlled using an inertial reference unit, two star trackers, a digital sun sensor, twelve coarse sun sensors, three reaction wheel assemblies, and a propulsion system. Sufficient attitude knowledge is provided to yield instrument pointing to a standard deviation ( $1\sigma$ ) of 1.3 arc-minutes per axis. In addition, the spacecraft acquires and holds the sunline at initial acquisition and in the event of a failure, and slews to the proper orbit adjust orientations and to the proper off-sunline attitude to start the compound spin. This paper presents an overview of the design of the attitude control system to carry out this mission and presents some early flight experience. This item ships from La Vergne, TN. Paperback.



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