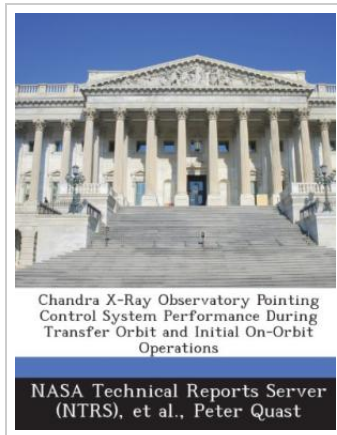




Chandra X-Ray Observatory Pointing Control System Performance During Transfer Orbit and Initial On-Orbit Operations

By Peter Quast

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 22 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. The Chandra X-ray Observatory (CXO, formerly AXAF) is the third of the four NASA great observatories. It was launched from Kennedy Space Flight Center on 23 July 1999 aboard the Space Shuttle Columbia and was successfully inserted in a 330 x 72,000 km orbit by the Inertial Upper Stage (IUS). Through a series of five Integral Propulsion System burns, CXO was placed in a 10,000 x 139,000 km orbit. After initial on-orbit checkout, Chandras first light images were unveiled to the public on 26 August, 1999. The CXO Pointing Control and Aspect Determination (PCAD) subsystem is designed to perform attitude control and determination functions in support of transfer orbit operations and on-orbit science mission. After a brief description of the PCAD subsystem, the paper highlights the PCAD activities during the transfer orbit and initial on-orbit operations. These activities include: CXO/IUS separation, attitude and gyro bias estimation with earth sensor and sun sensor, attitude control and disturbance torque estimation for delta-v burns, momentum build-up due to gravity gradient and solar pressure, momentum unloading with thrusters, attitude initialization with star...



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