IUE POWER PREDICTIONS AND BETA ANGLE LIMITS FOR 1986-1989

by

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At the Three-Agency Coordination Meeting in Madrid last April the agencies decided to turn off IUE's Panoramic Attitude Sensors (PAS) to reduce the spacecraft power load (from 180 to 172 watts) and thus increase the constraint-free Beta angle region. The resulting power savings changes the power-positive Beta angle limits from 29°-115° to 25°-119° for May 1985 and to 28°-116° for February 1986. This offsets the decreasing solar array output by approximately one year, according to recent projections.

The PAS units provide coarse attitude recovery (±1°) but have not been used in over four years. Data from IUE's semi-annual shadow seasons indicate that the PAS will turn on properly after being off for extended periods. The PAS units were turned off on 30 April 1985. A thorough review of the satellite components shows that under current operations policy additional power savings cannot be realized without turning off some critical component of the scientific instrument or spacecraft.

In the table below I list the current predictions, based on analyses by IUE Control Center staff (Bradley 1985), for the Beta angle range within which observing activity is not restricted by solar array power. There are reasonable expectations that the IUE will be fully operational through 1989. When these power-positive Beta angles are convolved with the OBC temperature constraints (see the following article by this author) we see that the constraint-free regions will become rather narrow several years from now. The upshot is that the scheduling of telescope time will get less flexible. Guest Observers will need to accurately assign priorities to all targets and make their program's requirements known to the Observatory scheduler as soon as possible.

Power-Positive Beta Angle Regions for 1986 - 1989

	1986	1987	1988	1989
January	26°-116°	30°-112°	35°-107°	42°-100°
April	28°-114°	32°-109°	37°-104°	44°-98°
July	32°-110°	35°-106°	42°-101°	49°-95°
October	30°-113°	34°-108°	40°-102°	46°-95°

Reference: Bradley, D.A. 1985. Projections of Future Spacecraft Constraints, a report prepared for the April 1985 IUE Three-Agency Meeting