UVOT LAUNCH & EARLY ORBIT TIMELINE AND TURNON PROCEDURE

SWIFT-UVOT-040

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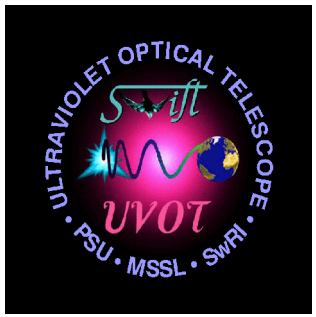
Version 1.1

Date: 8 April 2003
Rev: 28 January 2004



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REVISION SUMMARY

REV	RELEASE DATE	BRIEF DESCRIPTION/REASON FOR CHANGE	EFFECTED PAGES
0.0	8 April 2003	Draft copy for comments.	All
0.1	14 April 2003	Included comments from Scott Koch and Phil Smith.	All
0.2	24 April 2003	Included changes from Pat Broos.	5, 9-11
1.0	30 April 2003	Initial release incorporating changes from OAWG meeting.	All
1.1	28 January 2004	Minor changes based on the mission L&EO timeline and comments from Phil Smith	8-10

1. INITIAL CONDITIONS

Check the following:

1. 5 S/C UVOT temperature sensors
2. 3 Door microswitches (Telescope door and latches closed)
3. Survival heaters on

Do the following:

1. Open ITOS archives for UVOT

Time	Event	Observatory Status	Telecommands	UVOT Activities	Ground Activities	Comments
L+5 days (2 orbits)	Power on *Redundant* DEM	Malindi contact	Start uvot_dem_commissioning	Enable 1553, power on DEM, check ICU & DPU watch dog, perform time test, test SSI, test EEPROM, & place DEM in SAFE state	Monitor DEM startup, current, interface test messages, HK, & verify that DEM is in SAFE state	Verify correct telemetry before continuing. Since TM is not powered expect TM related HK to have Red Limits
L+5d	SAFE state	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state	Verify that all HK values are nominal
L+6d	SAFE state	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state	Verify that all HK values are nominal
L+7d	SAFE state	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state	Verify that all HK values are nominal
L+8d	SAFE state	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state	Verify that all HK values are nominal
L+9d	SAFE state	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state	Verify that all HK values are nominal
L+10d	SAFE state	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state	Verify that all HK values are nominal
L+11d	SAFE state	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state	Verify that all HK values are nominal

Time	Event	Observatory Status	Telecommands	UVOT Activities	Ground Activities	Comments
L+12d	SAFE state	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state	Verify that all HK values are nominal
L+13d	SAFE state	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state	Verify that all HK values are nominal
L+14d	SAFE state	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state	Verify that all HK values are nominal
L+15d	SAFE state	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state	Verify that all HK values are nominal
L+16d	SAFE state	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state	Verify that all HK values are nominal
L+17d	SAFE state	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state	Verify that all HK values are nominal
L+18d	SAFE state	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state	Verify that all HK values are nominal
L+19d	SAFE state	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state	Verify that all HK values are nominal
L+20d	SAFE state	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state	Verify that all HK values are nominal
L+21d	SAFE state	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state	Verify that all HK values are nominal

Time	Event	Observatory Status	Telecommands	UVOT Activities	Ground Activities	Comments
L+22d (1 orbit)	Open Telescope Door	ACS Inertial Malindi contact	Start TBD	Open Telescope Door	Monitor RT HK telescope door position	Not to be started until ACS testing is complete & not at the same time as XRT
L+22d	TM Outgassing	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state & TM is off	Verify that all HK values are nominal. TM can not be turned on until 3 days after door opening
L+23d	TM Outgassing	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state & TM is off	Verify that all HK values are nominal. TM can not be turned on until 3 days after door opening
L+24d	TM Outgassing	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify that DEM is in SAFE state & TM is off	Verify that all HK values are nominal. TM can not be turned on until 3 days after door opening
L+25d (3 orbits)	Power on Redundant TM	Malindi contact	Start uvot_tm_commissioning	Power on TM, test heaters, test filter wheel, setup detector, intensifier char, test DPU window, flat field	Monitor TM startup, current, HK, & examine images offline	Verify correct telemetry before continuing

Time	Event	Observatory Status	Telecommands	UVOT Activities	Ground Activities	Comments
L+25d (1 orbit)	Change to IDLE state	Malindi contact	Start istate_idle	Place UVOT in IDLE state w/ HV disabled RTSs	Monitor HK & verify UVOT is in IDLE state	Verify that all HK values are nominal
L+25d	Slew tests	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify UVOT is in IDLE state	Verify that all HK values are nominal
L+26d	Slew tests	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify UVOT is in IDLE state	Verify that all HK values are nominal
L+27d	Slew tests	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify UVOT is in IDLE state	Verify that all HK values are nominal
L+28d	Slew tests	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify UVOT is in IDLE state	Verify that all HK values are nominal
L+29d	Slew tests	TDRSS contact		Monitor pointing constraints & slews	Monitor HK & verify UVOT is in IDLE state	Verify that all HK values are nominal
L+30d (0.25 orbit)	Change to SAFE state	Malindi contact	Start icu_safe	Place UVOT in SAFE state	Monitor HK & verify UVOT is in SAFE state	Verify that all HK values are nominal
L+30d (0.25 orbit)	Upload new ICU RTSs	Malindi contact	Start iloads_r	Loads the HV enabled RTSs	Checksum the uploaded code	Verify code uploaded properly. From here on we care what the S/C & other instruments are doing

Time	Event	Observatory Status	Telecommands	UVOT Activities	Ground Activities	Comments
L+30d (0.25 orbit)	Change to IDLE state & Disable FOM requests	Malindi contact	Start icu_idle_disabled	Place UVOT in IDLE state w/ HV enabled; Ignore FOM requests	Monitor HK & verify UVOT is in IDLE state and FOM disable request received	Verify HK is nominal & that the UVOT is ignoring FOM requests. ***Potential Danger of Bright Source Damage Begins***
L+31d (0.5 orbits)	Enable FOM PTs	Malindi contact	Start icu_enable_at_pt	Receives FOM PTs	Verify request received	Verify that the UVOT is receiving FOM PTs
L+31d (0.5 orbits)	Pulse Height exposure	Malindi contact		Take a Pulse height exposure during a scheduled PT	Analyze exposure	Check for a normal pulse height peaking at about channel 80
L+31d (5 orbits)	HV adjustment	Malindi contact	ihvadjust(x)	Adjust voltage	Send new voltage to UVOT	Run intchar multiple times adjusting voltage each time w/ ihvadjust(x)
L+32d (0.5 orbits)	Centroid Exposure & Centroid Exposure confirm	No contact		Take a centroid exposure, calculate channel boundaries, & upload to detector RAM. This is scheduled during a PT	Analyze exposure	Check channel boundary & exposure & compare to calibration numbers

Time	Event	Observatory Status	Telecommands	UVOT Activities	Ground Activities	Comments
L+32d (1 orbits)	First light exposure	No contact		Take exposure of an uploaded PT	Check performance & analyze PSF	A PT is used for safety of UVOT
L+32d (20 orbits)	Focus test	Malindi contact	ifocus(x)	Take exposure of an uploaded PT every hour	Analyze images and adjust focus	Perform test 20 times alternating between the V filter and the magnifier
L+34d (3 orbits)	Safety circuit calibration	Malindi contact		Take multiple exposures of an uploaded PT	Adjust the safety circuit parameters	Multiple images of a star of known brightness are taken and the safety circuit adjusted until the circuit trips
L+35d	UVOT calibration begins	Malindi contact				See UVOT On-Orbit Calibration Plan
L+ACE (3 orbit)	Upload revised AT tables	Malindi contact	Start TBD	Loads the revised AT & PT tables	Verify tables uploaded	This activity occurs after calibration ends (ACE)