IBEX Maneuver Timeline v8

Colors: **Meeting** **Burn** Upload Product Generation

last edited 6/8/10

Date	Time UTC	Time (ET)	Dur	Actionee	Posted on SFTP	Action	OP31117_A Step	Altitude	AUS View	AK View	HAW view	APL View	Location Reqs	Comments	Needed in addition to OP31117_A
11/3/2010		8:30	2d			**IBEX Extended Mission TIM**									
2/15/2011						Orbit In The Life Testing Begins									
3/16/2011		**9:00**	**2.5d**			**IBEX Pre-Maneuver TIM**									
3/29/2011						Diagnostic - Hi Gain							30re asc		
4/6/2011						Diagnostic - Lo Gain							in magnetosheath		
4/7/2011						Individual Procedure Walkthough								Bret FlatSat manager Walkthrough of procedures by the subsystem/system engineer responsible - Orbital & FDG seperately	
4/20/2011						Diagnostic - Star Tracker Image Dump							Housekeeping State >=40ksps		
4/20/2011						**SWT - Science Team Decision on Pointing**								Point at sun 2.5d prior to apogee, 2.5d prior to perigee	
4/28/2011						Diagnostic - Gyro Test	1								
						Diagnostic - 22N Cat Bed Heater Test							Housekeeping State >=40ksps		
						Diagnostic - CSD Table Dump									OP31205, OP31206
5/2/2011		9:00	2d			**Combined Procedure Walkthrough #1**								FDG + Orbital walkthrough @ Orbital	
5/18/2011		8:30	2.5d			**Combined Procedure Walkthrough #2**								FDG + Orbital walkthrough @ Orbital; anomalies	
5/31/2011						Orbit in the Life Testing Completed									
6/1/2011	1045	6:45	35m			Contact AOS : HAW01, 2k		47a						Failed - ITOSS SW crash & antenna control SW crash	
	1120	7:20				Contact LOS : HAW01								some usable Doppler	
6/1/2011	1300	9:00	2h			**Pre-Spin Up MAC**									
6/1/2011	1320					Apogee		47							
6/3/2011	1100	7:00	35m			Contact AOS : HAW01, 2k		41d						good cmd/tlm	
	1135	7:35				Contact LOS : HAW01									
6/5/2011	0402					AK View begin									
6/5/2011	0430	0:30	35m			Contact AOS : AK,2k		8d						good cmd/tlm, Doppler	
			25m			SSR Dump (if data rate allows)									
			1m			Verify in Housekeeping	2							Can be done during SSR dump	
			5m			Upload Inertial Maneuver ATS	3							Can be done during SSR dump	
			10m			Upload Contact ATS								Can be done during SSR dump	
			5m			Set SCB Clock								**CAN NOT** be done during SSR dump	
	0505	1:05				Repointing Contact LOS : AK									
6/5/2011	0821					Perigee		3							
				MOC		Queue contingency commands									
6/5/2011	0845	4:45	90m			Repointing contact AOS : AUS, 64k		3a					> 40 ksps	Good Doppler, good cmd/tlm	
	0900	5:00	25m			**Repoint**	4						Housekeeping		
			25m			SSR Dump (if not possible on earlier pass)								can be done while repointing - standard ops	
			5m			Verify Sun Angle & EPS Performance	5								OP31303
			2m			Reduce High Rate EPS TLM	6								OP31418
			2m			Delete Back Orbit Star Tracker TLM	7								OP31416
	1015	6:15				Repointing Contact LOS : AUS									

IBEX Maneuver Timeline v8

Date	Time UTC	Time (ET)	Dur	Actionee	Posted on SFTP	Action	OP31117_A Step	Altitude	AUS View	AK View	HAW view	APL View	Location Reqs	Comments	Needed in addition to OP31117_A
				FDG		FDG Pointing Check									
				SYS		Repoint Maneuver Success Criteria									
	~~1030~~	~~6:30~~		~~FDG~~		~~Repoint Correction yarget Vector if needed~~									
	~~11:00~~	~~7:00~~		~~MOC~~		~~Repoint Correction ATS if needed~~									
				~~All~~		~~Repoint Correction ATS approval if needed~~									
						EPS, ACS, SYS approval to proceed to Spin Up									
6/5/2011	1200	8:00	90m			Contact AOS - AUS, 64k		7a						Good Doppler, good cmd/tlm	
			~~10m~~			~~Upload Repoint Correction ATS if needed~~								Was not needed, error within acceptable limits	
	~~1300~~		~~5m~~			~~Repoint Correction if needed~~									
			5m			SSR Dump	8								
			2m			CEU Off	8								
			5m			Set 22rpm Limits	9								
			15m			Star Tracker Off	10								OP31202
			5m			Upload Spin Up ATS	11								
	1330	9:30				Contact LOS									
				MOC		Queue contingency commands	12								
6/5/2011	1515	11:15	60m			Spin Up Contact AOS - AUS, 64k		12a						Good Doppler, good cmd/tlm	
	1530	11:30	4m			**Spin Up**	13								
						Enable Spin Rate Limits	14								OP31203
	1615	12:15				Spin Up Contact LOS									
~~6/5/2011~~	~~1715~~	~~13:15~~	~~60m~~			~~Back up Spin Up Contact AOS - AUS~~		~~14a~~						pass cancelled	
	~~1815~~	~~14:15~~				~~Back up Spin Up Contact LOS~~									
				HPS		Update Fuel Usage Table									
				SYS		Spin Up maneuver Success Criteria									
6/5/2011	2200	18:00	60m			Contact AOS : AUS 64k		19a						failed for Doppler - fails consistency checks	
	2300	19:00				Contact LOS								showed LHCP	
				FDG		Current OD Uncertainty (thru ADV1)									
				FDG		Ground Station Viewperiod (thru ADV1)									
				FDG		Star tracker Outages (thru ADV1)									
				MOC		Station Antenna Predicts									
				MOC		Confirmation of USN coverage for ADV1									
				MOM		Time of ADV1									
				MOM		Duration of Burn									
				MOC		ADV1 ATS									
				MOC		Contact ATS									
				All		ADV1 ATS approval									
6/6/2011	0430					APL view begin									
6/6/2011	0900					HAW view begin									
6/6/2011	1000	6:00	60m			Contact AOS : HAW01, 40k		29a						Failed for Doppler - fails consistency checks	
	1100	7:00				Contact LOS									
				ACS		ACS TLM assessment									
				HPS		HPS TLM assessment									
				EPS		EPS TLM assessment									
				SYS		SCB TLM assessment, Temp plots									
				All		All MAC products on SFTP									
6/6/2011	1400	10:00				**Pre-ADV1 MAC**									
6/6/2011	1423					AUS view Begin									
6/6/2011	1700	13:00	60m			Contact AOS : AUS, 40k		33a						good Doppler, CMD/TLM	
			5m			Reduce TLM Rates for Delta-V Burns	15								
			5m	MOC		Upload ADV1 ATS	16								
	1800					Contact LOS									
6/7/2011	0222					AUS view End									

IBEX Maneuver Timeline v8

Date	Time UTC	Time (ET)	Dur	Actionee	Posted on SFTP	Action	OP31117_A Step	Altitude	AUS View	AK View	HAW view	APL View	Location Reqs	Comments	Needed in addition to OP31117_A
	0430					APL view Begin									
	0920					HAW view begin									
	1010					AK view begin									
	1500					AUS view Begin									
6/7/2011	1845	14:45	60m			Contact AOS : HAW01, 2k		43a						HAW01 SW freeze; HAW02 for part of contact, back to HAW01	
				MOC		~~Backup Upload ADV1 ATS~~	16							Both HAW01 & HAW02 good fro CMD/TLM, Doppler	
	1945					Contact LOS									
6/8/2011	0230					AUS view End									
	0430					APL view Begin									
6/8/2011	0700	3:00	60m			APL Contact AOS - Pre ADV1 SOH, 64k		46a						good Doppler, FC Dump good,	
	0800	4:00				APL Contact LOS								2k data looked odd, 64k looked good	
	0920					HAW, AK view begin									
6/8/2011	1530	11:30	15m			Contact AOS : HAW01, 2k		47a						good for cmd/tlm	
	1545	11:45				Contact LOS									
6/8/2011	1500					APL view Ends, AUS begin									
6/8/2011	1745	13:45	30m			Contact AOS : HAW01, 2k		47a						good for cmd/tlm, data rate up to 40, FC Dump	
				SYS		Verify Heater Setpoints	17								
						Set SCB Clock								pass extended for 5min to set SCB clock	
	1815					Contact LOS									
				MOC		Queue contingency commands	18								
6/8/2011	1945	15:45	90m			ADV1 Contact AOS : HAW01, 2k		47a							
	2000	16:00	10m			ADV1	18							HAW view ends before set contact time end	
	2100	17:00				ADV1 Contact LOS								Last ATS command: reset heater set points to 16/18 at 2141	
	2130	17:30		HPS		Update Fuel Usage Table									
	2130	17:30		SYS		ADV1 maneuver Success Criteria									
	2200	18:00		SYS		Place Updates on SFTP									
	2200	18:00		MT		Send updates to Steve Green									
	2300	19:00	60m	SG		Change in tank pressure & propellant consumption in ADV1									
6/8/2011	2300	19:00	15m			Contact AOS : AUS, 2k		47a							
	2358	19:58				Contact LOS									
	2400	20:00	30m	MT		ADV1 Burn Reconstruction									
						New Delta-V based on observed pressure									
						Comparison to Previous Delta-V									
6/9/2011	0235					AUS view end									
6/9/2011	0445					Apogee		47							
6/9/2011	0530	1:30	60m			APL Contact AOS - Post ADV1 FC Dump, 64k		47d							
	0630	2:30				APL Contact LOS									
	0920					HAW, AK view begin									
6/9/2011	1200	8:00	60m			Contact AOS : HAW01, 2k		47d							
						Enable Back Orbit Buffer TLM if FC Dump successful	19								
	1300	9:00				Contact LOS									
6/9/2011	1600					AUS view begin									
	2040					HAW, AK view end									
6/10/2011	0240					AUS view End									
	0430					APL view Begin									
6/10/2011	0545	1:45	60m			APL Contact AOS - FC Dump, 64k		46d							
	0645	2:45				APL Contact LOS									
	0900					AK view begin									
	1000					HAW view begin									
6/10/2011	1330	9:30	60m			Contact AOS : HAW01,2k		44d							
						Enable Back Orbit Buffer TLM if FC Dump successful	19								
	1430	10:30				Contact LOS									
6/10/2011	1700	13:00	60m			Contact AOS : HAW01,2k		44d						Last contact before null	
						Enable Back Orbit Buffer TLM if FC Dump successful	19								
	1800	14:00				Contact LOS									

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Date	Time UTC	Time (ET)	Dur	Actionee	Posted on SFTP	Action	OP31117_A Step	Altitude	AUS View	AK View	HAW view	APL View	Location Reqs	Comments	Needed in addition to OP31117_A
6/10/2011	1500	11:00		SYS		Expected ADV2 initial pressure, temperature, propellant mass									
	1500	11:00		SYS		Expected ADV3 initial temperature,									
	1500	11:00		SYS		Place Updates on SFTP									
	1530	11:30		MT		Send updates to Steve Green									
						AUS view begin									
	1730	13:30	2h	SG		Expected ADV2 & ADV3 mass flow rate & pressure curves									
	2200					HAW, AK view end									
6/11/2011	0250					AUS view end									
6/12/2011	1400	10:00	45m	MT		Generate thrust & delta-V as a function of new model predictions								drop dead time for this input to FDG	
6/12/2011	1500	11:00	60m			Contact AOS : HAW01, 2k		19d						First contact after null	
	1600	12:00				Contact LOS									
	1700					APL view 1700-2030									
	2130					AUS view begin									
6/13/2011	0130	21:30	60m			Contact AOS : AK, 160k		8d							
				MOC		FC Dump									
	0230	22:30				Contact LOS									
6/13/2011	0330	23:30		SYS		Revised estimate : Expected ADV2 initial pressure, temperature, propellant mass									
	0330	23:30		SYS		Revised estimate : Expected ADV3 initial temperature									
	0330	23:30		SYS		Place Updates on SFTP									
	0400	0:00		MT		Send updates to Steve Green									
	0430	0:30		FDG		Preliminary Burn Plan (Internal)									
6/13/2011	0545					Perigee									
	0600	2:00	2h	SG		Expected ADV2 & ADV3 mass flow rate & pressure curves									
	0600	2:00		MOM		ADV2 duration & time based on prelim burn plan (not including OD)									
	0600	2:00		MOM		ADV3 duration & time based on prelim burn plan (not including OD)									
	0700	3:00	45m	MT		Generate thrust & delta-V as a function of new model predictions									
6/13/2011	1100	7:00	60m			Contact AOS : HAW01, 64k		9a							
	1200	8:00				Contact LOS									
6/13/2011	13:30	9:30	60m			Contact AOS : AUS, 40k		12a							
	14:30	10:30				Contact LOS									
	1620					HAW view end									
	1800	14:00		FDG		Dry mass + fuel mass = total mass (wet mass) assumptions going into ADV2 & 3 (parroting)									
	1800	14:00		FDG		ADV1 Performance Assessment (thrust scale factor)									
	1800	14:00		FDG		Current OD Uncertainty									
	1800	14:00		FDG		Target Orbit Period Uncertainty (Napoleon plot)									
	1800	14:00		FDG		No Additional Delta-V Burn Trajectory (immediate effects, not long term effects)									
	1800	14:00		FDG		Apogee & Perigee Times (burn & no-burn)									
	1800	14:00		FDG		Crossing Times									
	1800	14:00		FDG		Viewperiods Report (burn & no-burn)									
	1800	14:00		FDG		Duration of ADV3 Burn - based on analysis									
	1800	14:00		FDG		Final FDG Burn Plan delivery									
	2000	16:00		MOC		SAP									
	2000	16:00		MOC		ADV2 ATS on SFTP									
	2000	16:00		MOC		ADV3 ATS on SFTP									
	2000	16:00		MOC		Contact ATS on SFTP									
6/14/2011	0100					AUS view ends									

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Date	Time UTC	Time (ET)	Dur	Actionee	Posted on SFTP	Action	OP31117_A Step	Altitude	AUS View	AK View	HAW view	APL View	Location Reqs	Comments	Needed in addition to OP31117_A
	0400					APL view begin									
	0800					HAW view begin									
	1200	8:00		All		Approve ADV2 ATS									
	1200	8:00		All		Approve ADV3 ATS									
	1200	8:00		All		Approve Contact ATS									
	1200	8:00		ACS		ACS TLM assessment									
	1200	8:00		HPS		HPS TLM assessment									
	1200	8:00		EPS		EPS TLM assessment									
	1200	8:00		SYS		SCB TLM assessment, Temp plots									
	1200	8:00		All		All MAC products on SFTP									
	1400	10:00	2h			**Pre-ADV2 MAC**									
6/14/2011	1600	12:00	60m			Contact AOS : HAW01, 2k		33a							
	1700	13:00				Contact LOS									
6/14/2011	1900	14:00	60m			Contact AOS : AUS, 40k		34a						comment says 40k, but too high	
			2m			Timed Command to Disable Backorbit Buffer	20								
			5m			Upload ADV2 ATS	21								
			5m			Upload ADV3 ATS	21								
	2000	15:00				Contact LOS									
6/15/2011	0145					AUS view ends									
	0400					APL view begin									
6/15/2011	0915	5:15	60m			Contact AOS : HAW01, 2k, ADV2,3 Upload Backup		40a							
			5m			Set SCB Clock									
	1015	6:15				Contact LOS									
	1345					APL view end, AUS view begin									
	1730					AK view end									
	1930					HAW view end									
6/16/2011	0145					AUS view ends									
6/16/2011	0445	0:45	60m			APL Contact AOS - Pre ADV2 FC Dump, 64k		45a							
	0545	1:45				APL Contact LOS									
	0900					HAW, AK view begin									
	1430					APL view end, AUS view begin									
6/16/2011	1630	12:30	30m			Contact AOS : HAW01,2k, ADV2,3 Upload Backup		47a							
						Verify Heater Setpoints	22								
	1700	13:00				Contact LOS									
				MOC		Queue contingency commands	23								
6/16/2011	1845	14:45	60m			Contact AOS : HAW01, 2k		47a							
	1900	15:00	10m			**ADV2**	23								
	1945	15:45				Contact LOS									
	2015	16:15		HPS		Update Fuel Usage Table									
	2015	16:15		SYS		ADV2 maneuver Success Criteria									
	2015	16:15		SYS		Place Updates on SFTP									
						If everything within limits skip to Pre-ADV3 MAC									
	2030	16:30		MT		Send updates to Steve Green									
	2130	17:30	60m	SG		Change in tank pressure & propellant consumption in ADV2									

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Date	Time UTC	Time (ET)	Dur	Actionee	Posted on SFTP	Action	OP31117_A Step	Altitude	AUS View	AK View	HAW view	APL View	Location Reqs	Comments	Needed in addition to OP31117_A
	2200	18:00	30m	MT		ADV2 Burn Reconstruction									
						New Delta-V based on observed pressure									
						Comparison to Previous Delta-V									
				FDG		Reconstruct ADV2, Predict Orbit Period and Uncertainty at A3									
	2300	19:00		SG		Expected ADV3 mass flow rate & pressure curves									
	2400	20:00		MT		Generate thrust & delta-V as a function of new model predictions									
						Use Reconstructed ADV2 and updated predicted ADV3 using commanded									
				FDG		duration to predict Orbit Period and uncertainty at A3									
				FDG		Generate Napoleon Plot									
				FDG		Retarget and calculate new ADV3 Duration (Ideal duration?)									
	0200					AUS view end									
	0400					APL view begin									
6/17/2011	0445	0:45	60m			APL Contact AOS - Post ADV2 FC Dump,64k		47a							
	0545	1:45				APL Contact LOS									
				ACS		ACS TLM assessment									
				HPS		HPS TLM assessment									
				EPS		EPS TLM assessment									
				SYS		SCB TLM assessment, Temp plots									
				All		All MAC products on SFTP									
6/17/2011	0600					Apogee		47							
	0630	2:30	30m	MOC		Generate ADV3 Modification CAR									
	0730	3:30	60m	All		Approve ADV3 Modification CAR									
	0800	4:00	1h			**Pre-ADV3 MAC**									
	0900					HAW, AK view begin									
				MOC		Queue contingency commands	25								
6/17/2011	1010	6:10	90m			Contact AOS : HAW01, 2k		47d							
				MOC		Upload ADV3 Updates (if needed)									
				SYS		Verify Heater Setpoints	24								
	1100	7:00	10m			**ADV3**	25								
	1140	7:40				Contact LOS									
6/17/2011	1200					APL Contact AOS - Post ADV3 FC Dump, 64k		47d						Need to move this contact later - STX violation - mirror 1800 pass?	
		0:45	60m												
	1300	1:45				APL Contact LOS									
	1430	10:30		HPS		Update Fuel Usage Table									
	1430	10:30		SYS		ADV3 maneuver Success Criteria									
	1430	10:30		SYS		Place Updates on SFTP									
	1530					AUS view begin									
6/17/2011	1800	14:00	60m			Contact AOS : HAW01, 2k		47d							
						Enable Back Orbit Buffer TLM if FC Dump successful	26								
	1900	15:00				Contact LOS									
	0220					AUS view end									
6/18/2011	0400					APL view begin									
	0900					HAW, AK view end									
6/18/2011	1400	10:00	60m			Contact AOS : HAW01, 2k		44d							
	1500	11:00				Contact LOS									
	1500					View end									
6/20/2011	1230					HAW, AK, APL view begin									
6/20/2011	1500	11:00	60m			Contact AOS : HAW01, 2k		25d							
	1600	12:00				Contact LOS									

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Date	Time UTC	Time (ET)	Dur	Actionee	Posted on SFTP	Action	OP31117_A Step	Altitude	AUS View	AK View	HAW view	APL View	Location Reqs	Comments	Needed in addition to OP31117_A
	2000					APLview end; AUS view begin									
	0110					HAW view end									
6/21/2011	0300		60m			Contact AOS : AUS, 2k		16d							
	0400	0:00				Contact LOS									
6/21/2011	0530	1:30	60m			Contact AOS : AK, 40k		14d							
						FC Dump									
	0630	2:30				Contact LOS									
	0900					APLview 0900 - 1120									
	1110					AK view end									
6/21/2011	1624					Perigee									
				FDG		ADV3 Performance Assessment (% delta-V acheived)									
				FDG		TCM recommendation	27								
				FDG		Target Orbit Period Uncertainty (Napoleon plot)									
				FDG		Helionose Progression (long term)									
				FDG		Apogee Radius (long term)									
				FDG		Perigee Radius (long term)									
				FDG		Communications Analysis									
				FDG		Apogee & Perigee Times (long term)									
				FDG		Crossing Times (long term)									
				FDG		Star Tracker Outages (long term)									
				FDG		Viewperiods Report (long term)									
				MOC		USN Coverage for Spin Down									
				MOC		USN Coverage after Spin-Down									
				MOC		USN Coverage for Repointing									
	2030					APLview 6/20 2030- 6/21 0430									
6/22/2011	0630	2:30	60m			Contact AOS : HA, 40k		17a							
						FC Dump									
	0730	3:30				Contact LOS									
	0700	3:00	30m	FDG		Repointing Target Vector									
	0800	4:00		MOC		SAP									
	0800	4:00	60m	MOC		Spin Down ATS on SFTP									
	0900	5:00	60m	MOC		Repointing ATS on SFTP									
	1000	6:00	60m	MOC		Contact ATS on SFTP									
	1000	6:00	60m	All		Approve Spin Down ATS (prior to MAC)									
	1000	6:00	60m	All		Approve Repointing ATS (prior to MAC)									
	1100	7:00		All		Approve Contact ATS (prior to MAC)									
6/22/2011	1200	8:00	60m			Contact AOS : AUS, 40k		21a							
			5m			Restore nominal TLM rates	33								
	1300	9:00				Contact LOS									
	1400	10:00		ACS		ACS TLM assessment									
	1400	10:00		HPS		HPS TLM assessment									
	1400	10:00		EPS		EPS TLM assessment									
	1400	10:00		SYS		SCB TLM assessment, Temp plots									
	1400	10:00		All		All MAC products on SFTP									
	1500	11:00	2h			**Pre-Spin Down MAC**									
	1600					HAW view end									
6/23/2011	0030					AUS view end									
	0330					APL view begin									
6/23/2011	0800		60m			Contact AOS		31a							
			5m			Upload Spin Down ATS	35								
	0900					Contact LOS									

IBEX Maneuver Timeline v8

Date	Time UTC	Time (ET)	Dur	Actionee	Posted on SFTP	Action	OP31117_A Step	Altitude	AUS View	AK View	HAW view	APL View	Location Reqs	Comments	Needed in addition to OP31117_A
				MOC		Queue contingency commands	36								
6/24/2011	0845	4:45	90m			Contact AOS : HAW01, 2k		42a							
			10m			Set Gyro as Low Rate Sensor	34								OP31206
	0900	5:00	30m			**Spin Down to 4rpm**	37								
			5m			Enable Spin Rate FDC	38								OP31203
			5m			Set Accelerometer as Low Rate Sensor	39								OP31206
	0945	5:45				Contact LOS									
				HPS		Update Fuel Usage Table									
				SYS		Spin Down Maneuver Success Criteria									
						EPS, ACS, SYS approval to proceed to Repoint									
	1130					APL view end									
	1230					AUS view end									
	1750					HAW view end									
6/24/2011	0100					AUS view end									
	0330					APL view begin									
	0800					HAW view begin									
	0930					AK view begin									
6/24/2011	1200	9:00	60m			Contact AOS : HAW01, 2k		43a							
			15m			Star Tracker On	40								OP31202
						Upload Repointing ATS	41								
	1300	9:00				Contact LOS									
				MOC		Queue contingency commands	42								
6/24/2011	1515	11:15	60m			Contact AOS : HAW01, 2k		44a							
	1530	11:30	35m			**Repoint**	42								
			5m			Set limits for 4rpm	43								
			5m			Verify Static Z Rate	44								
			2m			Enter Science State	45								
	1615	12:15				Contact LOS									
6/24/2011	1730	13:30	60m			Contact AOS : HAW01, 2k		44a							
						Increase Battery TLM	46								OP31418
						Add Star Tracker Attitude to Backorbit TLM	47								
						CEU ON	48								
	1830	14:30				Contact LOS									
6/25/2011	0120					AUS view end									
	0330					APL view begin									
	0820					HAW, AK view begin									
6/25/2011	1000	6:00	60m			Contact AOS : HAW01, 2k		47a							
			10m			LV Checkout	49								
						Upload Hi Diagnostics	50								
						Set Payload Limits	51								
	1100	7:00				Contact LOS									
6/25/2011	1315	9:15	60m			Contact AOS : HAW01, 2k		47a							
			30m			OFF_TO_HVSTANDBY macros	52								
	14:00	10:00				Contact LOS									
	14:00	10:00	60m			**Return to Science MAC**									
6/25/2011	1500	11:00	60m			Contact AOS : HAW01, 2k		47a							
			5m			Upload o130 ATS	53								
			5m			Upload o131 ATS	53								
			25m			ASCENDING macros	54								
	1600	12:00				Contact LOS									
6/25/2011	1730	13:30	60m			Contact AOS : HAW01, 2k		47a							
	1830	14:30				Contact LOS									
	1930					HAW view end									
6/26/2011	0301					Apogee		47							