EGS CONFIDENCE TEST EXECUTION COVER SHEET

1. Test ID and Title: EOC3 - Planning and Scheduling Confidence Test

2. Test Conductor / Test Lead: Sara Haugh

3. Planned Execution Date: 12/16/96 - 12/19/96

4. Actual Execution Date: _____

5. Planned Configuration:
   EOC Hardware
   - User Workstation
   - Data Server
   - Data Storage Unit

   EOC Subsystems Release A
   - Planning and Scheduling
   - Command Management
   - Data Management
   - User Interface

6. "As Run" Configuration:

7. Package items planned for execution:

   EOC3.1: Test Execution Steps 7-26, 29-40
   EOC3.2: Test Execution Steps 1-21, 24-46, 49-51, 53-54, 56-57, 59-60, 62-63, 65-66
   EOC3.3: Test Execution Steps 1-11, 14-23
   EOC3.4: Test Execution Steps 1-6, 8-10

8. Package items actually executed and deviations from currently published procedures.

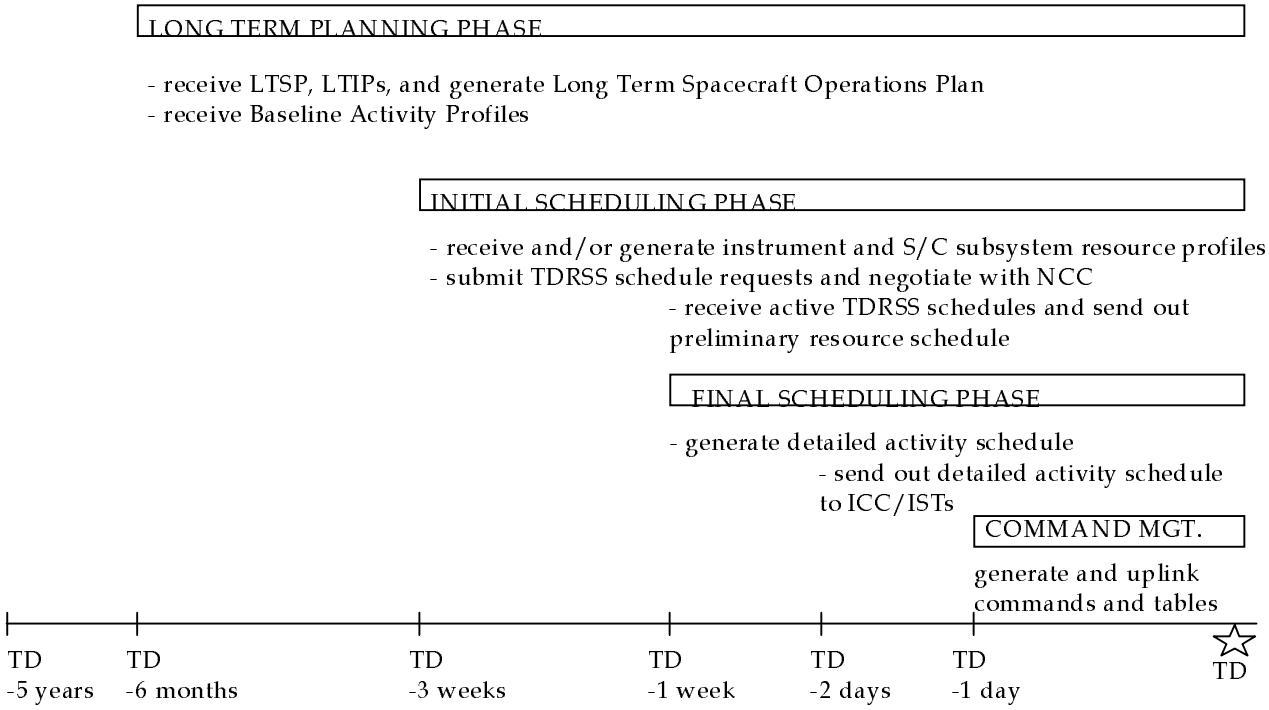
9. Results
   a. Capabilities successfully demonstrated
   b. Capabilities not successfully demonstrated
   c. Requirements verified
   d. Discrepancy Reports submitted

10. Lessons Learned

Planning and Scheduling Confidence Test - EOC3

Background Information:

Planning and scheduling activities are performed in four major phases: long term planning, initial scheduling, final scheduling, and command management. The figure below shows an overall timeline delineating these four phases based on a target day. Long term mission planning for the spacecraft and instruments begins up to five years in advance of the planned activities and includes generating or updating the Long Term Science Plan (LTSP), Long Term Instrument Plan (LTIP), and Long Term Spacecraft Operations Plan. Initial scheduling activities, which begin three weeks in advance of the target day, include securing the required SN resources via NCC and allocating constrained spacecraft resources to the instruments and spacecraft subsystems. Final scheduling begins one week before the target day and involves producing the detailed activity schedule that is used for command generation. Command management involves translating the detailed activity schedule into command loads and ground scripts. Command management activities occur one or two days prior to the target day. The test cases in this package will verify that the EOC can perform critical activities associated with the four phases of planning and scheduling.



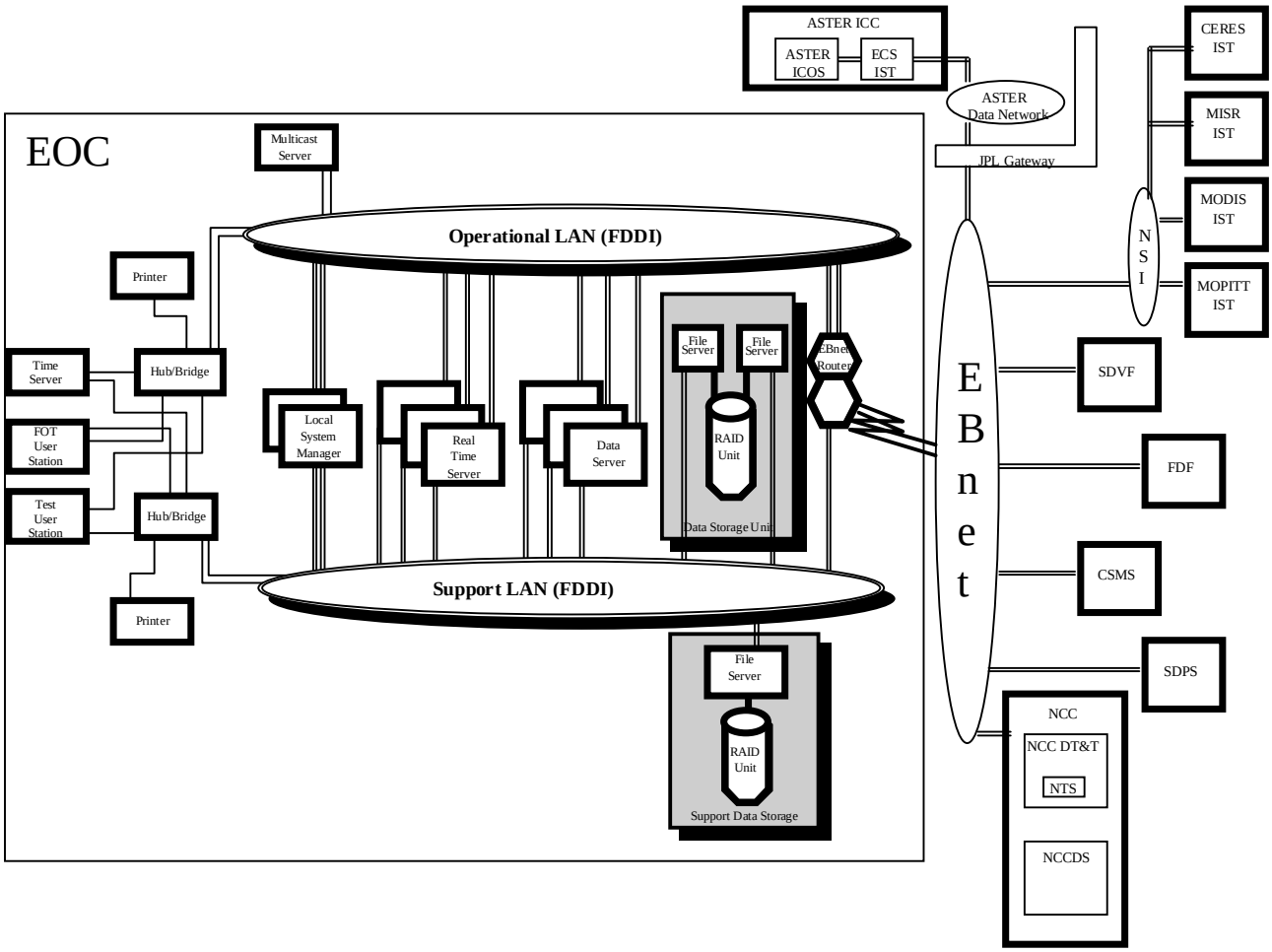
Test Objectives:

The objective of this test is to verify that the EOC can produce an integrated schedule of activities for instruments and spacecraft subsystems, and generate the ground scripts and command loads necessary to implement the scheduled activities. The test will verify that the EOC can perform critical functions during the following phases of the planning and scheduling process:

- Long Term Planning
- Initial Scheduling
- Final Scheduling
- Command Management

Test Configuration:

Hardware and software configurations at each ECS site are managed and tracked by the M&O organization at that site. The most current system configuration will be obtained prior to the start of testing and noted on the execution cover sheet.



Participants and Support Requirements:

Participants: EBnet, NSI, JPL, ADN, CSMS M&O, SDPS M&O, NCC M&O, SDVF M&O, ASTER, CERES, MISR, MODIS, and MOPITT Instrument Teams, FOT, I&T Test Conductor

Communications:

Voice: SCAMA and/or CCL circuits (**TBS-1**) to conference together the EOC, CSMS, SDPS, NCC, SDVF, ISTs

Data: EBnet circuit from EOC to CSMS
EBnet circuit from EOC to SDPS
EBnet circuit from EOC to NCC
EBnet circuit from EOC to FDF workstation
EBnet circuit from EOC to SDVF

EBnet - JPL - ADN - ECS IST - ASTER ICOS circuit
NSI circuit from EOC to CERES, MISR, MODIS, and MOPITT ISTs

IP addresses: **TBS-2**

Equipment and Software:

Hardware:

CSMS
SDPS
NCC Test System (NTS) or NCC Data System (NCCDS)
FDF workstation
SDVF
ECS IST, ASTER ICOS
CERES, MISR, MODIS, and MOPITT ISTs
EOC User Workstation
EOC Data Server
EOC Data Storage Unit

Software:

CSMS Management Subsystem (MSS)
SDPS Ingest Subsystem
NTS or NCCDS Software
FDF Software
SDVF Software
ECS IST Software, ASTER ICOS Software
CERES, MISR, MODIS, and MOPITT ISTs Software
EOC Planning and Scheduling Subsystem
EOC Command Management Subsystem
EOC Data Management Subsystem
EOC User Interface Subsystem

Test Tools:

NCC Development, Test, and Training (NCC DT&T) System

Test Data:

Description/Characteristics	Source	File/Script Name & Location
LTSP	Instrument Working Group (IWG) and project scientist via CSMS	Release B
LTIPs (one each for ASTER, CERES, MISR, MODIS, MOPITT)	Principal Investigator (PI)/Team Leader (TL) and project scientist via CSMS	Release B
FDF products - see ICT10 for detailed list	FDF	Release B
Instrument activity definitions	ISTs	Currently defining instrument activities until IOT input is available

Description/Characteristics	Source	File/Script Name & Location
Instrument Baseline Activity Profiles (BAPs) (one each for CERES, MISR, MODIS, and MOPITT)	ISTs	Currently defining instrument BAPs until IOT input is available
ASTER Short Term Schedules (STSs), One Day Schedules (ODSs), and a Request for EOC Schedules	ASTER IST	Awaiting test data from ASTER team, may need to use the same files as FOS SSI&T, **TBS-3**
Schedule Result and User Schedule Messages	NCC	Release B
Instrument microprocessor load contents files (one each for CERES, MISR, MODIS, and MOPITT)	ISTs	Awaiting test data from instrument teams, may need to use the same files as FOS SSI&T, **TBS-4**
Flight software load contents files	SDVF	Release B

Test Case Descriptions:

EOC3.1 Long Term Planning

This test case verifies that the EOC can perform long term planning activities. The EOC will receive the LTSP from the project scientist and the IWG via the CSMS MSS. The EOC will also receive the LTIP from each PI/TL and project scientist via the CSMS MSS. The EOC will ingest FDF orbit products and make them available to the SDPS and the ISTs. Activities for the ASTER, CERES, MISR, MODIS, and MOPITT instruments will be defined via the ISTs. Activities for spacecraft subsystems will be defined via the EOC. BAPs for the CERES, MISR, MODIS, and MOPITT instruments and spacecraft subsystems will be defined via the ISTs and EOC.

Requirements to be Verified:

Release A:

EOC-2020#A	EOC-2180#A	EOC-2270#A	EOC-2482#A
EOC-2030#A	EOC-2200#A	EOC-2272#A	
EOC-2070#A	EOC-2210#A	EOC-2460#A	
EOC-2170#A	EOC-2250#A	EOC-2480#A	

Release B:

EOC-0030#B	EOC-2070#B	EOC-2210#B	EOC-2480#B
EOC-1005#B	EOC-2170#B	EOC-2250#B	EOC-2482#B
EOC-2010#B	EOC-2180#B	EOC-2270#B	EOC-3017#B
EOC-2020#B	EOC-2190#B	EOC-2272#B	EOSD1480#B
EOC-2030#B	EOC-2200#B	EOC-2460#B	

EOC3.2 Initial Scheduling

This test case verifies that the EOC can perform initial scheduling activities. The activities and BAPs defined above will be scheduled against a what-if plan and the master mission plan. Commands and command procedures will be scheduled against a what-if plan and the master mission plan. The user will be notified of any constraint violations. The ECS IST will ingest ASTER STSs in schedule and analysis (what-if) modes. After constraint checking, the activities in the schedule mode STS will be scheduled on the master mission plan. A Preliminary Resource Schedule (PRS) will be generated and transmitted to the ASTER ICC via the ECS IST. The activities in the analysis mode STS will be scheduled against a what-if plan. A PRS will be generated and transmitted to the ASTER ICC via the ECS IST. The ECS IST will ingest ASTER ODSs in schedule and analysis (what-if) modes. After constraint checking, the activities in the schedule mode ODS will be scheduled on the master mission plan. An Activity Schedule (ACS) will be generated and transmitted to the ASTER ICC via the ECS IST. The activities in the analysis mode ODS will be scheduled against a what-if plan. An ACS will be generated and transmitted to the ASTER ICC via the ECS IST. The EOC will formulate and submit TDRSS schedule requests. The NCC will respond with schedules or notifications of rejection along with the reasons for rejection. The schedules will be placed on the mission timeline and will be available to the ISTs and SDPS.

Requirements to be Verified:

Release A:

EOC-2030#A	EOC-2210#A	EOC-2280#A	EOC-2350#A
EOC-2070#A	EOC-2220#A	EOC-2290#A	EOC-2460#A
EOC-2170#A	EOC-2250#A	EOC-2300#A	EOC-2480#A
EOC-2180#A	EOC-2270#A	EOC-2310#A	EOC-2482#A
EOC-2200#A	EOC-2272#A	EOC-2320#A	

Release B:

EOC-2030#B	EOC-2230#B	EOC-2310#B	EOC-2460#B
EOC-2070#B	EOC-2240#B	EOC-2320#B	EOC-2480#B
EOC-2160#B	EOC-2250#B	EOC-2350#B	EOC-2482#B
EOC-2170#B	EOC-2260#B	EOC-2370#B	EOC-3024#B
EOC-2180#B	EOC-2270#B	EOC-2400#B	EOSD1520#B
EOC-2190#B	EOC-2272#B	EOC-2405#B	EOSD1530#B
EOC-2200#B	EOC-2280#B	EOC-2410#B	
EOC-2210#B	EOC-2290#B	EOC-2420#B	
EOC-2220#B	EOC-2300#B	EOC-2430#B	

EOC3.3 Final Scheduling

This test case verifies that the EOC can perform final scheduling activities. The EOC will generate a Detailed Activity Schedule (DAS), corresponding Absolute Time Command (ATC) load, and ground script for the portion of the timeline for which activities and commands were scheduled above. All activity-level hard constraints will be resolved and soft constraints will be approved. The DAS will be available to the ISTs. The binary ATC load, the ATC load report, and the integrated report will be generated, and the load catalog will be updated. The EOC will accept late changes via the ISTs. The portion of the timeline corresponding to the late changes will be unlocked, the late changes will be incorporated, and after constraint checking an updated DAS and ATC load will be generated. Additional TDRSS schedules will be requested if necessary to account for the late changes.

Requirements to be Verified:

Release A:

EOC-2030#A	EOC-2250#A	EOC-2490#A	EOC-3050#A
EOC-2170#A	EOC-2270#A	EOC-2510#A	EOC-3080#A
EOC-2180#A	EOC-2272#A	EOC-2540#A	EOC-3090#A
EOC-2200#A	EOC-2460#A	EOC-2550#A	EOC-3210#A
EOC-2210#A	EOC-2480#A	EOC-2555#A	EOC-4010#A
EOC-2220#A	EOC-2482#A	EOC-2620#A	

Release B:

EOC-2030#B	EOC-2260#B	EOC-2540#B	EOC-3080#B
EOC-2170#B	EOC-2270#B	EOC-2550#B	EOC-3090#B
EOC-2180#B	EOC-2272#B	EOC-2555#B	EOC-3200#B
EOC-2190#B	EOC-2460#B	EOC-2570#B	EOC-3210#B
EOC-2200#B	EOC-2480#B	EOC-2590#B	EOC-3225#B
EOC-2210#B	EOC-2482#B	EOC-2620#B	EOC-3226#B
EOC-2220#B	EOC-2490#B	EOC-2630#B	EOC-3240#B
EOC-2230#B	EOC-2510#B	EOC-3024#B	EOC-4010#B
EOC-2240#B	EOC-2520#B	EOC-3050#B	
EOC-2250#B	EOC-2530#B	EOC-3070#B	

EOC3.4 Command Management

This test case verifies that the EOC can perform command management activities. Instrument microprocessor load contents files from the ISTs will be ingested and validated. The microprocessor uplink load, the load report, and the load image files will be generated, and the load catalog will be updated. Flight software load contents files from the SDVF will be ingested and validated. The flight software uplink load, the load report, and the load image files will be generated, and the load catalog will be updated. Table load contents files will be generated and validated at the EOC. The table uplink loads, the load reports, and the load image files will be generated, and the load catalog will be updated. The EOC will perform command-level constraint checking on all uplink data. The user will be notified of any constraint violations. All command-level hard constraints will be resolved and soft constraints will be approved.

Requirements to be Verified:

Release A:

EOC-3020#A	EOC-3050#A	EOC-3090#A	EOC-3210#A
EOC-3030#A	EOC-3080#A	EOC-3160#A	EOC-4010#A

Release B:

AM1-0270#B	EOC-3050#B	EOC-3160#B	EOC-3240#B
EOC-3015#B	EOC-3070#B	EOC-3200#B	EOC-4010#B
EOC-3020#B	EOC-3080#B	EOC-3210#B	
EOC-3024#B	EOC-3086#B	EOC-3225#B	
EOC-3030#B	EOC-3090#B	EOC-3226#B	

Test Procedures:
Test Set-up:

Step	Station	Action	Expected Results	Comments
1.	EOC	Ensure EOC hardware is initialized	DEC RAID, RAID Server (foseoc2), Data Server (foseoc7), and User Station (foseoc5) are up	
2.	EOC	Ensure the Sybase server is initialized on the Data Server	Sybase server is started on foseoc7	
3.	EOC	Login to the Data Server using the **TBS-5** account and password	User logged in to foseoc7	
4.	EOC	Start the Data Server: **cd /fos/test/am1/scripts/setup** **A2_DataServerStartup**	Data Server is initialized	
5.	EOC	Login to the User Station using the **TBS-5** account and password	User logged in to foseoc5	
6.	EOC	Start the User Station: **cd /fos/test/am1/scripts/setup** **A2_UserStationStartup**	User Station is initialized and the Control window is displayed	
7.	EOC	Bring up the Event Display page: **PAGE EventDisplay**	Event Display page is displayed	
8.	I&T	Verify that all participants are configured for test execution	3.1 CSMS, FDF, SDPS, ECS IST, US ISTs 3.2 SDPS, ECS IST, US ISTs, NCC 3.3 ECS IST, US ISTs, NCC 3.4 ECS IST, US ISTs, SDVF	Release B
9.	I&T	Record the system configuration on the execution cover sheet		

Test Execution:
EOC3.1 Long Term Planning

Summary:
Access LTSP - Release B
Access LTIPs - Release B
Receive FDF Products - Release B
Make FDF Products available to SDPS and ISTs - Release B
Verify instrument activities have been defined by ISTs - Release B
Define activities:
- *Instrument and spacecraft subsystem*
- *Incorporate:*
  - *commands*
  - *command parameters*
  - *mode transitions*
  - *complex activities*
  - *ECL directives*
  - *command procedures*

Define BAPs:
- *Instrument and spacecraft subsystem*
- *Incorporate:*
  - *activities*
  - *command parameters*

Step	Station	Action	Expected Results	Comments
1.	EOC/ CSMS	Verify the LTSP from the CSMS MSS has been received and/or can be accessed	The LTSP resides in the appropriate directory	Release B
2.	EOC/ CSMS	Verify an LTIP from the CSMS MSS has been received and/or can be accessed for each instrument	The LTIPs reside in the appropriate directory	Release B
3.	EOC/ FDF	Verify that all FDF products have been ingested	The FDF products reside in the appropriate directory	Release B - list of necessary FDF products to verify will be included in Test

Step	Station	Action	Expected Results	Comments
				Data section
4.	EOC/ SDPS/ ISTs	Verify FDF orbital products are made available to SDPS and ISTs	The FDF products transferred	Release B
5.	EOC	Bring up the General Scheduler window: click on the Tools button on the Control window, select PAS, and select General Scheduler	General Scheduler window is displayed	Release B
6.	EOC/ ISTs	Verify instrument activities have been defined by the ISTs: verify activities for each instrument are displayed in the Activities section of the General Scheduler window	Activities are displayed which incorporate commands, relative times for the commands, modifications to command parameters, and mode transitions	Release B - list of instrument activities to verify - **TBS-6**
7.	EOC	Bring up the Activity Definer window: click on the Tools button on the Control window, select PAS, and select Activity Definer	Activity Definer window is displayed	
8.	EOC	Define the following instrument activities: EOC3_ASTER_ACT_1: 3 ATC commands 3 ground commands edit mode transition EOC3_CERES_ACT_1: 5 ATC commands edit command parameter EOC3_CERES_ACT_2: 5 ATC commands times which conflict with EOC3_CERES_1 EOC3_MISR_ACT_1: 5 ground commands ECL directive EOC3_MISR_ACT_2:	Activities are defined which incorporate ground and ATC commands, relative times for the commands, modifications to command parameters, and mode transitions	commands, command parameters, mode transitions, ECL directives, and command procedures are **TBS-7**

Step	Station	Action	Expected Results	Comments
		5 ground commands EOC3_MODIS_ACT_1: 5 ATC commands 5 ground commands command procedure EOC3_MOPITT_ACT_1: 10 ATC commands edit mode transition edit command parameter ECL directive command procedure		
9.	EOC	Define the following spacecraft subsystem activities: EOC3_COM_ACT_1: 3 ATC commands 3 ground commands EOC3_CDH_ACT_1: 5 ATC commands edit 2 mode transitions edit 2 parameters EOC3_GNC_ACT_1: 5 ground commands edit complex activity EOC3_EPS_ACT_1: 5 ATC commands 5 ground commands 2 ECL directives 2 command procedures EOC3_EAS_ACT_1: 10 ground commands edit mode transition edit parameter ECL directive command procedure	Activities are defined which incorporate ground and ATC commands, relative times for the commands, modifications to command parameters, mode transitions, and complex activities	commands, command parameters, mode transitions, ECL directives, command procedures, and complex activities are **TBS-7**

Step	Station	Action	Expected Results	Comments
		complex activity		
10.	EOC	Define a new activity: click on the Activity Definer File menu and select New	New window is displayed	
11.	EOC	Enter EOC3_RESOURCE_ACT_# for the activity name, select AM1 RESOURCE as the resource, and click OK	New window is no longer displayed	
12.	EOC	Incorporate commands into the activity: click on the Activity Definer Edit menu and select Commands	Commands window is displayed	
13.	EOC	Select the commands from the Available Commands list, enter the offset time, and click Add	The commands are displayed in the Selected Commands portion of the Commands window	
14.	EOC	Click Apply and OK	Commands window is no longer displayed, commands appear in the Items portion of the Activity Definer window	
15.	EOC	Edit command parameters: click on the Activity Definer Edit menu and select Parameters	Parameters window is displayed	
16.	EOC	Select the command from the Commands list, click on the parameter from the Parameters list, enter value, and click Apply and OK	Parameters window is no longer displayed, command parameters are displayed in the Items portion of the Activity Definer window	
17.	EOC	Edit mode transitions: click on the Activity Definer Edit menu and select Modes	Modes window is displayed	
18.	EOC	Select the mode from the Available Modes list, enter offset time, and click Apply and OK	Modes window is no longer displayed, mode transitions appear in the Items portion of the Activity Definer window	
19.	EOC	Edit complex activities: click on the Activity Definer Edit menu and select Complex Activities	Complex Activities window is displayed	
20.	EOC	Select the complex activity from the Available Activities list, enter offset time, and click Apply	Complex Activities window is no longer displayed, complex activities appear in the	

Step	Station	Action	Expected Results	Comments
		and OK	Items portion of the Activity Definer window	
21.	EOC	Edit ECL directives: click on the Activity Definer Edit menu and select ECL Directives	ECL Directives window is displayed	
22.	EOC	Enter the ECL directive in the ECL Command Language Editor, enter the offset time, and click Apply and OK	ECL Directives window is no longer displayed, ECL directives appear in the Items portion of the Activity Definer window	
23.	EOC	Edit command procedures: click on the Activity Definer Edit menu and select Command Procedures	Command Procedures window is displayed	
24.	EOC	Select the command procedure from the Available Command Procedures list, enter offset time, and click Apply and OK	Command Procedures window is no longer displayed, command procedures appear in the Items portion of the Activity Definer window	
25.	EOC	Click on the Activity Description box and enter an activity description	Activity description is displayed in the box	
26.	EOC	Select Save from the Activity Definer File menu item	The activity is saved	
27.	EOC	Bring up the General Scheduler window: click on the Tools button on the Control window, select PAS, and select General Scheduler	General Scheduler window is displayed	Release B
28.	EOC/ ISTs	Verify instrument BAPs have been defined by the ISTs: verify that at least one BAP for each instrument (except ASTER) is displayed in the BAPs section of the General Scheduler window	BAPs include activities, modifications to command parameters, and offset times for the activities	Release B - list of BAPs to verify - **TBS-8**
29.	EOC	Bring up the BAP Definer window: click on the Tools button on the Control window, select PAS, and select BAP Definer	BAP Definer window is displayed	
30.	EOC	Define the following instrument BAPs: EOC3_CERES_BAP_1: EOC3_CERES_ACT_1 activity	BAPs are defined which include activities and modifications to command parameters	activities and command parameters are

Step	Station	Action	Expected Results	Comments
		EOC3_CERES_CERES_BAP_2: EOC3_CERES_ACT_1 activity and EOC3_CERES_ACT_2 activity EOC3_MISR_BAP_1: EOC3_MISR_ACT_1 activity and EOC3_MISR_ACT_2 activity EOC3_MODIS_BAP_1: EOC3_MODIS_ACT_1 activity EOC3_MOPITT_BAP_1: EOC3_MOPITT_ACT_1 activity edit command parameter		**TBS-9**
31.	EOC	Define the following spacecraft subsystem BAPs: EOC3_COM_BAP_1: EOC3_COM_ACT_1 activity EOC3_CDH_BAP_1: EOC3_CDH_ACT_1 activity edit command parameter EOC3_GNC_BAP_1: EOC3_GNC _ACT_1 activity EOC3_EPS_EAS _BAP_1: EOC3_EPS_ACT_1 activity and EOC3_EAS_ACT_1 activity	BAPs are defined which include activities and modifications to command parameters	activities and command parameters are **TBS-9**
32.	EOC	Define a new BAP: click on the BAP Definer File menu and select New	New window is displayed	
33.	EOC	Enter EOC3_RESOURCE_BAP_# for the BAP name, select AM1 RESOURCE as the resource, and click OK	New window is no longer displayed	
34.	EOC	Incorporate activities into the BAP: click on the BAP Definer Edit menu and select Activity List	Activity List window is displayed	
35.	EOC	Select the activities from the Available Activities list and click Add	The activities are displayed in the Activities within this BAP window	

Step	Station	Action	Expected Results	Comments
36.	EOC	Click Apply and OK	Activity List window is no longer displayed, activities appear in the BAP Activities portion of the BAP Definer window	
37.	EOC	Edit command parameters: click on the BAP Definer Edit menu and select Parameters	Parameters window is displayed	
38.	EOC	Select the activity from the Activity list, select the command from the Commands list, and select a parameter from the Parameters list	The activity, command, and parameter are highlighted	
39.	EOC	Enter modified parameter values, click Apply and OK	Parameters window is no longer displayed, command parameters are displayed in the BAP Activities portion of the BAP Definer window	
40.	EOC	Select Save from the BAP Definer File menu item	The BAP is saved	

EOC3.2 Initial Scheduling

Summary:
Schedule activities against the Master Plan
Impact mode - all new activities scheduled, any previously scheduled activities that cause a conflict are removed from the schedule
Non Impact mode - new conflicting activity not scheduled, previously scheduled activities have priority
Non Impact with Oversubscription mode - all activities scheduled, resource can be oversubscribed
Schedule BAPs against the Master Plan - Release B
Schedule activities against the what-if plan
Schedule BAPs against the what-if plan - Release B
Schedule ATC and ECL commands against the Master Plan
Schedule ATC and ECL commands against a what-if plan
Schedule command procedures against the Master Plan - Release B
Schedule command procedures against a what-if plan - Release B

Receive (Release B) ASTER STS in schedule and analysis mode
Schedule ASTER STS activities against the Master Plan and a what-if plan
Send PRS to ASTER - Release B

Receive (Release B) ASTER ODS in schedule and analysis mode
Schedule ASTER ODS activities against the Master Plan and a what-if plan
Send ACS to ASTER - Release B

NCC Scheduling - Release B
Make NCC schedules available to ISTs and SDPS

Step	Station	Action	Expected Results	Comments
1.	EOC	Bring up the General Scheduler window: click on the Tools button on the Control window, select PAS, and select General Scheduler	General Scheduler window is displayed	
2.	EOC	Bring up the Timeline window: click on the Tools button on the Control window, select PAS, and select Timeline	Timeline window is displayed	

Step	Station	Action	Expected Results	Comments
3.	EOC	Click on the File menu item in the Timeline and select Open	Open Plan window is displayed	
4.	EOC	Select the Master Plan, select the desired times, and click OK	Timeline for the desired time range is displayed	
5.	EOC	Click on the Acts toggle button in the General Scheduler window and select the desired resource (i.e., instrument or spacecraft subsystem) to view the Activities List	Activities defined in EOC3.1 are displayed in the Activities section of the window	
6.	EOC	Select the Master Plan from the Open Plans List in the General Scheduler window	Activities will be scheduled against the Master Plan	
7.	EOC	Click on the Impact toggle button	Activities will be scheduled in impact mode	
8.	EOC	Schedule the following activities for various start and stop time combinations (using absolute times, orbital events, and durations): EOC3_ASTER_ACT_1 EOC3_CERES_ACT_1 EOC3_MISR_ACT_1 EOC3_COM_ACT_1 EOC3_CDH_ACT_1 EOC3_GNC_ACT_1	All activities are displayed on the Timeline for the appropriate resource and time	Times are **TBS-10**
9.	EOC	Click on the NoImpact toggle button	Activities will be scheduled in non-impact mode	
10.	EOC	Schedule the following activities: EOC3_CERES_ACT_2, with times that conflict with EOC3_CERES_ACT_1 EOC3_MISR_ACT_2 EOC3_EPS_ACT_1	EOC3_MISR_ACT_2 and EOC3_EPS_ACT_1 are displayed on the Timeline for the appropriate resource and time; EOC3_CERES_ACT_2 is *not* displayed on the Timeline	
11.	EOC	Click on the NoImpact and Oversubscribe toggle buttons	Activities will be scheduled in non-impact with oversubscription mode	
12.	EOC	Schedule the following activities: EOC3_CERES_ACT_2 EOC3_MODIS_ACT_1 EOC3_MOPITT_ACT_1	All activities are displayed on the Timeline for the appropriate resource and time	

Step	Station	Action	Expected Results	Comments
		EOC3_EAS_ACT_1		
13.	EOC	Click on the File menu item in the Timeline and select Open	Open Plan window is displayed	
14.	EOC	Select a what-if plan, select the desired times, and click OK	Timeline for the desired time range is displayed	
15.	EOC	Select the what-if plan from the Open Plans List in the General Scheduler window	Activities will be scheduled against the what-if plan	
16.	EOC	Click on the Impact toggle button	Activities will be scheduled in impact mode	
17.	EOC	Schedule the following activities for various start and stop time combinations (using absolute times, orbital events, and durations): EOC3_ASTER_ACT_1 EOC3_CERES_ACT_1 EOC3_MISR_ACT_1 EOC3_COM_ACT_1 EOC3_CDH_ACT_1 EOC3_GNC_ACT_1	All activities are displayed on the Timeline for the appropriate resource and time	Times are **TBS-10**
18.	EOC	Click on the NoImpact toggle button	Activities will be scheduled in non-impact mode	
19.	EOC	Schedule the following activities: EOC3_CERES_ACT_2, with times that conflict with EOC3_CERES_ACT_1 EOC3_MISR_ACT_2 EOC3_EPS_ACT_1	EOC3_MISR_ACT_2 and EOC3_EPS_ACT_1are displayed on the Timeline for the appropriate resource and time; EOC3_CERES_ACT_2 is *not* displayed on the Timeline	
20.	EOC	Click on the NoImpact and Oversubscribe toggle buttons	Activities will be scheduled in non-impact with oversubscription mode	
21.	EOC	Schedule the following activities: EOC3_CERES_ACT_2 EOC3_MODIS_ACT_1 EOC3_MOPITT_ACT_1 EOC3_EAS_ACT_1	All activities are displayed on the Timeline for the appropriate resource and time	
22.	EOC	Click on the BAPs toggle button in the General Scheduler window and select the desired	BAPs defined in EOC3.1 are displayed in the BAPs section of the window	Release B

Step	Station	Action	Expected Results	Comments
		resource (i.e., instrument or spacecraft subsystem) to view the BAPs List		
23.	EOC	Schedule BAPs in Impact, NoImpact, and NoImpact with Oversubscription modes against the Master Plan and the what-if plan		Release B
24.	EOC	Click on the File menu item in the Timeline and select Open	Open Plan window is displayed	
25.	EOC	Select the Master Plan, select the desired times, and click OK	Timeline for the desired time range is displayed	
26.	EOC	Click on the Cmds toggle button in the General Scheduler window and select the desired resource (i.e., instrument or spacecraft subsystem) to view the Commands List	Commands related to the selected resource are displayed in the Commands section of the window	
27.	EOC	Select the Master Plan from the Open Plans List	Commands will be scheduled against the Master Plan	
28.	EOC	Click on the ATC Command toggle button	ATC Commands will be displayed in the Commands section of the window	
29.	EOC	Click on the Impact toggle button	Commands will be scheduled in impact mode	
30.	EOC	Schedule commands group #1	Commands are displayed on the Timeline for the appropriate resource and time	Commands group #1 is **TBS-11**
31.	EOC	Click on the ECL Command toggle button	ECL commands will be displayed in the Commands section of the window	
32.	EOC	Click on the NoImpact toggle button	Commands will be scheduled in non-impact mode	
33.	EOC	Schedule commands group #2, ensure that some commands are scheduled to conflict with those in group #1	Commands which do not conflict with those in group #1 are displayed on the Timeline for the appropriate resource and time; commands with a conflict are *not* displayed on the Timeline	Commands group #2 is **TBS-11**
34.	EOC	Click on the NoImpact and Oversubscribe toggle buttons	Commands will be scheduled in non-impact with oversubscription mode	
35.	EOC	Schedule commands group #3, ensure that some commands are scheduled to conflict with those in group #1	All commands are displayed on the Timeline for the appropriate resource and time	Commands group #3 is **TBS-11**

Step	Station	Action	Expected Results	Comments
36.	EOC	Click on the File menu item in the Timeline and select Open	Open Plan window is displayed	
37.	EOC	Select a what-if plan, select the desired times, and click OK	Timeline for the desired time range is displayed	
38.	EOC	Select the what-if plan from the Open Plans List in the General Scheduler window	Commands will be scheduled against the what-if plan	
39.	EOC	Click on the ATC Command toggle button	ATC Commands will be displayed in the Commands section of the window	
40.	EOC	Click on the Impact toggle button	Commands will be scheduled in impact mode	
41.	EOC	Schedule commands group #1	Commands are displayed on the Timeline for the appropriate resource and time	Commands group #1 is **TBS-11**
42.	EOC	Click on the ECL Command toggle button	ECL commands will be displayed in the Commands section of the window	
43.	EOC	Click on the NoImpact toggle button	Commands will be scheduled in non-impact mode	
44.	EOC	Schedule commands group #2, ensure that some commands are scheduled to conflict with those in group #1	Commands which do not conflict with those in group #1 are displayed on the Timeline for the appropriate resource and time; commands with a conflict are *not* displayed on the Timeline	Commands group #2 is **TBS-11**
45.	EOC	Click on the NoImpact and Oversubscribe toggle buttons	Commands will be scheduled in non-impact with oversubscription mode	
46.	EOC	Schedule commands group #3, ensure that some commands are scheduled to conflict with those in group #1	All commands are displayed on the Timeline for the appropriate resource and time	Commands group #3 is **TBS-11**
47.	EOC	Click on the Procs toggle button in the General Scheduler window and select the desired resource (i.e., instrument or spacecraft subsystem) to view the Procs List	Procs defined in EOC3.1 are displayed in the Procs section of the window	Release B
48.	EOC	Schedule Procs in Impact, NoImpact, and NoImpact with Oversubscription modes against the Master Plan and the what-if plan		Release B
49.	EOC	Start the Aster Filter poller: click on the Tools button on the Control	The Aster Filter poller process is executing in the background	

Step	Station	Action	Expected Results	Comments
		window, select PAS, and select Aster Filter		
50.	EOC/ ECS IST	Verify an ASTER STS with a schedule mode of "SCHEDULE" is available (transmitted from the ASTER ICOS to the ECS IST - Release B), ensure that several activities will not be scheduled due to constraint violations	The STS resides in the appropriate directory and is of the format described in the ECS/ASTER GDS ICD	ASTER STS is **TBS-3**
51.	EOC/ ECS IST	Verify the activities in the STS with no constraint violations are scheduled on the Master Plan	The activities are displayed on the Timeline for the ASTER resource and the appropriate time	
52.	EOC/ ECS IST	Verify that a PRS is generated and sent to the ASTER ICOS	The PRS resides in the appropriate directory and is of the format described in the ECS/ASTER GDS ICD (including constraint information)	Release B
53.	EOC/ ECS IST	Verify an ASTER STS with a schedule mode of "SCHEDULE" and times that overlap the previous STS is available (transmitted from the ASTER ICOS to the ECS IST - Release B)	The STS resides in the appropriate directory and is of the format described in the ECS/ASTER GDS ICD	ASTER STS is **TBS-3**
54.	EOC/ ECS IST	Verify the activities in the STS are scheduled on the Master Plan	The activities *replace* the previously scheduled activities and are displayed on the Timeline for the ASTER resource and the appropriate time	
55.	EOC/ ECS IST	Verify that a PRS is generated and sent to the ASTER ICOS	The PRS resides in the appropriate directory and is of the format described in the ECS/ASTER GDS ICD	Release B
56.	EOC/ ECS IST	Verify an ASTER STS with a schedule mode of "ANALYSIS" is available (transmitted from the ASTER ICOS to the ECS IST - Release B)	The STS resides in the appropriate directory and is of the format described in the ECS/ASTER GDS ICD	ASTER STS is **TBS-3**
57.	EOC/ ECS IST	Verify the activities in the STS are scheduled on a what-if plan	The activities are displayed on a what-if Timeline for the ASTER resource and the appropriate time	
58.	EOC/ ECS IST	Verify that a PRS is generated and sent to the ASTER ICOS	The PRS resides in the appropriate directory and is of the format described in the ECS/ASTER GDS ICD	Release B
59.	EOC/	Verify an ASTER ODS with a schedule mode	The ODS resides in the appropriate directory	ASTER ODS is

Step	Station	Action	Expected Results	Comments
	ECS IST	of "SCHEDULE" is available (transmitted from the ASTER ICOS to the ECS IST - Release B), ensure that several activities will not be scheduled due to constraint violations	and is of the format described in the ECS/ASTER GDS ICD	**TBS-3**
60.	EOC/ ECS IST	Verify the activities in the ODS with no constraint violations are scheduled on the Master Plan	The activities are displayed on the Timeline for the ASTER resource and the appropriate time	
61.	EOC/ ECS IST	Verify that an ACS is generated and sent to the ASTER ICOS	The ACS resides in the appropriate directory and is of the format described in the ECS/ASTER GDS ICD (including constraint information)	Release B
62.	EOC/ ECS IST	Verify an ASTER ODS with a schedule mode of "SCHEDULE" and times that overlap the previous ODS is available (transmitted from the ASTER ICOS to the ECS IST - Release B)	The ODS resides in the appropriate directory and is of the format described in the ECS/ASTER GDS ICD	ASTER ODS is **TBS-3**
63.	EOC/ ECS IST	Verify the activities in the ODS are scheduled on the Master Plan	The activities *replace* the previously scheduled activities and are displayed on the Timeline for the ASTER resource and the appropriate time	
64.	EOC/ ECS IST	Verify that an ACS is generated and sent to the ASTER ICOS	The ACS resides in the appropriate directory and is of the format described in the ECS/ASTER GDS ICD	
65.	EOC/ ECS IST	Verify an ASTER ODS with a schedule mode of "ANALYSIS" is available (transmitted from the ASTER ICOS to the ECS IST - Release B)	The ODS resides in the appropriate directory and is of the format described in the ECS/ASTER GDS ICD	ASTER ODS is **TBS-3**
66.	EOC/ ECS IST	Verify the activities in the ODS are scheduled on a what-if plan	The activities are displayed on a what-if Timeline for the ASTER resource and the appropriate time	
67.	EOC/ ECS IST	Verify that an ACS is generated and sent to the ASTER ICOS	The ACS resides in the appropriate directory and is of the format described in the ECS/ASTER GDS ICD	Release B
68.	EOC	Schedule communication contacts with NCC		Release B
69.	NCC	Send schedules to EOC	NCC contact times are displayed on the Timeline	Release B

Step	Station	Action	Expected Results	Comments
70.	ISTs	Verify that schedules are available for display at ISTs	NCC contact times are displayed on the Timeline	Release B
71.	EOC/ SDPS	Verify that schedules are provided to the SDPS		Release B
72.	EOC/ ECS IST	Verify that an ASTER Request for EOC Schedules is transmitted from the ASTER ICOS to the ECS IST	The Request for EOC Schedules resides in the appropriate directory and is of the format described in the ECS/ASTER GDS ICD	Release B
73.	EOC/ ECS IST	Verify that an Activity Schedule is generated and sent to the ASTER ICOS	The Activity Schedule resides in the appropriate directory and is of the format described in the ECS/ASTER GDS ICD	Release B

EOC3.3 Final Scheduling

Summary:
Generate DAS
Make DAS available to ISTs - Release B
Generate binary ATC load, ATC load report, integrated report
Make ATC information above available to ISTs - Release B
Schedule ATC load for uplink
Attempt to generate ATC load for DAS period containing hard constraint violations, should not generate load
Submit DAS for constraint checking only, not load generation
Accept late changes via ISTs - Release B
Incorporate late changes, update DAS and ATC load - Release B

Step	Station	Action	Expected Results	Comments
1.	EOC	Bring up the Load Generator window: click on ???	Load Generator window is displayed	This window is not in the FOS OTM yet, **TBS-12**
2.	EOC	Enter the start and stop time for DAS creation		
3.	EOC	Enter DAS ID (DOY) and version #		
4.	EOC	Click OK to submit the request for DAS creation	The activities over the selected time period are used to generate the DAS. The user is prompted to approve or disapprove soft activity constraints. The ATC load, ATC load report, integrated report, and ground script are generated.	Soft constraint approval or disapproval is Release B
5.	EOC	Verify the ATC load contents file is in the /fos/test/am1/loads directory and is of the correct format		
6.	EOC	Verify the ATC load report is in the /fos/test/am1/reports directory and is of the correct format		
7.	EOC	Verify the ATC image file is in the /fos/test/am1/loads directory and is of the correct format		

Step	Station	Action	Expected Results	Comments
8.	EOC	Verify the ATC binary load file is in the /fos/test/am1/loads directory and is of the correct format		
9.	EOC	Verify the integrated report is in the ??? directory and is of the correct format		Integrated report directory is **TBS-13**
10.	EOC	Verify the ground script is available: ECL>**TOOL Command_Control** Enter String ID 100, S/C ID AM1 Click on the File Menu Item and select Open Enter the times used to generate the DAS	The contents of the ground script are displayed in the Command Control window	
11.	EOC	Verify all scheduled activities from the timeline appear in the ground script		
12.	EOC/ ISTs	Verify the DAS, ATC load report and the integrated report are available to the ISTs		Release B
13.	EOC	Schedule the ATC load for uplink		Release B
14.	EOC	Enter the start and stop time for DAS creation for a period of time in which there are activities with hard constraint violations		
15.	EOC	Enter DAS ID (DOY) and version #		
16.	EOC	Click OK to submit the request for DAS creation	The activities over the selected time period are used to generate the DAS. Since there are hard constraint violations, the ATC load, ATC load report, integrated report, and ground script are *not* generated.	
17.	EOC	Select Constraint Check on the Load Generator window		
18.	EOC	Select the Master Plan		
19.	EOC	Enter start and stop times		
20.	EOC	Enter an ID for the request		
21.	EOC	Click Submit to submit the request for a constraint check	The activities over the selected time period are activity-level and command-level constraint checked. No ATC load or ground script is generated.	

Step	Station	Action	Expected Results	Comments
22.	EOC	Verify that the result of the constraint check request are displayed		
23.	EOC	Receive late change requests and schedule them if possible		Late change requirements are Release B, though some functionality available in Release A?
24.	EOC	Schedule additional communication contacts		Release B
25.	NCC	Send schedules to EOC	NCC contact times are displayed on the Timeline	Release B

EOC3.4 Command Management

Summary:
Ingest (Release B) and validate instrument microprocessor load contents file
Generate instrument microprocessor load, report, and image
Ingest and validate flight software load contents file - Release B
Generate flight software load, report, and image - Release B
Generate and validate table load contents file
Generate table load, report, and image

Step	Station	Action	Expected Results	Comments
1.	EOC	Bring up the Load Manager window: click on ???	Load Manager window is displayed	This window is not in the FOS OTM yet, **TBS-14**
2.	EOC/ US ISTs	Verify there are instrument microprocessor load contents files available, select the file to ingest and designate a destination directory		
3.	EOC	Select Ingest	The file is ingested to the destination directory	
4.	EOC	Select Validate	Validation completes and the source, destination, and size of the microprocessor load are given	
5.	EOC	Select Generate	Load Generator window is displayed	
6.	EOC	Select the destination resource, uplink start and stop times, load size, offset, and description of the uplink load	The microprocessor uplink load, the load report, and the load image files are generated	
7.	EOC/ SDVF	Ingest and validate a flight software load contents file, and generate the flight software uplink load, the load report, and the load image file		Release B
8.	EOC	Bring up the Table Load Builder window: click on ???	Table Load Builder window is displayed	This window is not in the FOS OTM yet, **TBS-15**
9.	EOC	Build a new table load by updating table default contents		

Step	Station	Action	Expected Results	Comments
10.	EOC	Generate the new table load	The table load contents file is generated and validated, and the table uplink load, the load report, and the load image files are generated	

Test Termination:

Step	Station	Action	Expected Results	Comments
1.	EOC	Collect all necessary screen snaps, dumps, etc. needed for post-test analysis and verification		
2.	EOC	Close all pages except the Control Window: **PAGE CLOSE ALL**	All pages except the Control Window are closed	
3.	EOC	Shutdown the software: **cd /fos/test/am1/scripts/setup** **MyKill**	FOS applications are no longer running	
4.	EOC	Shutdown the hardware if necessary	EOC system should be returned to pre-test configuration	

Appendix: Test Package Requirements Summary

Release A

Requirement	Description	Test Case (s)
EOC-2020#A	The EOC shall generate the long term spacecraft operations plan, based upon, at a minimum, the following: a. LTSP from the IWG. b. LTIP from the IWG. c. Spacecraft maneuvers and other spacecraft activities that have potential to impact mission operations	EOC3.1
EOC-2030#A	The EOC shall store and maintain EOS planning and scheduling information, which includes, at a minimum, the following: a. IWG science guidelines, as specified in the LTSP and LTIP b. Long term spacecraft operations plan c. Predicted availability of the spacecraft resources d. Baseline activity profile for each applicable instrument e. Planning and scheduling information received from the FDF f. Preliminary resource schedules, including TDRSS contact times g. Detailed activity schedules, including TDRSS contact times	EOC3.1 EOC3.2 EOC3.3
EOC-2070#A	The EOC shall provide the capability to generate a spacecraft subsystem resource profile, based, at a minimum, on the following: a. Spacecraft orbit maintenance needs b. Spacecraft navigation needs c. Spacecraft subsystem maintenance needs	EOC3.1 EOC3.2
EOC-2170#A	The EOC shall be capable of planning and scheduling observations for which time may be specified in fixed or variable terms.	EOC3.1 EOC3.2 EOC3.3
EOC-2180#A	The EOC shall be capable of planning and scheduling observations for those EOS instruments whose operations may be periodic, intermittent, or continuous.	EOC3.1 EOC3.2 EOC3.3
EOC-2200#A	The EOC shall plan and schedule the management of spacecraft resources that include, at a minimum, the following: b. Communications subsystems d. SCC-stored command table.	EOC3.1 EOC3.2 EOC3.3
EOC-2210#A	The EOC shall have the capability to generate plans and schedules in both human readable and machine usable forms.	EOC3.1 EOC3.2 EOC3.3
EOC-2220#A	The EOC shall identify and resolve conflicts based on, at a minimum, the following: a. Resources needed for each observation or instrument support activity b. Resources needed for each spacecraft subsystem activity, if applicable c. Inter-instrument dependency	EOC3.2 EOC3.3

Requirement	Description	Test Case (s)
	d. In situ observation dependency e. Priorities set by the LTSP	
EOC-2250#A	The EOC shall be capable of performing its planning and scheduling function in batch and incremental interactive-user modes.	EOC3.1 EOC3.2 EOC3.3
EOC-2270#A	The EOC shall accept an instrument resource profile or instrument resource deviation list (when a resource profile exists for the instrument) from each ICC.	EOC3.1 EOC3.2 EOC3.3
EOC-2272#A	For the instruments that have resource deviations lists, the EOC shall build instrument resource profiles by combining the resource deviation lists with the respective baseline resource profiles.	EOC3.1 EOC3.2 EOC3.3
EOC-2280#A	At least once each week, the EOC shall generate for each spacecraft a preliminary resource schedule that describes all operations currently planned for the following target week.	EOC3.2
EOC-2290#A	Whenever the ICC's instrument resource profile cannot be integrated into a preliminary resource schedule, the EOC shall provide the ICC with a notification that includes, at a minimum, an identification of the conflicting activities and the source of conflict.	EOC3.2
EOC-2300#A	The EOC shall build or update the preliminary resource schedule based on the following, at a minimum: a. Existing preliminary resource schedules, if any b. Instrument resource profiles c. Spacecraft subsystems resource profile d. Science guidelines e. Spacecraft operations constraints f. TDRSS schedule	EOC3.2
EOC-2310#A	The EOC shall build a preliminary resource schedule by performing the following: a. Integrating the spacecraft subsystems resource profile and individual instrument resource profiles b. Determining if required resources, including SN resources, are within limits c. Using guidelines established by the LTSP d. Resolving conflicts between the proposed activities	EOC3.2
EOC-2320#A	The preliminary resource schedule shall include, at a minimum, the following: a. Activity or DAR identifiers b. Resource availability and usage requirements c. Time constraints and alternatives for planned activities d. TDRSS schedule	EOC3.2
EOC-2350#A	The EOC shall provide the preliminary resource schedule to the ICCs upon generation.	EOC3.2
EOC-2460#A	The EOC shall be capable of generating or updating a spacecraft subsystem activity list based on at a minimum the following:	EOC3.1 EOC3.2

Requirement	Description	Test Case (s)
	a. Existing detailed activity schedule b. Preliminary resource schedule c. Spacecraft subsystem activities identified after the preliminary resource schedule has been generated d. Current predicted orbit data and related information e. Responses to emergency/contingency situations	EOC3.3
EOC-2480#A	The EOC shall accept from each ICC an instrument activity list or an instrument activity deviation list (when an activity profile exists for the instrument) and any updates thereto.	EOC3.1 EOC3.2 EOC3.3
EOC-2482#A	For the instruments that have instrument activity deviation lists, the EOC shall build the instrument activity lists by combining the instrument activity deviation lists with the respective baseline activity profiles.	EOC3.1 EOC3.2 EOC3.3
EOC-2490#A	For each day the EOC shall be capable of generating or updating a detailed activity schedule for each spacecraft and its instruments, nominally covering the next 7 days.	EOC3.3
EOC-2510#A	The EOC shall generate a detailed activity schedule for the spacecraft and its instruments by: a. Integrating the spacecraft subsystem activity list and individual instrument activity lists b. Determining if the aggregate resource requirements are within limits d. Ensuring that all the sequencing constraints among the proposed activities are respected e. Scheduling the spacecraft recorder, direct downlink, and communication subsystem operations	EOC3.3
EOC-2540#A	The EOC shall notify the ICC of any instrument activities that cannot be integrated into a detailed activity schedule.	EOC3.3
EOC-2550#A	The detailed activity schedule shall include, at a minimum, the following: a. Instrument activities b. Spacecraft activities necessary to support all instrument activities c. Spacecraft activities necessary for the spacecraft subsystem maintenance d. Spacecraft resource requirements for each activity e. Traceability of instrument activities to DARs	EOC3.3
EOC-2555#A	The EOC shall evaluate the impact of a TOO observation, , or a change to a scheduled observation, on other previously scheduled activities.	EOC3.3
EOC-2620#A	The EOC shall provide the ICC with the detailed activity schedule and any updates upon generation.	EOC3.3
EOC-3020#A	The EOC shall accept from the ICC instrument loads, SCC-stored instrument commands, and SCC-stored instrument tables as well as the associated information that includes at a minimum the following:	EOC3.4

Requirement	Description	Test Case (s)
	a. Instrument identifier b. Schedule identifier, if applicable c. Identification of commands that could impact spacecraft or instrument safety (i.e., critical commands)	
EOC-3030#A	The EOC shall authenticate the originator of command information from the ICCs.	EOC3.4
EOC-3050#A	At least once per day, the EOC shall generate SCC-stored spacecraft commands and SCC-stored spacecraft tables based on the detailed activity schedule.	EOC3.3 EOC3.4
EOC-3080#A	The EOC shall generate, validate, and store preplanned spacecraft commands for later use in emergency situations to protect the health and safety of the spacecraft.	EOC3.3 EOC3.4
EOC-3090#A	As frequently as necessitated by the detailed activity schedule, the EOC shall build a spacecraft and instrument memory load, which includes as many of the following as needed: a. SCC-stored spacecraft and instrument commands b. SCC-stored spacecraft and instrument tables c. Instrument loads d. SCC software updates.	EOC3.3 EOC3.4
EOC-3160#A	The EOC shall generate operational reports.	EOC3.4
EOC-3210#A	The EOC shall store and maintain preplanned instrument commands for all instruments on the spacecraft.	EOC3.3 EOC3.4
EOC-4010#A	For each spacecraft and its instruments, the EOC shall prepare uplink data that conform to the CCSDS Telecommand Standard.	EOC3.3 EOC3.4

Release B

Requirement	Description	Test Case (s)
AM1-0270#B	The AM-1 SDVF shall have the capability to send and the ECS shall have the capability to receive AM-1 SCC flight software updates.	EOC3.4
EOC-0030#B	The EOC shall receive the LTSP and LTIP from the SMC.	EOC3.1
EOC-1005#B	The EOC shall provide the IMS with spacecraft information, including at a minimum orbit information, for use in DAR generation.	EOC3.1
EOC-2010#B	The EOC shall accept from the FDF planning and scheduling information for the EOS spacecraft and instruments, which includes, at a minimum, the following: a. Predicted orbit data including predicted ground track b. EOS spacecraft UAV data c. PSATs d. Spacecraft maneuver information	EOC3.1
EOC-2020#B	The EOC shall generate the long term spacecraft operations plan, based upon, at a minimum, the following: a. LTSP from the IWG. b. LTIP from the IWG. c. Spacecraft maneuvers and other spacecraft activities that have potential to impact mission operations	EOC3.1
EOC-2030#B	The EOC shall store and maintain EOS planning and scheduling information, which includes, at a minimum, the following: a. IWG science guidelines, as specified in the LTSP and LTIP b. Long term spacecraft operations plan c. Predicted availability of the spacecraft resources d. Baseline activity profile for each applicable instrument e. Planning and scheduling information received from the FDF f. Preliminary resource schedules, including TDRSS contact times g. Detailed activity schedules, including TDRSS contact times	EOC3.1 EOC3.2 EOC3.3
EOC-2070#B	The EOC shall provide the capability to generate a spacecraft subsystem resource profile, based, at a minimum, on the following: a. Spacecraft orbit maintenance needs b. Spacecraft navigation needs c. Spacecraft subsystem maintenance needs	EOC3.1 EOC3.2
EOC-2160#B	The EOC shall provide plans and schedules to the IMS.	EOC3.2
EOC-2170#B	The EOC shall be capable of planning and scheduling observations for which time may be specified in fixed or variable terms.	EOC3.1 EOC3.2 EOC3.3
EOC-2180#B	The EOC shall be capable of planning and scheduling observations for those EOS instruments whose operations may be periodic, intermittent, or continuous.	EOC3.1 EOC3.2 EOC3.3
EOC-2190#B	The EOC shall be capable of planning and scheduling	EOC3.1

Requirement	Description	Test Case (s)
	coordinated observations involving multiple instruments.	EOC3.2 EOC3.3
EOC-2200#B	The EOC shall plan and schedule the management of spacecraft resources that include, at a minimum, the following: a. Spacecraft recorder b. Communications subsystems c. Thermal and power subsystems d. SCC-stored command table.	EOC3.1 EOC3.2 EOC3.3
EOC-2210#B	The EOC shall have the capability to generate plans and schedules in both human readable and machine usable forms.	EOC3.1 EOC3.2 EOC3.3
EOC-2220#B	The EOC shall identify and resolve conflicts based on, at a minimum, the following: a. Resources needed for each observation or instrument support activity b. Resources needed for each spacecraft subsystem activity, if applicable c. Inter-instrument dependency d. In situ observation dependency e. Priorities set by the LTSP	EOC3.2 EOC3.3
EOC-2230#B	If conflicts cannot be resolved in EOS planning and scheduling, the EOC shall make a choice between competing activities based on negotiations with and between the ICCs or on a decision by the Project Scientist or his designee.	EOC3.2 EOC3.3
EOC-2240#B	The EOC shall reintroduce applicable requested activities in its planning and scheduling function when the activity did not occur due to a deviation from the schedule.	EOC3.2 EOC3.3
EOC-2250#B	The EOC shall be capable of performing its planning and scheduling function in batch and incremental interactive-user modes.	EOC3.1 EOC3.2 EOC3.3
EOC-2260#B	The EOC shall provide "what-if" capabilities for planning and scheduling analysis, and provide them to authorized users, including the ICCs.	EOC3.2 EOC3.3
EOC-2270#B	The EOC shall accept an instrument resource profile or instrument resource deviation list (when a resource profile exists for the instrument) from each ICC.	EOC3.1 EOC3.2 EOC3.3
EOC-2272#B	For the instruments that have resource deviations lists, the EOC shall build instrument resource profiles by combining the resource deviation lists with the respective baseline resource profiles.	EOC3.1 EOC3.2 EOC3.3
EOC-2280#B	At least once each week, the EOC shall generate for each spacecraft a preliminary resource schedule that describes all operations currently planned for the following target week.	EOC3.2
EOC-2290#B	Whenever the ICC's instrument resource profile cannot be integrated into a preliminary resource schedule, the EOC shall provide the ICC with a notification that includes, at a minimum,	EOC3.2

Requirement	Description	Test Case (s)
	an identification of the conflicting activities and the source of conflict.	
EOC-2300#B	The EOC shall build or update the preliminary resource schedule based on the following, at a minimum: a. Existing preliminary resource schedules, if any b. Instrument resource profiles c. Spacecraft subsystems resource profile d. Science guidelines e. Spacecraft operations constraints f. TDRSS schedule	EOC3.2
EOC-2310#B	The EOC shall build a preliminary resource schedule by performing the following: a. Integrating the spacecraft subsystems resource profile and individual instrument resource profiles b. Determining if required resources, including SN resources, are within limits c. Using guidelines established by the LTSP d. Resolving conflicts between the proposed activities	EOC3.2
EOC-2320#B	The preliminary resource schedule shall include, at a minimum, the following: a. Activity or DAR identifiers b. Resource availability and usage requirements c. Time constraints and alternatives for planned activities d. TDRSS schedule	EOC3.2
EOC-2350#B	The EOC shall provide the preliminary resource schedule to the ICCs upon generation.	EOC3.2
EOC-2370#B	The EOC shall generate TDRSS schedule requests based on the data rate profiles of all the instruments and spacecraft subsystems.	EOC3.2
EOC-2400#B	The EOC shall submit the TDRSS schedule requests to the NCC.	EOC3.2
EOC-2405#B	The EOC shall accept the forecast TDRSS schedule from the NCC.	EOC3.2
EOC-2410#B	The EOC shall accept from the NCC notification of rejection along with the reason for rejection, when all or a portion of the TDRSS schedule request cannot be accommodated.	EOC3.2
EOC-2420#B	In response to the rejection of a TDRSS schedule request, the EOC shall have the capability to modify the request for resubmission to the NCC.	EOC3.2
EOC-2430#B	The EOC shall, in 95 percent of all cases, generate a preliminary resource schedule for one spacecraft within 2 hours after all required inputs are available.	EOC3.2
EOC-2460#B	The EOC shall be capable of generating or updating a spacecraft subsystem activity list based on at a minimum the following: a. Existing detailed activity schedule b. Preliminary resource schedule c. Spacecraft subsystem activities identified after the preliminary	EOC3.1 EOC3.2 EOC3.3

Requirement	Description	Test Case (s)
	resource schedule has been generated d. Current predicted orbit data and related information e. Responses to emergency/contingency situations	
EOC-2480#B	The EOC shall accept from each ICC an instrument activity list or an instrument activity deviation list (when an activity profile exists for the instrument) and any updates thereto.	EOC3.1 EOC3.2 EOC3.3
EOC-2482#B	For the instruments that have instrument activity deviation lists, the EOC shall build the instrument activity lists by combining the instrument activity deviation lists with the respective baseline activity profiles.	EOC3.1 EOC3.2 EOC3.3
EOC-2490#B	For each day the EOC shall be capable of generating or updating a detailed activity schedule for each spacecraft and its instruments, nominally covering the next 7 days.	EOC3.3
EOC-2510#B	The EOC shall generate a detailed activity schedule for the spacecraft and its instruments by: a. Integrating the spacecraft subsystem activity list and individual instrument activity lists b. Determining if the aggregate resource requirements are within limits d. Ensuring that all the sequencing constraints among the proposed activities are respected e. Scheduling the spacecraft recorder, direct downlink, and communication subsystem operations	EOC3.3
EOC-2520#B	If additional TDRSS schedule needs are identified while generating or updating a detailed activity schedule, the EOC shall make a request to the NCC for additional TDRSS services.	EOC3.3
EOC-2530#B	If the request to the NCC for additional SN services is denied, the EOC shall regenerate or modify a detailed activity schedule to account for the TDRSS service availability constraints.	EOC3.3
EOC-2540#B	The EOC shall notify the ICC of any instrument activities that cannot be integrated into a detailed activity schedule.	EOC3.3
EOC-2550#B	The detailed activity schedule shall include, at a minimum, the following: a. Instrument activities b. Spacecraft activities necessary to support all instrument activities c. Spacecraft activities necessary for the spacecraft subsystem maintenance d. Spacecraft resource requirements for each activity e. Traceability of instrument activities to DARs	EOC3.3
EOC-2555#B	The EOC shall evaluate the impact of a TOO observation, , or a change to a scheduled observation, on other previously scheduled activities.	EOC3.3
EOC-2570#B	In support of a TOO observation or late change, the EOC shall update the detailed activity schedule within 1 hour after receipt of the update to the corresponding instrument activity list or the	EOC3.3

Requirement	Description	Test Case (s)
	instrument activity deviation list (when an activity profile exists for the instrument), if the update does not affect existing detailed activity schedule events or create new conflicts.	
EOC-2590#B	In support of a TOO observation or a late change, the EOC shall update the detailed activity schedule within 10 hours after the receipt of the update of the corresponding instrument activity list (or instrument activity deviation list), if the update affects existing detailed activity schedule events or creates new conflicts.	EOC3.3
EOC-2620#B	The EOC shall provide the ICC with the detailed activity schedule and any updates upon generation.	EOC3.3
EOC-2630#B	The EOC shall, in 95 percent of all cases, generate a detailed activity schedule for the spacecraft within 2 hours after all required inputs are available.	EOC3.3
EOC-3015#B	The EOC shall accept SCC flight software updates from the SDVF.	EOC3.4
EOC-3017#B	The EOC shall accept from the FDF parameters necessary for spacecraft command data generation, including the following: a. Navigational operations parameters b. Spacecraft maneuver parameters	EOC3.1
EOC-3020#B	The EOC shall accept from the ICC instrument loads, SCC-stored instrument commands, and SCC-stored instrument tables as well as the associated information that includes at a minimum the following: a. Instrument identifier b. Schedule identifier, if applicable c. Identification of commands that could impact spacecraft or instrument safety (i.e., critical commands)	EOC3.4
EOC-3024#B	The EOC shall validate the expected resource usage.	EOC3.2 EOC3.3 EOC3.4
EOC-3030#B	The EOC shall authenticate the originator of command information from the ICCs.	EOC3.4
EOC-3050#B	At least once per day, the EOC shall generate SCC-stored spacecraft commands and SCC-stored spacecraft tables based on the detailed activity schedule.	EOC3.3 EOC3.4
EOC-3070#B	The EOC shall generate SCC-stored spacecraft commands and SCC-stored spacecraft tables for 24 hours of spacecraft operations in less than 1 hour.	EOC3.3 EOC3.4
EOC-3080#B	The EOC shall generate, validate, and store preplanned spacecraft commands for later use in emergency situations to protect the health and safety of the spacecraft.	EOC3.3 EOC3.4
EOC-3086#B	The EOC shall generate a command-to-memory location map for SCC-stored command loads.	EOC3.4
EOC-3090#B	As frequently as necessitated by the detailed activity schedule, the EOC shall build a spacecraft and instrument memory load,	EOC3.3 EOC3.4

Requirement	Description	Test Case (s)
	which includes as many of the following as needed: a. SCC-stored spacecraft and instrument commands b. SCC-stored spacecraft and instrument tables c. Instrument loads d. SCC software updates.	
EOC-3160#B	The EOC shall generate operational reports including, at a minimum, the following: a. SCC-stored command load report b. Integrated report having orbital events, command execution times, and TDRS contacts with candidate loads.	EOC3.4
EOC-3200#B	The EOC shall accept from the ICC instrument preplanned command groups for issuance by the EOC in the event of an anomaly that requires an immediate response or in the event that the ICC is unable to command the instrument.	EOC3.3 EOC3.4
EOC-3210#B	The EOC shall store and maintain preplanned instrument commands for all instruments on the spacecraft.	EOC3.3 EOC3.4
EOC-3225#B	In support of a TOO observation or late change, the EOC shall prepare the corresponding integrated load and/or real-time instrument command set within 15 minutes of receipt of the SCC-stored instrument commands, SCC-stored instrument tables, or instrument load from the ICC, if the observation does not impact previously scheduled activities.	EOC3.3 EOC3.4
EOC-3226#B	In support of a TOO observation or late change, the EOC shall prepare the corresponding integrated load and/or real-time instrument command set within 1 hour of receipt of the SCC-stored instrument commands, SCC-stored instrument tables, or instrument load from the ICC, if the observation impacts previously scheduled activities.	EOC3.3 EOC3.4
EOC-3240#B	The EOC shall be capable of producing spacecraft and instrument memory loads covering 24 hours of spacecraft operation in less than 1 hour.	EOC3.3 EOC3.4
EOC-4010#B	For each spacecraft and its instruments, the EOC shall prepare uplink data that conform to the CCSDS Telecommand Standard.	EOC3.3 EOC3.4
EOSD1480#B	ECS shall receive from the resident EOS Project Scientist the IWGs Long Term Science Plan (LTSP) and updates as required.	EOC3.1
EOSD1520#B	ECS elements shall receive TDRSS schedules from the Network Control Center (NCC).	EOC3.2
EOSD1530#B	ECS elements shall submit TDRSS schedule requests to the NCC.	EOC3.2