

**Proposed Change Level (Circle): 3**

**Proposed Change:** 180 degree Reor of all probes prior to EFI wire boom deploy

**Lead Engineer:** Taylor

**Subsystem:** Operations

**Reason for Change:**

As a compromise between long shadows and conjunctions, an inclination of approximately 9deg is required for P1 and P2 throughout the mission. The moon's pull increases the inclination by about 10deg per year. Manuevers at apogee are required coneract the effect. Because the thrusters are pointed one way, a 180 degree reor is required to perform this manuever. Reors with the wire booms deployed have shown to take more fuel than available, therefore, a 180 deg reor will be done on all 5 probes prior to EFI wire boom deploy.

**Reference Documentation Summary**

**Subsystem Impacted:** (Bold indicates an impact)

ACS	C&DH	Mechanical	Propulsion	Booms	IDPU S/W
Battery	EGSE	MGSE	<b>RF Comm</b>	EFI	SST
Bus	Harness	<b>Mission Ops</b>	Solar Array	ESA	SCM
Avionics Unit	I&T	<b>Power</b>	<b>Thermal</b>	FGM	
BUS S/W	Launch Vehicle			IDPU	

**Minutes Summary (Systems Engineering Meeting):**

A 180 degree reor will be performed on all Probes immediately prior to EFI wire boom deploy. For the extent of the science mission, the probes will be flying in this orientation.

System effects:

1. Thermal analyses must incorporate new probe orientation
2. Power analyses must incorporate new probe orientation
3. Comm link analyses must incorporate new probe orientation
4. Mission Operations must include new operation to reor 180 degrees
5. Manuever scheduling and calculations must take into account reor

**Approval**

**PROPRIETARY**  
YES ☐ NO ☐

**Project Manager**

Date

**Systems**

**Impacted Subsystem Lead**

**Distribution**

- Subsystem trades (level 4) can be made within the resources of the subsystem. Systems Engineer insight and involvement.
- Trades that impact subsystem/system interfaces or resource allocations (level 3/level 2) require concurrence by the Configuration Control Board (CCB): Principal Investigator, Project Manager, Mission Systems Engineer (MSE), Probe Systems Engineer, Mission Operations Manager and affected Team Leads. GSFC Mission Manager insight.
- Trades that impact Level 1 *baseline* science/programmatic requirements must include approval by Principal Investigator and GSFC Mission Manager.
- Trades that impact Level 1 *minimum* science/programmatic requirements must include approval by NASA HQ.

Date