

**COS DCE BOOT FSW v1.13 Component Test Results
Requirement 5.1.1.1d Initialize to Boot State After Reset**

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1. INTRODUCTION

1.1 PURPOSE

This document presents the Cosmic Origins Spectrograph (COS) Device Control Electronics (DCE) Flight Software (FSW) certification procedure. The purpose of this procedure is to verify that the FSW satisfies Software Requirements according to the method specified in the DCE FSW Test Plan (STP).

1.2 SCOPE

This test procedure comprises the steps necessary to verify that the FSW satisfies Software Requirements Document (SRD) paragraph 5.1.1.1 — Initialize to Boot State after Reset: Verify that Operate State commands ... are prohibited by DCE.

1.3 LIMITATIONS AND CONSTRAINTS

This test cannot be run in parallel with any other commanding activity directed at the DCE FSW (such as, for example, the periodic transmission of NOOP commands). Test hardware shall be visually inspected, and its configuration noted, prior to conducting this test.

1.4 PROCEDURE OVERVIEW

The procedure requires the `hks` tools running on the Sun SparcStation Electronic Ground Support Equipment (EGSE) whose network IP address is one of

shorty.ssl.berkeley.edu
taiyo.ssl.berkeley.edu
ginger.ssl.berkeley.edu.

Test time shall be scheduled in advance. The Test Conductor must be logged into the Unix system as user `eagcos`, and be commanding from the appropriate directory. This directory contains both the test script file and the shell script file; these two files control test execution. The test is conducted by invoking the shell script. This shell script in turn invokes the Perl 5 program `UniScript.pl`, which resides in its own distinct directory. The test procedure steps have been pre-recorded in the test script file, and are executed interpretively by the `UniScript` program. The shell script and test script are attached to this document as appendices. As `UniScript` executes the test script it sends results to the operator console and to two report files, which are also placed in the current directory. After completion of the test script, the Test Conductor can certify successful test

execution by examining the contents of the report files and determining that required outputs are present in them. Printed copies of the report files are attached to the manually completed checklist (Paragraph 4 below) as documentation of the test.

1.5 THEORY OF TEST

The script, `stp5_1_1_1d.tst`, issues all of the commands (the “Operate State Commands”) in the following table (blank parameter entries in the table are coded as 0 in the associated command).

Table 1-1: Operate State Commands

Command	Parameter 1	Parameter 2	Parameter3	Parameter4	Parameter 5
RFDPROM	0=DISABLE 1=ENABLE				
LFDTEST	TEST ID				
LFDUTEST	SUBCOMMAN D	Per SUBCOMMA ND	Per SUBCOMMA ND	Per SUBCOMMA ND	Per SUBCOMMA ND
LFGBWK	SETTING=0..2 55	0=A 1=B	0=X 1=Y		
LFGEWK	SETTING=0..2 55	0=A 1=B	0=X 1=Y		
LFGLQT	SETTING=0..2 55	0=A 1=B			
LFGSHFT	SETTING=0..2 55	0=A 1=B	0=X 1=Y		
LFGSTIM	0=OFF 1=LOW 2=MID 3=MAX	0=A 1=B			
LFGSTR	SETTING=0..2 55	0=A 1=B	0=X 1=Y		
LFGTT	SETTING=0..2 55	0=A 1=B	0=DISP 1=XDISP		
LFGUQT	SETTING=0..2 55	0=A 1=B			
LFHQPWR	0=OFF 1=ON				
LFHRAMPT	STATE:				

Command	Parameter 1	Parameter 2	Parameter3	Parameter4	Parameter 5
	0=STEP 1..65535=10*s ec				
LFHSTATE	1=NOMA 2=NOMB 3=NOMAB 4=LOW				
LFHVENA	0=DISABLE 1=ENABLE				
LFHVILIM	LIMIT=0..255				
LFHVLOW	VOLTAGE=0.. 255	0=A 1=B			
LFHVMAX	VOLTAGE=0.. 255	0=A 1=B			
LFHVNOM	VOLTAGE=0.. 255	0=A 1=B			
LFHVPWR	POWER: 0=OFF 1=ON				
LFHVPWR	POWER: 0=OFF 1=ON				
LFHVSET	VOLTAGE=0.. 65535				
LFPCR	INTERVAL: 0=DISABLE 1..255sec	0=A 1=B	COUNT= 0..65535		
LFRACT1	POWER: 0=OFF 1=ON				
LFRACT2	POWER: 0=OFF 1=ON				
LFRACTEN	ACTUATOR: 0=DISABLE 1=ENABLE				
LFRACTRS	FUNCTION: 0=ABORT				

Command	Parameter 1	Parameter 2	Parameter3	Parameter4	Parameter 5
	1=RELATCH				
LFRAXPWR	POWER: 0=OFF 1=ON				
LFRILIM	LIMIT=0..255				
LFRLSOVD	OVERRIDE: 0=DISABLE 1=ENABLE				
LFRMDIR	DIR: 0=SAFE 1=CLOSE 2=OPEN				
LFRMENA	DOOR: 0=DISABLE 1=ENABLE				
LFRMPWR	MOVE: 0=STOP 1=START				

The arguments to the commands are selected so that no harm will be done to the DCE stack or the FSW as a result of command execution. Before one of these commands is sent, an **LFDIAGC** is issued to ensure that **DIAG002F** is not in the stack. After a command is sent to the DCE, the script **WAITS** for one second, reads the HK telemetry, and examines the diagnostic array (**LFDDIAGS**) to ensure that diagnostic code **DIAG002F** is present. If it is *not* present as the result of the sending of any Operate State command, this test *fails* — otherwise, it *succeeds*. The following paragraphs supply details of the use and parameterizations of selected commands.

1.5.1 Verification of Boot State

Following the issuance of the **LFDRSTP** command the script **WAITS** for one second, reads the HK data, and tests bit **LFDOPERT** of the **LFSBITS1** word. Its value should be 0 (“FSW is in Boot State”). It also clears the diagnostic stack (**LFDDIAGS** in the HK data), so spurious codes don’t appear during the subsequent tests.

1.5.2 Operate State Command Arguments

All arguments of all Operate State commands sent to the DCE FSW by this test are 0.

2. SPECIAL INSTRUCTIONS

2.1 QUALITY ASSURANCE

QA support is required to verify the configuration and setup environment as well as monitoring test steps and verifying results.

2.2 SAFETY

2.2.1 Personal Safety

To ensure the safety of the test personnel during test execution the guidelines contained in Paragraph 3.4, Reference [1] will be adhered to.

2.2.2 Test Article and Equipment Safety

To ensure the safety and well-being of the COS operations bench, SITS, and related test equipment, the following primary safety requirements will be in effect during the execution of this test procedure:

- If access within one (1) meter of COS bench electronics is necessary, wrist straps attached to technical ground shall be used by all personnel involved in handling of any COS test article. Overcurrent and overvoltage shall be set to remove power if nominal limits are exceeded.
- Emergency Power Shutdown — If, during the COS DCE FSW test, power is ON and a severe test equipment failure results in the power system exceeding specified limits, the Test Conductor shall direct or perform shutdown of power.

2.3 CONTAMINATION

All flight hardware shall be handled with clean latex gloves; it shall be covered with clean ESD material and/or stored in a clean flow-bench.

3. SUPPORT REQUIREMENTS

3.1 PERSONNEL

Execution of the COS DCE FSW certification procedure requires the following personnel (to be completed at the Test Readiness Review (TRR)):

Test Director: _____

Test Conductor: _____

Test Technician: _____

QA: _____

3.2 TOOLS, EQUIPMENT, AND MATERIALS

The following is a list of tools, equipment, or materials required in this test. Record manufacturer and model, metrology, or property numbers of equipment used, where appropriate. Record calibration due dates where appropriate.

Boot Mode ROM: schematic **27C256**

Engineering Ground Support Equipment (see paragraph 1.4). Indicate specific configuration:

EGSE			DCE		
taiyo	shorty	Ginger	ETU	DCE #1	DCE #2
X				X	

3.3 DATA/SOFTWARE

The following files must be present:

Table 3-1: Required Program and Data Files

EGSE (shorty) Directory	File	Description
/disks/galex/users/galex/tcs/uniscript/	UniScript.pl	UniScript interpreter
/disks/galex/users/galex/tcs/uniscript/stp5_1_1_1d/	u	Shell script for this procedure
Ditto	Stp5_1_1_1d.tst	Test script for this procedure (Appendix B)

In addition, the **hks** tools must be active. Directions for activating **hks** are given in UCB-COS-DOC-1118 (Paragraph 3.4, Reference [4]).

3.4 REQUIRED DOCUMENTATION

Reference	Document Number	Title
1	NHB 1700.1(V1-A)	<i>NASA Basic Safety Manual</i>
2	COS-03-0041	<i>DCE FSW Test Procedure 5.1.1.1d</i> (this document)
3	UCB-COS-008	<i>COS FUV Detector Software Test Plan</i>
4	UCB-COS-DOC-1118	<i>COS EGSE Startup Procedure</i>

4. PROCEDURE/TASK STEPS

4.1 PRE-OPERATION ACTIVITIES

4.1.1 Make Sure that **hks** Tools Are Active

Follow the procedure given in Paragraph 3.4, Reference [4].

4.1.2 Make Sure that the Proper ROM Is Installed

Visually verify that the ROM under test is installed: if EEPROM, in U18; if PROM, in U2 and U7.

4.1.3 Log In to the EGSE

In the following steps, the EGSE system (“taiyo”) may be any of the systems listed in Paragraph 1.4. *Output*, from either the Unix system or from UniScript, to the Telnet terminal is represented in typeface. *Input* from the Test Conductor is represented in **Bold** typeface.

Step	Operator Entry/System Response	Description
1	C:\tcs\us> telnet taiyo.ssl.berkeley.edu	Establish connection to taiyo via Telnet client program
2	Login: xxx Password: -----	Using telnet window, login as user tcs

4.1.4 Set Current Directory

Step	Operator Entry/System Response	Description
3	tcs@taiyo% cd ~galex/tcs tcs@taiyo% pwd /disks/galex/users/galex/tcs	Change current directory as shown

4.1.5 Slogin as eagcos

Step	Operator Entry/System Response	Description
4	tcs@taiyo% slogin -l eagcos taiyo.ssl.berkeley.edu eagcos@taiyo.ssl.berkeley.edu's password: (<i>get from SSL personnel</i>) Last login: Sat Oct 7 10:41:05 2000 from auntem.ssl.berke Sun Microsystems Inc. SunOS 5.8 Generic February 2000 You have mail. COS EGSE software version: devel	slogin as eagcos ; get password from SSL personnel

4.1.6 Set Current Directory

Step	Operator Entry/System Response	Description
5	eagcos:taiyo% cd /disks/galex/users/galex/tcs/uniscript/stp5_1_1_1d eagcos:taiyo% pwd /disks/galex/users/galex/tcs/uniscript/stp5_1_1_1d	Change current directory as shown

4.1.7 Ensure that Proper Files are Present

Step	Operator Entry/System Response	Description
6	eagcos@taiyo% ls -l Total 12 -rw-r--r-- 1 tcs eag 1398 Oct 8 18:03 stp5_1_1_1a.tst -rw-r--r-- 1 tcs eag 62 Oct 9 17:44 u	List files; the .tst file and the shell script u should be present

4.2 OPERATION EXECUTION

4.2.1 Establish Initial Test Conditions

Step	Operator Entry/System Response	Description
7	eagcos:taiyo% set path=(\$path ~dbb/scripts/bin)	Set path as shown to enable access to hks tools

4.2.2 Execute the Script

Step	Operator Entry/System Response	Description
8	Eagcos:taiyo% pkill cosnoopy	Suppress the automatic generation of LFDNOOP commands
9	<p>sh u</p> <p>\$pstring=0,0,0,0,0,0,0</p> <p>Parameters are: Script File: stp5_1_1_1d</p> <p>#0: 0</p> <p>#1: 0</p> <p>#2: 0</p> <p>#3: 0</p> <p>#4: 0</p> <p>#5: 0</p> <p>#6: 0</p> <p>#7: 0</p> <p>Report file</p> <p>>/disks/galex/users/galex/tcs/ver_1_13/stp5_1_1_1d/stp5_1_1_1d.rp1 successfully opened.</p> <p>Report file</p> <p>>/disks/galex/users/galex/tcs/ver_1_13/stp5_1_1_1d/stp5_1_1_1d.rp2 successfully opened.</p> <p>Script file</p>	Shell to u . You should see the accompanying output as UniScript executes

Step	Operator Entry/System Response	Description
	<p>/disks/galex/users/galex/tcs/ver_1_13/stp5_1_1_1d/stp5_1_1_1d.tst successfully opened at level 0.</p> <p>LFDRSTP</p> <p>LFDDIAGC</p> <p>WAIT 0: HKV0=2; HKV1=612; wc=1 "DCE is in Boot State"</p> <p>LFDDIAGC</p> <p>LFGBWK SETTING,BANK,AXIS</p> <p>WAIT 0: HKV0=4; HKV1=0; wc=5 WAIT 1: HKV1=2; wc=4 WAIT 1: HKV1=4; wc=3 "(6) LFGBWK rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFGEWK SETTING,BANK,AXIS</p> <p>WAIT 0: HKV0=8; HKV1=5; wc=5 WAIT 1: HKV1=6; wc=4 WAIT 1: HKV1=8; wc=3 "(7) LFGEWK rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFGLQT SETTING,BANK</p>	

Step	Operator Entry/System Response	Description
	<p>WAIT 0: HKV0=12; HKV1=9; wc=5 WAIT 1: HKV1=10; wc=4 WAIT 1: HKV1=12; wc=3 "(8) LFGLQT rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFGSHFT SETTING,BANK,AXIS</p> <p>WAIT 0: HKV0=16; HKV1=13; wc=5 WAIT 1: HKV1=14; wc=4 WAIT 1: HKV1=16; wc=3 "(9) LFDSHFT rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFGSTIM RATE,SEGMENT</p> <p>WAIT 0: HKV0=20; HKV1=17; wc=5 WAIT 1: HKV1=18; wc=4 WAIT 1: HKV1=20; wc=3 "(10) LFDSTIM rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFGSTR SETTING,SEGMENT,AXIS</p> <p>WAIT 0: HKV0=24; HKV1=21; wc=5 WAIT 1: HKV1=22; wc=4 WAIT 1: HKV1=24; wc=3 "(11) LFGSTR rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFGTT SETTING,SEGMENT,DIR</p>	

Step	Operator Entry/System Response	Description
	<p>WAIT 0: HKV0=28; HKV1=25; wc=5 WAIT 1: HKV1=26; wc=4 WAIT 1: HKV1=28; wc=3 "(12) LFGTT rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFGUQT SETTING,SEGMENT</p> <p>WAIT 0: HKV0=32; HKV1=29; wc=5 WAIT 1: HKV1=30; wc=4 WAIT 1: HKV1=32; wc=3 "(13) LFGUQT rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFHQPWR POWER</p> <p>WAIT 0: HKV0=36; HKV1=33; wc=5 WAIT 1: HKV1=34; wc=4 WAIT 1: HKV1=36; wc=3 "(14) LFHQPWR rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFHRAMPT STATE</p> <p>WAIT 0: HKV0=40; HKV1=37; wc=5 WAIT 1: HKV1=38; wc=4 WAIT 1: HKV1=40; wc=3 "(15) LFHRAMPT rejected -- Test Passed"</p> <p>LFDDIAGC</p>	

Step	Operator Entry/System Response	Description
	<p>LFHVENA HIVOLT</p> <p>WAIT 0: HKV0=44; HKV1=41; wc=5 WAIT 1: HKV1=42; wc=4 WAIT 1: HKV1=44; wc=3 "(16) LFHVENA rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFHVILIM LIMIT</p> <p>WAIT 0: HKV0=48; HKV1=45; wc=5 WAIT 1: HKV1=46; wc=4 WAIT 1: HKV1=48; wc=3 "(17) LFHVILIM rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFHVLOW VOLTAGE,SEGMENT</p> <p>WAIT 0: HKV0=52; HKV1=49; wc=5 WAIT 1: HKV1=50; wc=4 WAIT 1: HKV1=52; wc=3 "(18) LFHVLOW rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFHVMAX VOLTAGE,SEGMENT</p> <p>WAIT 0: HKV0=56; HKV1=53; wc=5 WAIT 1: HKV1=54; wc=4 WAIT 1: HKV1=56; wc=3 "(19) LFHVMAX rejected -- Test Passed"</p> <p>LFDDIAGC</p>	

Step	Operator Entry/System Response	Description
	<p>LFHVNOM VOLTAGE,SEGMENT</p> <p>WAIT 0: HKV0=60; HKV1=57; wc=5 WAIT 1: HKV1=58; wc=4 WAIT 1: HKV1=60; wc=3 "(20) LFHVNOM rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFHVPWR POWER</p> <p>WAIT 0: HKV0=64; HKV1=61; wc=5 WAIT 1: HKV1=62; wc=4 WAIT 1: HKV1=64; wc=3 "(21) LFHVPWR rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFHVSET VOLTAGE,SEGMENT</p> <p>WAIT 0: HKV0=68; HKV1=65; wc=5 WAIT 1: HKV1=66; wc=4 WAIT 1: HKV1=68; wc=3 "(22) LFHVSET rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFPCRIP INTERVAL,SEGMENT,COUNT</p> <p>WAIT 0: HKV0=72; HKV1=69; wc=5 WAIT 1: HKV1=70; wc=4 WAIT 1: HKV1=72; wc=3 "(23) LFPCRIP rejected -- Test Passed"</p> <p>LFDDIAGC</p>	

Step	Operator Entry/System Response	Description
	<p>LFRACT1 POWER</p> <p>WAIT 0: HKV0=76; HKV1=73; wc=5 WAIT 1: HKV1=74; wc=4 WAIT 1: HKV1=76; wc=3 "(24) LFRACT1 rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFRACT2 POWER</p> <p>WAIT 0: HKV0=80; HKV1=77; wc=5 WAIT 1: HKV1=78; wc=4 WAIT 1: HKV1=80; wc=3 "(25) LFRACT2 rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFRACTEN ACTUATOR</p> <p>WAIT 0: HKV0=84; HKV1=81; wc=5 WAIT 1: HKV1=82; wc=4 WAIT 1: HKV1=84; wc=3 "(26) LFRACTEN rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFRACTRS ABORT</p> <p>WAIT 0: HKV0=88; HKV1=85; wc=5 WAIT 1: HKV1=86; wc=4 WAIT 1: HKV1=88; wc=3 "(27) LFRACTRS rejected -- Test Passed"</p>	

Step	Operator Entry/System Response	Description
	<p>LFDDIAGC</p> <p>LFRAXPWR POWER</p> <p>WAIT 0: HKV0=92; HKV1=89; wc=5 WAIT 1: HKV1=90; wc=4 WAIT 1: HKV1=92; wc=3 "(28) LFRAXPWR rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFRLIM LIMIT</p> <p>WAIT 0: HKV0=96; HKV1=93; wc=5 WAIT 1: HKV1=94; wc=4 WAIT 1: HKV1=96; wc=3 "(29) LFRILIM rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFRLSOVD OVERRIDE</p> <p>WAIT 0: HKV0=100; HKV1=97; wc=5 WAIT 1: HKV1=98; wc=4 WAIT 1: HKV1=100; wc=3 "(30) LFRLSOVD rejected -- Test Passed"</p> <p>LFDDIAGC</p> <p>LFRMDIR DIR</p> <p>WAIT 0: HKV0=104; HKV1=101; wc=5 WAIT 1: HKV1=102; wc=4 WAIT 1: HKV1=104; wc=3 "(31) LFRMDIR rejected -- Test Passed"</p>	

Step	Operator Entry/System Response	Description
	LFDDIAGC LFRMENA DOOR WAIT 0: HKV0=108; HKV1=105; wc=5 WAIT 1: HKV1=106; wc=4 WAIT 1: HKV1=108; wc=3 "(32) LFRMENA rejected -- Test Passed" LFDDIAGC LFRMPWR MOVE WAIT 0: HKV0=112; HKV1=109; wc=5 WAIT 1: HKV1=110; wc=4 WAIT 1: HKV1=112; wc=3 "(33) LFRMPWR rejected -- Test Passed" eagcos:taiyo%	
10	eagcos:taiyo% cosnoopy& [1] 26583	Restart the automatic generation of LFDNOOP commands

4.3 POST-OPERATION ACTIVITIES

4.3.1 Copy Reports to PC Files and Print Them

Using an FTP client, copy the **u, stp5_1_1_1d.tst, stp5_1_1_1d.rp1,** and **stp5_1_1_1d.rp2** files to appropriate PC files. Include these files as Appendices A, B, C, and D with this completed form.

4.3.2 Complete The Test Procedure Form

Ensure that all blank fields in this report are completed correctly and submit the completed report to QA.

SUMMARY SHEET

OPERATION TITLE: _____ WOA# _____

TEST ARTICLES IDENTIFICATION (including serial and/or part numbers):

TASKS/STEPS COMPLETED: _____

LOCATION: _____

TEST STARTED:

TEST TERMINATED

TIME: _____ Hr/Min

TIME: _____ Hr/Min

DATE: _____

DATE: _____

LOGS USED: _____

ANOMALY REPORTS GENERATED: _____

COMMENTS: _____

TEST CONDUCTOR: _____

Signature/Date

QA REPRESENTATIVE: _____

Signature/Date

Appendix A. Shell Script u

```
#!/bin/sh  
pkill cosnoopy  
perl ../UniScript.pl stp5_1_1_1d "0,0,0,0,0,0,0,0"  
cosnoopy&
```

Appendix B. Test Script stp5_1_1_1d.tst

```

; ** NOTE: get straight poop on LFGBWK, LFGEWK -- 2 arguments or 3???
; ** Fix UniScript and/or this test script accordingly
; ** N.B. Conflict between ICD Appendix and DM05
; *****
; *****
; ** M O D I F I E D 0 8 / 2 3 / 2 0 0 0 **
; ** per working group meeting at SSL **
; *****
; *****
;-----+-----+-----+-----+-----+-----+-----+
; | Mnemonic | Op | 0 | 1 | 2 | 3 | 4 |
;-----+-----+-----+-----+-----+-----+-----+
; | RFDPROM | FD | 0=DISABLE | | | | | |
; | | | 1=ENABLE | | | | | |
;-----+-----+-----+-----+-----+-----+-----+
; | LFDTEST | AB | TEST ID | | | | | |
;-----+-----+-----+-----+-----+-----+-----+
; | LFDUTEST | FC | SUBCOMMAND | per | per | per | per |
; | | | | SUBCOMMAND | SUBCOMMAND | SUBCOMMAND | SUBCOMMAND |
;-----+-----+-----+-----+-----+-----+-----+
; | LFGBWK | 85 | SETTING= | 0=A | | | | | |
; | | | 0..255 | 1=B | | | | | |
;-----+-----+-----+-----+-----+-----+-----+
; | LFGEWK | 89 | SETTING= | 0=A | | | | | |
; | | | 0..255 | 1=B | | | | | |
;-----+-----+-----+-----+-----+-----+-----+
; | LFGLQT | 92 | SETTING= | 0=A | | | | | |
; | | | 0..255 | 1=B | | | | | |
;-----+-----+-----+-----+-----+-----+-----+
; | LFGSHFT | A4 | SETTING= | 0=A | | | | | |
; | | | 0..255 | 1=B | | | | | |
;-----+-----+-----+-----+-----+-----+-----+
; | LFGSTIM | 9E | 0=OFF | 0=A | | | | | |
; | | | 1=LOW | 1=B | | | | | |
; | | | 2=MID | | | | | | |
; | | | 3=MAX | | | | | | |
;-----+-----+-----+-----+-----+-----+-----+
; | LFGSTR | A6 | SETTING= | 0=A | | | | | |
; | | | 0..255 | 1=B | | | | | |
;-----+-----+-----+-----+-----+-----+-----+
; | LFGTT | 97 | SETTING= | 0=A | 0=DISP | | | | |
; | | | 0..255 | 1=B | 1=XDISP | | | | |
;-----+-----+-----+-----+-----+-----+-----+
; | LFGUQT | A2 | SETTING= | 0=A | | | | | |
; | | | 0..255 | 1=B | | | | | |
;-----+-----+-----+-----+-----+-----+-----+
; | LFHQPWR | CF | 0=OFF | | | | | | |
; | | | 1=ON | | | | | | |
;-----+-----+-----+-----+-----+-----+-----+
; | LFHRAMPT | CE | STATE: | | | | | | |
; | | | 0=STEP | | | | | | |
; | | | 1..65535= | | | | | | |
; | | | 10*sec | | | | | | |
;-----+-----+-----+-----+-----+-----+-----+
; | LFHSTATE | E6 | 1=NOMA | | | | | | |
; | | | 2=NOMB | | | | | | |
; | | | 3=NOMAB | | | | | | |
; | | | 4=LOW | | | | | | |
;-----+-----+-----+-----+-----+-----+-----+
; | LFHVENA | D1 | 0=DISABLE | | | | | | |
; | | | 1=ENABLE | | | | | | |
;-----+-----+-----+-----+-----+-----+-----+
; | LFHVILIM | D0 | LIMIT= | | | | | | |
; | | | 0..255 | | | | | | |
;-----+-----+-----+-----+-----+-----+-----+
; | LFHVLOW | B6 | VOLTAGE= | 0=A | | | | | |
; | | | 0..255 | 1=B | | | | | |

```

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; LFHVMAX	8D	VOLTAGE=	0=A		
		0..255	1=B		
; LFHVNOM	C6	VOLTAGE=	0=A		
		0..255	1=B		
; LFHVPWR	C0	POWER:			
		0=OFF			
		1=ON			
; LFHVPWR	C0	POWER:			
		0=OFF			
		1=ON			
; LFHVSET	CB	VOLTAGE=	xxx		
		0..65535			
; LFPCRP	BA	INTERVAL:	0=A	COUNT=	
		0=DISABLE	1=B	0..65535	
		1..255 sec			
; LFRACT1	C1	POWER:			
		0=OFF			
		1=ON			
; LFRACT2	C2	POWER:			
		0=OFF			
		1=ON			
; LFRACTEN	C3	ACTUATOR:			
		0=DISABLE			
		1=ENABLE			
; LFRACTRS	C5	FUNCTION:			
		0=ABORT			
		1=RELATCH			
; LFRAXPWR	C4	POWER:			
		0=OFF			
		1=ON			
; LFRILIM	DC	LIMIT=			
		0..255			
; LFRLSOVD	9C	OVERRIDE:			
		0=DISABLE			
		1=ENABLE			
; LFRMDIR	D9	DIR:			
		0=SAFE			
		1=CLOSE			
		2=OPEN			
; LFRMENA	DB	DOOR:			
		0=DISABLE			
		1=ENABLE			
; LFRMPWR	DA	MOVE:			
		0=STOP			
		1=START			

* DCE FSW Requirement 5.1.1.1d -- Initialize to Boot State after Reset *					

* Verify that all Operate State Commands Are Prohibited by the DCE *					

SYM	DIAG002F=0x002F				
SYM	ID	=0			

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```
SYM          SETTING =0
SYM          BANK     =0
SYM          RATE     =0
SYM          SEGMENT  =0
SYM          INTERVAL=0
SYM          DIR      =0
SYM          POWER    =0
SYM          STATE    =0
SYM          HIVOLT   =0
SYM          LIMIT    =0
SYM          VOLTAGE  =0
SYM          ACTUATOR=0
SYM          ABORT    =0
SYM          OVERRIDE=0
SYM          DOOR     =0
SYM          MOVE     =0
SYM          COUNT    =0
SYM          DELTA    =5
SYM          DELTA0   =0
; *****
; * Wait 1 second for any in-progress reset to complete *
; *****
ECHO         2
DTG          3,"(0) Verify that DCE is in Boot State after WDR"
DTG          3,"(0) First 1-second wait ..."
WAIT         1
; *****
; * Use LFDRSTP to create POR; clear diagnostic stack *
; *****
DTG          3,"(1) LFDRSTP being sent to create POR"
LFDRSTP
WAIT         1
LFDDIAGC
; *****
; * Wait 1 second for reset to complete, then read HK, test *
; * bit LFDOPERT (16F4.03) of LFSBITS1 (0="Boot State"). *
; * Once we're sure that we're in Boot State we can issue *
; * "harmless" forms of the Operate State commands and see *
; * whether they are rejected (test "PASSES") or accepted. *
; *****
DTG          3,"(2) Second 1-second wait ..."
WAIT         1,HK
LOG          1,LFSBITS1,LFDOPERT
CHECK        1,((LFSBITS1 & LFDOPERT) == 0)
WTO          "DCE is in Boot State"
;
; =====
;
; *****
; * LFGWBK SETTING,BANK *
; *****
;
DTG          3,"(6) Sending LFGWBK"
;
LFDDIAGC
WAIT         DELTA0
LFGWBK       SETTING,BANK,0
WAIT         DELTA,HK
LOG          1, LFDERR, LFDERRP, LFDCCBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG         1,ANY,DIAG002F
WTO          "(6) LFGWBK rejected -- Test Passed"
;
; =====
;
; *****
; * LFGEWK SETTING,BANK *
; *****
;
DTG          3,"(7) Sending LFGEWK"
;
```

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```

LFDDIAGC
WAIT      DELTA0
LFGEWK    SETTING,BANK,0
WAIT      DELTA,HK
LOG       1, LFDERR, LFDERRP, LFDCCBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG      1, ANY, DIAG002F
WTO       "(7) LFGEWK rejected -- Test Passed"
;
; =====
;
; *****
; * LFGLQT SETTING,BANK *
; *****
;
DTG       3, "(8) Sending LFGLQT"
;
LFDDIAGC
WAIT      DELTA0
LFGLQT    SETTING,BANK
WAIT      DELTA,HK
LOG       1, LFDERR, LFDERRP, LFDCCBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG      1, ANY, DIAG002F
WTO       "(8) LFGLQT rejected -- Test Passed"
;
; =====
;
; *****
; * LFDSHFT SETTING,BANK *
; *****
;
DTG       3, "(9) Sending LFDSHFT"
;
LFDDIAGC
WAIT      DELTA0
LFDSHFT   SETTING,BANK,0
WAIT      DELTA,HK
LOG       1, LFDERR, LFDERRP, LFDCCBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG      1, ANY, DIAG002F
WTO       "(9) LFDSHFT rejected -- Test Passed"
;
; =====
;
; *****
; * LFGSTIM RATE, SEGMENT *
; *****
;
DTG       3, "(10) Sending LFDSTIM"
;
LFDDIAGC
WAIT      DELTA0
LFGSTIM   RATE, SEGMENT
WAIT      DELTA,HK
LOG       1, LFDERR, LFDERRP, LFDCCBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG      1, ANY, DIAG002F
WTO       "(10) LFDSTIM rejected -- Test Passed"
;
; =====
;
; *****
; * LFGSTR SETTING, SEGMENT *
; *****
;
DTG       3, "(11) Sending LFGSTR"
;
LFDDIAGC
WAIT      DELTA0
LFGSTR    SETTING, SEGMENT, 0
WAIT      DELTA,HK
LOG       1, LFDERR, LFDERRP, LFDCCBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG      1, ANY, DIAG002F

```

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```

WTO      "(11) LFGSTR rejected -- Test Passed"
;
; =====
;
; *****
; * LFGTT SETTING,SEGMENT,DIR *
; *****
;
DTG      3,"(12) Sending LFGTT"
;
LFDDIAGC
WAIT     DELTA0
LFGTT    SETTING,SEGMENT,DIR
WAIT     DELTA,HK
LOG      1,LFDERR,LFDERRP,LFDCBUF,LFDDIAGS,LFDDIAG0,LFDDIAG1,LFDDIAG2,LFDDIAG3,LFDDIAG4
DIAG     1,ANY,DIAG002F
WTO      "(12) LFGTT rejected -- Test Passed"
;
; =====
;
; *****
; * LFGUQT SETTING,SEGMENT *
; *****
;
DTG      3,"(13) Sending LFGUQT"
;
LFDDIAGC
WAIT     DELTA0
LFGUQT   SETTING,SEGMENT
WAIT     DELTA,HK
LOG      1,LFDERR,LFDERRP,LFDCBUF,LFDDIAGS,LFDDIAG0,LFDDIAG1,LFDDIAG2,LFDDIAG3,LFDDIAG4
DIAG     1,ANY,DIAG002F
WTO      "(13) LFGUQT rejected -- Test Passed"
;
; =====
;
; *****
; * LFDQWR POWER *
; *****
;
DTG      3,"(14) Sending LFDQWR"
;
LFDDIAGC
WAIT     DELTA0
LFDQWR   POWER
WAIT     DELTA,HK
LOG      1,LFDERR,LFDERRP,LFDCBUF,LFDDIAGS,LFDDIAG0,LFDDIAG1,LFDDIAG2,LFDDIAG3,LFDDIAG4
DIAG     1,ANY,DIAG002F
WTO      "(14) LFDQWR rejected -- Test Passed"
;
; =====
;
; *****
; * LFHRAMPT STATE *
; *****
;
DTG      3,"(15) Sending LFHRAMPT"
;
LFDDIAGC
WAIT     DELTA0
LFHRAMPT STATE
WAIT     DELTA,HK
LOG      1,LFDERR,LFDERRP,LFDCBUF,LFDDIAGS,LFDDIAG0,LFDDIAG1,LFDDIAG2,LFDDIAG3,LFDDIAG4
DIAG     1,ANY,DIAG002F
WTO      "(15) LFHRAMPT rejected -- Test Passed"
;
; =====
;
; *****
; * LFHVENA HIVOLT *

```

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```

; *****
;
DTG      3,"(16) Sending LFHVENA"
;
LFDDIAGC
WAIT     DELTA0
LFHVENA  HIVOLT
WAIT     DELTA,HK
LOG      1, LFDERR, LFDERRP, LFDCEBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG     1, ANY, DIAG002F
WTO      "(16) LFHVENA rejected -- Test Passed"
;
; =====
;
; *****
; * LFHVILIM LIMIT *
; *****
;
DTG      3,"(17) Sending LFHVILIM"
;
LFDDIAGC
WAIT     DELTA0
LFHVILIM LIMIT
WAIT     DELTA,HK
LOG      1, LFDERR, LFDERRP, LFDCEBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG     1, ANY, DIAG002F
WTO      "(17) LFHVILIM rejected -- Test Passed"
;
; =====
;
; *****
; * LFHVLOW VOLTAGE, SEGMENT *
; *****
;
DTG      3,"(18) Sending LFHVLOW"
;
LFDDIAGC
WAIT     DELTA0
LFHVLOW  VOLTAGE, SEGMENT
WAIT     DELTA,HK
LOG      1, LFDERR, LFDERRP, LFDCEBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG     1, ANY, DIAG002F
WTO      "(18) LFHVLOW rejected -- Test Passed"
;
; =====
;
; *****
; * LFHVMAX VOLTAGE, SEGMENT *
; *****
;
DTG      3,"(19) Sending LFHVMAX"
;
LFDDIAGC
WAIT     DELTA0
LFHVMAX  VOLTAGE, SEGMENT
WAIT     DELTA,HK
LOG      1, LFDERR, LFDERRP, LFDCEBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG     1, ANY, DIAG002F
WTO      "(19) LFHVMAX rejected -- Test Passed"
;
; =====
;
; *****
; * LFHVNOM VOLTAGE, SEGMENT *
; *****
;
DTG      3,"(20) Sending LFHVNOM"
;
LFDDIAGC
WAIT     DELTA0

```

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```

LFHVNOM      VOLTAGE, SEGMENT
WAIT         DELTA, HK
LOG          1, LFDERR, LFDERRP, LFDCEBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG         1, ANY, DIAG002F
WTO          "(20) LFHVNOM rejected -- Test Passed"
;
; =====
;
; *****
; * LFHVPWR POWER *
; *****
;
DTG          3, "(21) Sending LFHVPWR"
;
LFDDIAGC
WAIT         DELTA0
LFHVPWR      POWER
WAIT         DELTA, HK
LOG          1, LFDERR, LFDERRP, LFDCEBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG         1, ANY, DIAG002F
WTO          "(21) LFHVPWR rejected -- Test Passed"
;
; =====
;
; *****
; * LFHVSET VOLTAGE *
; *****
;
DTG          3, "(22) Sending LFHVSET"
;
LFDDIAGC
WAIT         DELTA0
LFHVSET      VOLTAGE, SEGMENT
WAIT         DELTA, HK
LOG          1, LFDERR, LFDERRP, LFDCEBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG         1, ANY, DIAG002F
WTO          "(22) LFHVSET rejected -- Test Passed"
;
; =====
;
; *****
; * LFPCR P INTERVAL, SEGMENT, COUNT *
; *****
;
DTG          3, "(23) Sending LFPCR P"
;
LFDDIAGC
WAIT         DELTA0
LFPCR P      INTERVAL, SEGMENT, COUNT
WAIT         DELTA, HK
LOG          1, LFDERR, LFDERRP, LFDCEBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG         1, ANY, DIAG002F
WTO          "(23) LFPCR P rejected -- Test Passed"
;
; =====
;
; *****
; * LFRAC T1 POWER *
; *****
;
DTG          3, "(24) Sending LFRAC T1"
;
LFDDIAGC
WAIT         DELTA0
LFRAC T1     POWER
WAIT         DELTA, HK
LOG          1, LFDERR, LFDERRP, LFDCEBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG         1, ANY, DIAG002F
WTO          "(24) LFRAC T1 rejected -- Test Passed"
;

```

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```

; =====
;
; *****
; * L FRACT2 POWER *
; *****
;
DTG      3, "(25) Sending L FRACT2"
;
LFDDIAGC
WAIT     DELTA0
L FRACT2 POWER
WAIT     DELTA, HK
LOG      1, LFDERR, LFDERRP, LFD CBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG     1, ANY, DIAG002F
WTO      "(25) L FRACT2 rejected -- Test Passed"
;
; =====
;
; *****
; * L FRACTEN ACTUATOR *
; *****
;
DTG      3, "(26) Sending L FRACTEN"
;
LFDDIAGC
WAIT     DELTA0
L FRACTEN ACTUATOR
WAIT     DELTA, HK
LOG      1, LFDERR, LFDERRP, LFD CBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG     1, ANY, DIAG002F
WTO      "(26) L FRACTEN rejected -- Test Passed"
;
; =====
;
; *****
; * L FRACTRS FUNCTION *
; *****
;
DTG      3, "(27) Sending L FRACTRS"
;
LFDDIAGC
WAIT     DELTA0
L FRACTRS ABORT
WAIT     DELTA, HK
LOG      1, LFDERR, LFDERRP, LFD CBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG     1, ANY, DIAG002F
WTO      "(27) L FRACTRS rejected -- Test Passed"
;
; =====
;
; *****
; * L FRAXPWR POWER *
; *****
;
DTG      3, "(28) Sending L FRAXPWR"
;
LFDDIAGC
WAIT     DELTA0
L FRAXPWR POWER
WAIT     DELTA, HK
LOG      1, LFDERR, LFDERRP, LFD CBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG     1, ANY, DIAG002F
WTO      "(28) L FRAXPWR rejected -- Test Passed"
;
; =====
;
; *****
; * L FRILIM LIMIT *
; *****
;

```

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```

DTG          3,"(29) Sending LFRILIM"
;
LFDDIAGC
WAIT         DELTA0
LFRILIM     LIMIT
WAIT         DELTA,HK
LOG          1,LFDERR,LFDERRP,LFDCBUF,LFDDIAGS,LFDDIAG0,LFDDIAG1,LFDDIAG2,LFDDIAG3,LFDDIAG4
DIAG        1,ANY,DIAG002F
WTO         "(29) LFRILIM rejected -- Test Passed"
;
; =====
;
; *****
; * LFRLSOVD OVERRIDE *
; *****
;
DTG          3,"(30) Sending LFRLSOVD"
;
LFDDIAGC
WAIT         DELTA0
LFRLSOVD    OVERRIDE
WAIT         DELTA,HK
LOG          1,LFDERR,LFDERRP,LFDCBUF,LFDDIAGS,LFDDIAG0,LFDDIAG1,LFDDIAG2,LFDDIAG3,LFDDIAG4
DIAG        1,ANY,DIAG002F
WTO         "(30) LFRLSOVD rejected -- Test Passed"
;
; =====
;
; *****
; * LFRMDIR DIR *
; *****
;
DTG          3,"(31) Sending LFRMDIR"
;
LFDDIAGC
WAIT         DELTA0
LFRMDIR     DIR
WAIT         DELTA,HK
LOG          1,LFDERR,LFDERRP,LFDCBUF,LFDDIAGS,LFDDIAG0,LFDDIAG1,LFDDIAG2,LFDDIAG3,LFDDIAG4
DIAG        1,ANY,DIAG002F
WTO         "(31) LFRMDIR rejected -- Test Passed"
;
; =====
;
; *****
; * LFRMENA DOOR *
; *****
;
DTG          3,"(32) Sending LFRMENA"
;
LFDDIAGC
WAIT         DELTA0
LFRMENA     DOOR
WAIT         DELTA,HK
LOG          1,LFDERR,LFDERRP,LFDCBUF,LFDDIAGS,LFDDIAG0,LFDDIAG1,LFDDIAG2,LFDDIAG3,LFDDIAG4
DIAG        1,ANY,DIAG002F
WTO         "(32) LFRMENA rejected -- Test Passed"
;
; =====
;
; *****
; * LFRMPWR MOVE *
; *****
;
DTG          3,"(33) Sending LFRMPWR"
;
LFDDIAGC
WAIT         DELTA0
LFRMPWR     MOVE
WAIT         DELTA,HK

```

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```

LOG          1, LFDERR, LFDERRP, LFDCEBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
DIAG        1, ANY, DIAG002F
WTO         "(33) LFRMPWR rejected -- Test Passed"
DTG         3, "Test 5.1.1.1d completed successfully"
;
; =====
;
; *****
; * LFDxxxx P1, P2, P3, P4 *
; *****
;
;DTG         3, "(0) Sending LFDxxxx"
;
;LFDDIAGC
;WAIT       DELTA0
;LFDxxxx    P1, P2, P3, P4
;WAIT       DELTA, HK
;LOG
1, LFDERR, LFDERRP, LFDCEBUF, LFDDIAGS, LFDDIAG0, LFDDIAG1, LFDDIAG2, LFDDIAG3, LFDDIAG4
;DIAG       1, ANY, DIAG002F
;WTO        "(0) LFDxxxx rejected -- Test Passed"

```


Appendix C. Test Report stp5_1_1_1d.rp1

```

                    55555      1      1      1
                    5      11      11      11
                    555      1      1      1
dddd                ssss  ttttt  pppp
d  d                s      t  p  p  5      1      1      1
d  d                sssss  t    pppp  5      1      1      1
d  d                s      t  p    5  5      1      1      1
d  d                ssss  t    p    555  _____  111  _____  111  _____  111

```

```

Ver 01.13 Tue Jan 16 12:41:36 2001 "(0) Verify that DCE is in Boot State after WDR"
Ver 01.13 Tue Jan 16 12:41:36 2001 "(0) First 1-second wait ..."
Ver 01.13 Tue Jan 16 12:41:37 2001 "(1) LFDRSTP being sent to create POR"

```

LFDRSTP
LFDDIAGC

Ver 01.13 Tue Jan 16 12:41:38 2001 "(2) Second 1-second wait ..."

```

Addr Addr HK-Name      Value
-----
16F4-16F5 LFSBITS1      0000

```

```

Addr Mask HK-Bit-Name  Value
-----
16F4 0008 LFDOPERT      0

```

```

CHECK: (($LFSBITS1 & $LFDOPERT) == 0)
eval:  ((0000 & 0008) == 0)

```

S U C C E S S

Ver 01.13 Tue Jan 16 12:41:38 2001 "(6) Sending LFGBWK"

LFDDIAGC

LFGBWK SETTING,BANK,AXIS

```

Addr Addr HK-Name      Value
-----
1640-1647 LFDERR      2F 00 00 00 00 00 00 00
1648-1657 LFDERRP     8585 0000 0000 0000 0000 0000 0000 0000
1664-167F LFDCEBUF    8585 7A7A 0004 FFFB 0000 FFFF 0000 FFFF 0000 FFFF 0000
FFFF 0000 FFFF
1780-179F LFDDIAGS    022F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
17A0-17BF      0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
1708-1708 LFDDIAG0    2F
1709-1709 LFDDIAG1    00
1711-1711 LFDDIAG2    00
1776-1776 LFDDIAG3    00
1777-1777 LFDDIAG4    00

```

```

DIAG      1,ANY,DIAG002F
Found: DIAG002F == 47.

```

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S U C C E S S

Ver 01.13 Tue Jan 16 12:41:40 2001 "(7) Sending LFGGEWK"

LFDDIAGC

LFGGEWK SETTING,BANK,AXIS

Addr	Addr	HK-Name	Value
1640-1647	LFDERR		2F 00 00 00 00 00 00 00
1648-1657	LFDERRP		8989 0000 0000 0000 0000 0000 0000 0000
1664-167F	LFDCBUF		8989 7676 0008 FFF7 0000 FFFF 0000 FFFF 0000 FFFF 0000 FFFF 0000
1780-179F	LFDDIAGS		032F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000	0000 0000	0000 0000
17A0-17BF			0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000	0000 0000	0000 0000
1708-1708	LFDDIAG0		2F
1709-1709	LFDDIAG1		00
1711-1711	LFDDIAG2		00
1776-1776	LFDDIAG3		00
1777-1777	LFDDIAG4		00

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

Ver 01.13 Tue Jan 16 12:41:42 2001 "(8) Sending LFGLQT"

LFDDIAGC

LFGLQT SETTING,BANK

Addr	Addr	HK-Name	Value
1640-1647	LFDERR		2F 00 00 00 00 00 00 00
1648-1657	LFDERRP		9595 0000 0000 0000 0000 0000 0000 0000
1664-167F	LFDCBUF		9595 6A6A 000C FFF3 0000 FFFF 0000 FFFF 0000 FFFF 0000 FFFF 0000
1780-179F	LFDDIAGS		042F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000	0000 0000	0000 0000
17A0-17BF			0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000	0000 0000	0000 0000
1708-1708	LFDDIAG0		2F
1709-1709	LFDDIAG1		00
1711-1711	LFDDIAG2		00
1776-1776	LFDDIAG3		00
1777-1777	LFDDIAG4		00

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

Ver 01.13 Tue Jan 16 12:41:45 2001 "(9) Sending LFDSHFT"

LFDDIAGC

LFDSHFT SETTING,BANK,AXIS

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```
Addr Addr HK-Name      Value
-----
1640-1647 LFDERR        2F 00 00 00 00 00 00 00
1648-1657 LFDERRP       A4A4 0000 0000 0000 0000 0000 0000 0000
1664-167F LFDPCBUF      A4A4 5B5B 0010 FFEF 0000 FFFF 0000 FFFF 0000 FFFF 0000
FFFF 0000 FFFF
1780-179F LFDIAGS       052F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
17A0-17BF          0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
1708-1708 LFDIAG0       2F
1709-1709 LFDIAG1       00
1711-1711 LFDIAG2       00
1776-1776 LFDIAG3       00
1777-1777 LFDIAG4       00
```

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

Ver 01.13 Tue Jan 16 12:41:47 2001 "(10) Sending LFDSTIM"

LFDIAGC

LFGSTIM RATE,SEGMENT

```
Addr Addr HK-Name      Value
-----
1640-1647 LFDERR        2F 00 00 00 00 00 00 00
1648-1657 LFDERRP       9E9E 0000 0000 0000 0000 0000 0000 0000
1664-167F LFDPCBUF      9E9E 6161 0014 FFE8 0000 FFFF 0000 FFFF 0000 FFFF 0000
FFFF 0000 FFFF
1780-179F LFDIAGS       062F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
17A0-17BF          0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
1708-1708 LFDIAG0       2F
1709-1709 LFDIAG1       00
1711-1711 LFDIAG2       00
1776-1776 LFDIAG3       00
1777-1777 LFDIAG4       00
```

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

Ver 01.13 Tue Jan 16 12:41:49 2001 "(11) Sending LFGSTR"

LFDIAGC

LFGSTR SETTING,SEGMENT,AXIS

```
Addr Addr HK-Name      Value
-----
1640-1647 LFDERR        06 2F 00 00 00 00 00 00
1648-1657 LFDERRP       0018 A6A6 0000 0000 0000 0000 0000 0000
1664-167F LFDPCBUF      A6A6 5959 0018 FFE7 0000 FFFF 0000 FFFF 0000 FFFF 0000
FFFF 0000 FFFF
```

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1780-179F LFDIAGS 082F 0706 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
17A0-17BF 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000

1708-1708 LFDIAG0 2F
1709-1709 LFDIAG1 06
1711-1711 LFDIAG2 00
1776-1776 LFDIAG3 00
1777-1777 LFDIAG4 00

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

Ver 01.13 Tue Jan 16 12:41:52 2001 "(12) Sending LFGTT"

LFDIAGC

LFGTT SETTING,SEGMENT,DIR

Addr	Addr	HK-Name	Value
1640-1647	LFDERR		2F 00 00 00 00 00 00 00
1648-1657	LFDERRP		9797 A6A6 0000 0000 0000 0000 0000 0000
1664-167F	LFDCEBUF		9797 6868 001C FFE3 0000 FFFF 0000 FFFF 0000 FFFF 0000 FFFF 0000
1780-179F	LFDIAGS		092F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000	0000	
17A0-17BF			0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000	0000	
1708-1708	LFDIAG0		2F
1709-1709	LFDIAG1		00
1711-1711	LFDIAG2		00
1776-1776	LFDIAG3		00
1777-1777	LFDIAG4		00

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

Ver 01.13 Tue Jan 16 12:41:54 2001 "(13) Sending LFGUQT"

LFDIAGC

LFGUQT SETTING,SEGMENT

Addr	Addr	HK-Name	Value
1640-1647	LFDERR		2F 00 00 00 00 00 00 00
1648-1657	LFDERRP		A2A2 A6A6 0000 0000 0000 0000 0000 0000
1664-167F	LFDCEBUF		A2A2 5D5D 0020 FFDF 0000 FFFF 0000 FFFF 0000 FFFF 0000 FFFF 0000
1780-179F	LFDIAGS		0A2F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000	0000	
17A0-17BF			0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000	0000	
1708-1708	LFDIAG0		2F
1709-1709	LFDIAG1		00

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1711-1711 LFDIAG2 00
1776-1776 LFDIAG3 00
1777-1777 LFDIAG4 00

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

Ver 01.13 Tue Jan 16 12:41:56 2001 "(14) Sending LFHQPWR"

LFDDIAGC

LFHQPWR POWER

Addr	Addr	HK-Name	Value
1640-1647	LFDERR		2F 00 00 00 00 00 00 00
1648-1657	LFDERRP		CFCF A6A6 0000 0000 0000 0000 0000 0000
1664-167F	LFDCBUF		CFCF 3030 0024 FFDB 0000 FFFF 0000 FFFF 0000 FFFF 0000 FFFF 0000
1780-179F	LFDDIAGS		0B2F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000		0000
17A0-17BF			0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000		0000
1708-1708	LFDDIAG0		2F
1709-1709	LFDDIAG1		00
1711-1711	LFDDIAG2		00
1776-1776	LFDDIAG3		00
1777-1777	LFDDIAG4		00

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

Ver 01.13 Tue Jan 16 12:41:59 2001 "(15) Sending LFHRAMPT"

LFDDIAGC

LFHRAMPT STATE

Addr	Addr	HK-Name	Value
1640-1647	LFDERR		2F 00 00 00 00 00 00 00
1648-1657	LFDERRP		CECE A6A6 0000 0000 0000 0000 0000 0000
1664-167F	LFDCBUF		CECE 3131 0028 FFD7 0000 FFFF 0000 FFFF 0000 FFFF 0000 FFFF 0000
1780-179F	LFDDIAGS		0C2F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000		0000
17A0-17BF			0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000		0000
1708-1708	LFDDIAG0		2F
1709-1709	LFDDIAG1		00
1711-1711	LFDDIAG2		00
1776-1776	LFDDIAG3		00
1777-1777	LFDDIAG4		00

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

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Ver 01.13 Tue Jan 16 12:42:01 2001 "(16) Sending LFHVENA"

LFDDIAGC

LFHVENA HIVOLT

Addr	Addr	HK-Name	Value
1640-1647	LFDERR		2F 00 00 00 00 00 00 00
1648-1657	LFDERRP		D1D1 A6A6 0000 0000 0000 0000 0000 0000
1664-167F	LFDCBUF		D1D1 2E2E 002C FFD3 0000 FFFF 0000 FFFF 0000
FFFF 0000	FFFF		
1780-179F	LFDDIAGS		0D2F 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000		0000
17A0-17BF			0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000		0000
1708-1708	LFDDIAG0		2F
1709-1709	LFDDIAG1		00
1711-1711	LFDDIAG2		00
1776-1776	LFDDIAG3		00
1777-1777	LFDDIAG4		00

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

Ver 01.13 Tue Jan 16 12:42:03 2001 "(17) Sending LFHVILIM"

LFDDIAGC

LFHVILIM LIMIT

Addr	Addr	HK-Name	Value
1640-1647	LFDERR		2F 00 00 00 00 00 00 00
1648-1657	LFDERRP		D0D0 A6A6 0000 0000 0000 0000 0000 0000
1664-167F	LFDCBUF		D0D0 2F2F 0030 FFCF 0000 FFFF 0000 FFFF 0000
FFFF 0000	FFFF		
1780-179F	LFDDIAGS		0E2F 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000		0000
17A0-17BF			0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000		0000
1708-1708	LFDDIAG0		2F
1709-1709	LFDDIAG1		00
1711-1711	LFDDIAG2		00
1776-1776	LFDDIAG3		00
1777-1777	LFDDIAG4		00

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

Ver 01.13 Tue Jan 16 12:42:06 2001 "(18) Sending LFHVLOW"

LFDDIAGC

LFHVLOW VOLTAGE,SEGMENT

Addr Addr HK-Name Value

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```

-----
1640-1647 LFDERR          2F 00 00 00 00 00 00 00
1648-1657 LFDERRP        B6B6 A6A6 0000 0000 0000 0000 0000 0000
1664-167F LFDPCBUF        B6B6 4949 0034 FFCB 0000 FFFF 0000 FFFF 0000 FFFF 0000
FFFF 0000 FFFF
1780-179F LFDIAGS         0F2F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
17A0-17BF                 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
1708-1708 LFDIAG0         2F
1709-1709 LFDIAG1         00
1711-1711 LFDIAG2         00
1776-1776 LFDIAG3         00
1777-1777 LFDIAG4         00

```

```

DIAG      1,ANY,DIAG002F
Found: DIAG002F == 47.

```

S U C C E S S

```

Ver 01.13 Tue Jan 16 12:42:08 2001 "(19) Sending LFHVMAX"

```

LFDDIAGC

```

LFHVMAX VOLTAGE,SEGMENT

```

```

Addr Addr HK-Name      Value
-----
1640-1647 LFDERR          2F 00 00 00 00 00 00 00
1648-1657 LFDERRP        8D8D A6A6 0000 0000 0000 0000 0000 0000
1664-167F LFDPCBUF        8D8D 7272 0038 FFC7 0000 FFFF 0000 FFFF 0000 FFFF 0000
FFFF 0000 FFFF
1780-179F LFDIAGS         102F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
17A0-17BF                 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
1708-1708 LFDIAG0         2F
1709-1709 LFDIAG1         00
1711-1711 LFDIAG2         00
1776-1776 LFDIAG3         00
1777-1777 LFDIAG4         00

```

```

DIAG      1,ANY,DIAG002F
Found: DIAG002F == 47.

```

S U C C E S S

```

Ver 01.13 Tue Jan 16 12:42:11 2001 "(20) Sending LFHVNMOM"

```

LFDDIAGC

```

LFHVNMOM VOLTAGE,SEGMENT

```

```

Addr Addr HK-Name      Value
-----
1640-1647 LFDERR          2F 00 00 00 00 00 00 00
1648-1657 LFDERRP        C6C6 A6A6 0000 0000 0000 0000 0000 0000
1664-167F LFDPCBUF        C6C6 3939 003C FFC3 0000 FFFF 0000 FFFF 0000 FFFF 0000
FFFF 0000 FFFF

```

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```
1780-179F LFDDIAGS      112F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
17A0-17BF                0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
```

```
1708-1708 LFDDIAG0      2F
1709-1709 LFDDIAG1      00
1711-1711 LFDDIAG2      00
1776-1776 LFDDIAG3      00
1777-1777 LFDDIAG4      00
```

```
DIAG      1,ANY,DIAG002F
Found: DIAG002F == 47.
```

S U C C E S S

Ver 01.13 Tue Jan 16 12:42:13 2001 "(21) Sending LFHVPWR"

LFDDIAGC

LFHVPWR POWER

```
Addr Addr HK-Name      Value
-----
1640-1647 LFDERR        2F 00 00 00 00 00 00 00
1648-1657 LFDERRP       C0C0 A6A6 0000 0000 0000 0000 0000 0000
1664-167F LFDCEBUF      C0C0 3F3F 0040 FFBF 0000 FFFF 0000 FFFF 0000 FFFF 0000
FFFF 0000 FFFF
```

```
1780-179F LFDDIAGS      122F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
17A0-17BF                0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
```

```
1708-1708 LFDDIAG0      2F
1709-1709 LFDDIAG1      00
1711-1711 LFDDIAG2      00
1776-1776 LFDDIAG3      00
1777-1777 LFDDIAG4      00
```

```
DIAG      1,ANY,DIAG002F
Found: DIAG002F == 47.
```

S U C C E S S

Ver 01.13 Tue Jan 16 12:42:15 2001 "(22) Sending LFHVSET"

LFDDIAGC

LFHVSET VOLTAGE,SEGMENT

```
Addr Addr HK-Name      Value
-----
1640-1647 LFDERR        2F 00 00 00 00 00 00 00
1648-1657 LFDERRP       CBCB A6A6 0000 0000 0000 0000 0000 0000
1664-167F LFDCEBUF      CBCB 3434 0044 FFBB 0000 FFFF 0000 FFFF 0000 FFFF 0000
FFFF 0000 FFFF
```

```
1780-179F LFDDIAGS      132F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
17A0-17BF                0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
```

```
1708-1708 LFDDIAG0      2F
1709-1709 LFDDIAG1      00
1711-1711 LFDDIAG2      00
```


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1776-1776 LFDDIAG3 00
1777-1777 LFDDIAG4 00

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

Ver 01.13 Tue Jan 16 12:42:18 2001 "(23) Sending LFPCRCP"

LFDDIAGC

LFPCRCP INTERVAL, SEGMENT, COUNT

Addr	Addr	HK-Name	Value
1640-1647	LFDERR		2F 00 00 00 00 00 00 00
1648-1657	LFDERRP	BABA A6A6	0000 0000 0000 0000 0000 0000
1664-167F	LFDCBUF	BABA 4545	0048 FFB7 0000 FFFF 0000 FFFF 0000 FFFF
1780-179F	LFDDIAGS	142F	0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000	0000	0000
17A0-17BF		0000	0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000	0000	0000
1708-1708	LFDDIAG0		2F
1709-1709	LFDDIAG1		00
1711-1711	LFDDIAG2		00
1776-1776	LFDDIAG3		00
1777-1777	LFDDIAG4		00

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

Ver 01.13 Tue Jan 16 12:42:20 2001 "(24) Sending LFRACT1"

LFDDIAGC

LFRACT1 POWER

Addr	Addr	HK-Name	Value
1640-1647	LFDERR		2F 00 00 00 00 00 00 00
1648-1657	LFDERRP	C1C1 A6A6	0000 0000 0000 0000 0000 0000
1664-167F	LFDCBUF	C1C1 3E3E	004C FFB3 0000 FFFF 0000 FFFF 0000 FFFF
1780-179F	LFDDIAGS	152F	0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000	0000	0000
17A0-17BF		0000	0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000	0000	0000
1708-1708	LFDDIAG0		2F
1709-1709	LFDDIAG1		00
1711-1711	LFDDIAG2		00
1776-1776	LFDDIAG3		00
1777-1777	LFDDIAG4		00

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

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Ver 01.13 Tue Jan 16 12:42:22 2001 "(25) Sending LFRACT2"

LFDDIAGC

LFRACT2 POWER

Addr	Addr	HK-Name	Value
1640-1647	LFDERR		2F 00 00 00 00 00 00 00
1648-1657	LFDERRP		C2C2 A6A6 0000 0000 0000 0000 0000 0000
1664-167F	LFDCBUF		C2C2 3D3D 0050 FFAF 0000 FFFF 0000 FFFF 0000 FFFF 0000
0000 0000	FFFF		
1780-179F	LFDDIAGS		162F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000		0000
17A0-17BF			0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000		0000
1708-1708	LFDDIAG0		2F
1709-1709	LFDDIAG1		00
1711-1711	LFDDIAG2		00
1776-1776	LFDDIAG3		00
1777-1777	LFDDIAG4		00

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

Ver 01.13 Tue Jan 16 12:42:25 2001 "(26) Sending LFRAC TEN"

LFDDIAGC

LFRAC TEN ACTUATOR

Addr	Addr	HK-Name	Value
1640-1647	LFDERR		2F 00 00 00 00 00 00 00
1648-1657	LFDERRP		C3C3 A6A6 0000 0000 0000 0000 0000 0000
1664-167F	LFDCBUF		C3C3 3C3C 0054 FFAB 0000 FFFF 0000 FFFF 0000 FFFF 0000
FFFF 0000	FFFF		
1780-179F	LFDDIAGS		172F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000		0000
17A0-17BF			0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000		0000
1708-1708	LFDDIAG0		2F
1709-1709	LFDDIAG1		00
1711-1711	LFDDIAG2		00
1776-1776	LFDDIAG3		00
1777-1777	LFDDIAG4		00

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

Ver 01.13 Tue Jan 16 12:42:27 2001 "(27) Sending LFRAC TRS"

LFDDIAGC

LFRAC TRS ABORT

Addr	Addr	HK-Name	Value
----	----	-----	-----

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```
1640-1647 LFDERR          2F 00 00 00 00 00 00 00
1648-1657 LFDERRP        C5C5 A6A6 0000 0000 0000 0000 0000 0000
1664-167F LFDPCBUF       C5C5 3A3A 0058 FFA7 0000 FFFF 0000 FFFF 0000 FFFF 0000
FFFF 0000 FFFF
1780-179F LFDIAGS        182F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
17A0-17BF                 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
1708-1708 LFDIAG0        2F
1709-1709 LFDIAG1        00
1711-1711 LFDIAG2        00
1776-1776 LFDIAG3        00
1777-1777 LFDIAG4        00
```

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

Ver 01.13 Tue Jan 16 12:42:29 2001 "(28) Sending LFRAXPWR"

LFDDIAGC

LFRAXPWR POWER

```
Addr Addr HK-Name      Value
-----
1640-1647 LFDERR          2F 00 00 00 00 00 00 00
1648-1657 LFDERRP        C4C4 A6A6 0000 0000 0000 0000 0000 0000
1664-167F LFDPCBUF       C4C4 3B3B 005C FFA3 0000 FFFF 0000 FFFF 0000 FFFF 0000
FFFF 0000 FFFF
1780-179F LFDIAGS        192F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
17A0-17BF                 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
1708-1708 LFDIAG0        2F
1709-1709 LFDIAG1        00
1711-1711 LFDIAG2        00
1776-1776 LFDIAG3        00
1777-1777 LFDIAG4        00
```

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

Ver 01.13 Tue Jan 16 12:42:32 2001 "(29) Sending LFRILIM"

LFDDIAGC

LFRILIM LIMIT

```
Addr Addr HK-Name      Value
-----
1640-1647 LFDERR          2F 00 00 00 00 00 00 00
1648-1657 LFDERRP        DCDC A6A6 0000 0000 0000 0000 0000 0000
1664-167F LFDPCBUF       DCDC 2323 0060 FF9F 0000 FFFF 0000 FFFF 0000 FFFF 0000
FFFF 0000 FFFF
```

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```
1780-179F LFDIAGS      1A2F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
17A0-17BF              0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
```

```
1708-1708 LFDIAG0      2F
1709-1709 LFDIAG1      00
1711-1711 LFDIAG2      00
1776-1776 LFDIAG3      00
1777-1777 LFDIAG4      00
```

```
DIAG      1,ANY,DIAG002F
Found: DIAG002F == 47.
```

S U C C E S S

Ver 01.13 Tue Jan 16 12:42:34 2001 "(30) Sending LFRLSOVD"

LFDIAGC

LFRLSOVD OVERRIDE

```
Addr Addr HK-Name      Value
-----
1640-1647 LFDERR        2F 00 00 00 00 00 00 00
1648-1657 LFDERRP       9C9C A6A6 0000 0000 0000 0000 0000 0000
1664-167F LFDICBUF      9C9C 6363 0064 FF9B 0000 FFFF 0000 FFFF 0000 FFFF 0000
FFFF 0000 FFFF
```

```
1780-179F LFDIAGS      1B2F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
17A0-17BF              0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
```

```
1708-1708 LFDIAG0      2F
1709-1709 LFDIAG1      00
1711-1711 LFDIAG2      00
1776-1776 LFDIAG3      00
1777-1777 LFDIAG4      00
```

```
DIAG      1,ANY,DIAG002F
Found: DIAG002F == 47.
```

S U C C E S S

Ver 01.13 Tue Jan 16 12:42:36 2001 "(31) Sending LFRMDIR"

LFDIAGC

LFRMDIR DIR

```
Addr Addr HK-Name      Value
-----
1640-1647 LFDERR        2F 00 00 00 00 00 00 00
1648-1657 LFDERRP       D9D9 A6A6 0000 0000 0000 0000 0000 0000
1664-167F LFDICBUF      D9D9 2626 0068 FF97 0000 FFFF 0000 FFFF 0000 FFFF 0000
FFFF 0000 FFFF
```

```
1780-179F LFDIAGS      1C2F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
17A0-17BF              0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000
```

```
1708-1708 LFDIAG0      2F
1709-1709 LFDIAG1      00
1711-1711 LFDIAG2      00
```

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1776-1776 LFDDIAG3 00
1777-1777 LFDDIAG4 00

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

Ver 01.13 Tue Jan 16 12:42:39 2001 "(32) Sending LFRMENA"

LFDDIAGC

LFRMENA DOOR

Addr	Addr	HK-Name	Value
1640-1647	LFDERR		2F 00 00 00 00 00 00 00
1648-1657	LFDERRP		DBDB A6A6 0000 0000 0000 0000 0000 0000
1664-167F	LFDCBUF		DBDB 2424 006C FF93 0000 FFFF 0000 FFFF 0000 FFFF 0000 FFFF 0000
1780-179F	LFDDIAGS		1D2F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000		0000 0000
17A0-17BF			0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000		0000
1708-1708	LFDDIAG0		2F
1709-1709	LFDDIAG1		00
1711-1711	LFDDIAG2		00
1776-1776	LFDDIAG3		00
1777-1777	LFDDIAG4		00

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

Ver 01.13 Tue Jan 16 12:42:41 2001 "(33) Sending LFRMPWR"

LFDDIAGC

LFRMPWR MOVE

Addr	Addr	HK-Name	Value
1640-1647	LFDERR		2F 00 00 00 00 00 00 00
1648-1657	LFDERRP		DADA A6A6 0000 0000 0000 0000 0000 0000
1664-167F	LFDCBUF		DADA 2525 0070 FF8F 0000 FFFF 0000 FFFF 0000 FFFF 0000 FFFF 0000
1780-179F	LFDDIAGS		1E2F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000		0000
17A0-17BF			0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000	0000 0000		0000
1708-1708	LFDDIAG0		2F
1709-1709	LFDDIAG1		00
1711-1711	LFDDIAG2		00
1776-1776	LFDDIAG3		00
1777-1777	LFDDIAG4		00

DIAG 1,ANY,DIAG002F
Found: DIAG002F == 47.

S U C C E S S

Ver 01.13 Tue Jan 16 12:42:43 2001 "Test 5.1.1.1d completed successfully"

Appendix D. Test Report stp5_1_1_1d.rp2

```
          55555          1          1          1
          5          11          11          11
ddd      ssss  ttttt  pppp  555          1          1          1
ddd      s      t    p  p    5          1          1          1
d  d      sssss  t    pppp    5          1          1          1
d  d          s    t    p    5  5          1          1          1
ddd      ssss  t    p    555  _____ 111  _____ 111  _____ 111
```

```
Ver 01.13 Tue Jan 16 12:41:36 2001 "(0) Verify that DCE is in Boot State after WDR"
Ver 01.13 Tue Jan 16 12:41:36 2001 "(0) First 1-second wait ..."
Ver 01.13 Tue Jan 16 12:41:37 2001 "(1) LFDRSTP being sent to create POR"
```

C O M M A N D P A C K E T

```
          PARM4          PARM3          PARM2          PARM1          PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
-----
          SN          OPCODE
0446FFFE 04440001 0442F0F0 0440F0F0
-----
```

C O M M A N D P A C K E T

```
          PARM4          PARM3          PARM2          PARM1          PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
-----
          SN          OPCODE
0446FFFD 04440002 04420B0B 0440F4F4
-----
```

```
Ver 01.13 Tue Jan 16 12:41:38 2001 "(2) Second 1-second wait ..."
Ver 01.13 Tue Jan 16 12:41:38 2001 "(6) Sending LFGBWK"
```

C O M M A N D P A C K E T

```
          PARM4          PARM3          PARM2          PARM1          PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
-----
          SN          OPCODE
0446FFFC 04440003 04420B0B 0440F4F4
-----
```

C O M M A N D P A C K E T

```
          PARM4          PARM3          PARM2          PARM1          PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
-----
          SN          OPCODE
0446FFFB 04440004 04427A7A 04408585
-----
```

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C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFFA 04440005 04427F7F 04408080

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFF9 04440006 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:41:40 2001 "(7) Sending LFGWK"

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFF8 04440007 04420B0B 0440F4F4

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFF7 04440008 04427676 04408989

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFF6 04440009 04427F7F 04408080

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFF5 0444000A 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:41:42 2001 "(8) Sending LFGLQT"

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFF4 0444000B 04420B0B 0440F4F4

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFF3 0444000C 04426A6A 04409595

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFF2 0444000D 04427F7F 04408080

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFF1 0444000E 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:41:45 2001 "(9) Sending LFDSHFT"

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFF0 0444000F 04420B0B 0440F4F4

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFEF 04440010 04425B5B 0440A4A4

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C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFEE 04440011 04427F7F 04408080

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFED 04440012 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:41:47 2001 "(10) Sending LFDSTIM"

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFEC 04440013 04420B0B 0440F4F4

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFEB 04440014 04426161 04409E9E

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFEA 04440015 04427F7F 04408080

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFE9 04440016 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:41:49 2001 "(11) Sending LFGSTR"

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C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFE8 04440017 04420B0B 0440F4F4

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFE7 04440018 04425959 0440A6A6

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFE6 04440019 04427F7F 04408080

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFE5 0444001A 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:41:52 2001 "(12) Sending LFGTT"

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFE4 0444001B 04420B0B 0440F4F4

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFE3 0444001C 04426868 04409797

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C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFE2 0444001D 04427F7F 04408080

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFE1 0444001E 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:41:54 2001 "(13) Sending LFGUQT"

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFE0 0444001F 04420B0B 0440F4F4

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFDF 04440020 04425D5D 0440A2A2

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFDE 04440021 04427F7F 04408080

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFDD 04440022 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:41:56 2001 "(14) Sending LFHQWR"

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C O M M A N D P A C K E T

```

-----
          PARM4          PARM3          PARM2          PARM1          PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
-----
          SN              OP CODE
0446FFDC 04440023 04420B0B 0440F4F4
-----

```

C O M M A N D P A C K E T

```

-----
          PARM4          PARM3          PARM2          PARM1          PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
-----
          SN              OP CODE
0446FFDB 04440024 04423030 0440CFCF
-----

```

C O M M A N D P A C K E T

```

-----
          PARM4          PARM3          PARM2          PARM1          PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
-----
          SN              OP CODE
0446FFDA 04440025 04427F7F 04408080
-----

```

C O M M A N D P A C K E T

```

-----
          PARM4          PARM3          PARM2          PARM1          PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
-----
          SN              OP CODE
0446FFD9 04440026 04427F7F 04408080
-----

```

Ver 01.13 Tue Jan 16 12:41:59 2001 "(15) Sending LFHRAMPT"

C O M M A N D P A C K E T

```

-----
          PARM4          PARM3          PARM2          PARM1          PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
-----
          SN              OP CODE
0446FFD8 04440027 04420B0B 0440F4F4
-----

```

C O M M A N D P A C K E T

```

-----
          PARM4          PARM3          PARM2          PARM1          PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
-----
          SN              OP CODE
0446FFD7 04440028 04423131 0440CECE
-----

```

C O M M A N D P A C K E T

Center for Astrophysics & Space Astronomy

```

      PARM4      PARM3      PARM2      PARM1      PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
-----
      SN      OPCODE
0446FFD6 04440029 04427F7F 04408080
-----

```

C O M M A N D P A C K E T

```

      PARM4      PARM3      PARM2      PARM1      PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
-----
      SN      OPCODE
0446FFD5 0444002A 04427F7F 04408080
-----

```

Ver 01.13 Tue Jan 16 12:42:01 2001 "(16) Sending LFHVENA"

C O M M A N D P A C K E T

```

      PARM4      PARM3      PARM2      PARM1      PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
-----
      SN      OPCODE
0446FFD4 0444002B 04420B0B 0440F4F4
-----

```

C O M M A N D P A C K E T

```

      PARM4      PARM3      PARM2      PARM1      PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
-----
      SN      OPCODE
0446FFD3 0444002C 04422E2E 0440D1D1
-----

```

C O M M A N D P A C K E T

```

      PARM4      PARM3      PARM2      PARM1      PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
-----
      SN      OPCODE
0446FFD2 0444002D 04427F7F 04408080
-----

```

C O M M A N D P A C K E T

```

      PARM4      PARM3      PARM2      PARM1      PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
-----
      SN      OPCODE
0446FFD1 0444002E 04427F7F 04408080
-----

```

Ver 01.13 Tue Jan 16 12:42:03 2001 "(17) Sending LFHVILIM"

C O M M A N D P A C K E T

Center for Astrophysics & Space Astronomy

```
-----  
                PARM4                PARM3                PARM2                PARM1                PARM0  
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000  
-----  
                SN                OPCODE  
0446FFD0 0444002F 04420B0B 0440F4F4  
-----
```

C O M M A N D P A C K E T

```
                PARM4                PARM3                PARM2                PARM1                PARM0  
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000  
-----  
                SN                OPCODE  
0446FFCF 04440030 04422F2F 0440D0D0  
-----
```

C O M M A N D P A C K E T

```
                PARM4                PARM3                PARM2                PARM1                PARM0  
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000  
-----  
                SN                OPCODE  
0446FFCE 04440031 04427F7F 04408080  
-----
```

C O M M A N D P A C K E T

```
                PARM4                PARM3                PARM2                PARM1                PARM0  
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000  
-----  
                SN                OPCODE  
0446FFCD 04440032 04427F7F 04408080  
-----
```

Ver 01.13 Tue Jan 16 12:42:06 2001 "(18) Sending LFHVLOW"

C O M M A N D P A C K E T

```
                PARM4                PARM3                PARM2                PARM1                PARM0  
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000  
-----  
                SN                OPCODE  
0446FFCC 04440033 04420B0B 0440F4F4  
-----
```

C O M M A N D P A C K E T

```
                PARM4                PARM3                PARM2                PARM1                PARM0  
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000  
-----  
                SN                OPCODE  
0446FFCB 04440034 04424949 0440B6B6  
-----
```

C O M M A N D P A C K E T

```
                PARM4                PARM3                PARM2                PARM1                PARM0  
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000  
-----
```

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 SN OPCODE
0446FFCA 04440035 04427F7F 04408080

 C O M M A N D P A C K E T

 PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FFC9 04440036 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:42:08 2001 "(19) Sending LFHVMAX"

 C O M M A N D P A C K E T

 PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FFC8 04440037 04420B0B 0440F4F4

 C O M M A N D P A C K E T

 PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FFC7 04440038 04427272 04408D8D

 C O M M A N D P A C K E T

 PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FFC6 04440039 04427F7F 04408080

 C O M M A N D P A C K E T

 PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FFC5 0444003A 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:42:11 2001 "(20) Sending LFHVNOM"

 C O M M A N D P A C K E T

 PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

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 SN OPCODE
0446FFC4 0444003B 04420B0B 0440F4F4

 C O M M A N D P A C K E T

 PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FFC3 0444003C 04423939 0440C6C6

 C O M M A N D P A C K E T

 PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FFC2 0444003D 04427F7F 04408080

 C O M M A N D P A C K E T

 PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FFC1 0444003E 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:42:13 2001 "(21) Sending LFHVPWR"

 C O M M A N D P A C K E T

 PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FFC0 0444003F 04420B0B 0440F4F4

 C O M M A N D P A C K E T

 PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FFBF 04440040 04423F3F 0440C0C0

 C O M M A N D P A C K E T

 PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE

Center for Astrophysics & Space Astronomy

0446FFBE 04440041 04427F7F 04408080

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
SN OPCODE
0446FFBD 04440042 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:42:15 2001 "(22) Sending LFHVSET"

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
SN OPCODE
0446FFBC 04440043 04420B0B 0440F4F4

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
SN OPCODE
0446FFBB 04440044 04423434 0440CBCB

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
SN OPCODE
0446FFBA 04440045 04427F7F 04408080

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
SN OPCODE
0446FFB9 04440046 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:42:18 2001 "(23) Sending LFPCRPF"

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
SN OPCODE

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0446FFB8 04440047 04420B0B 0440F4F4

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
SN OPCODE
0446FFB7 04440048 04424545 0440BABA

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
SN OPCODE
0446FFB6 04440049 04427F7F 04408080

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
SN OPCODE
0446FFB5 0444004A 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:42:20 2001 "(24) Sending LFRACT1"

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
SN OPCODE
0446FFB4 0444004B 04420B0B 0440F4F4

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
SN OPCODE
0446FFB3 0444004C 04423E3E 0440C1C1

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000
SN OPCODE
0446FFB2 0444004D 04427F7F 04408080

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C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFB1 0444004E 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:42:22 2001 "(25) Sending LFRACT2"

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFB0 0444004F 04420B0B 0440F4F4

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFAF 04440050 04423D3D 0440C2C2

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFAE 04440051 04427F7F 04408080

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFAD 04440052 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:42:25 2001 "(26) Sending LFRAC TEN"

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FFAC 04440053 04420B0B 0440F4F4

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```
-----  
C O M M A N D   P A C K E T  
-----  
      PARM4           PARM3           PARM2           PARM1           PARM0  
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000  
-----  
      SN             OPCODE  
0446FFAB 04440054 04423C3C 0440C3C3  
-----
```

```
-----  
C O M M A N D   P A C K E T  
-----  
      PARM4           PARM3           PARM2           PARM1           PARM0  
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000  
-----  
      SN             OPCODE  
0446FFAA 04440055 04427F7F 04408080  
-----
```

```
-----  
C O M M A N D   P A C K E T  
-----  
      PARM4           PARM3           PARM2           PARM1           PARM0  
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000  
-----  
      SN             OPCODE  
0446FFA9 04440056 04427F7F 04408080  
-----
```

Ver 01.13 Tue Jan 16 12:42:27 2001 "(27) Sending LFRACTRS"

```
-----  
C O M M A N D   P A C K E T  
-----  
      PARM4           PARM3           PARM2           PARM1           PARM0  
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000  
-----  
      SN             OPCODE  
0446FFA8 04440057 04420B0B 0440F4F4  
-----
```

```
-----  
C O M M A N D   P A C K E T  
-----  
      PARM4           PARM3           PARM2           PARM1           PARM0  
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000  
-----  
      SN             OPCODE  
0446FFA7 04440058 04423A3A 0440C5C5  
-----
```

```
-----  
C O M M A N D   P A C K E T  
-----  
      PARM4           PARM3           PARM2           PARM1           PARM0  
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000  
-----  
      SN             OPCODE  
0446FFA6 04440059 04427F7F 04408080  
-----
```

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```
-----  
C O M M A N D   P A C K E T  
-----  
      PARM4      PARM3      PARM2      PARM1      PARM0  
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000  
-----  
      SN      OPCODE  
0446FFA5 0444005A 04427F7F 04408080  
-----
```

Ver 01.13 Tue Jan 16 12:42:29 2001 "(28) Sending LFRAXPWR"

```
-----  
C O M M A N D   P A C K E T  
-----  
      PARM4      PARM3      PARM2      PARM1      PARM0  
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000  
-----  
      SN      OPCODE  
0446FFA4 0444005B 04420B0B 0440F4F4  
-----
```

```
-----  
C O M M A N D   P A C K E T  
-----  
      PARM4      PARM3      PARM2      PARM1      PARM0  
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000  
-----  
      SN      OPCODE  
0446FFA3 0444005C 04423B3B 0440C4C4  
-----
```

```
-----  
C O M M A N D   P A C K E T  
-----  
      PARM4      PARM3      PARM2      PARM1      PARM0  
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000  
-----  
      SN      OPCODE  
0446FFA2 0444005D 04427F7F 04408080  
-----
```

```
-----  
C O M M A N D   P A C K E T  
-----  
      PARM4      PARM3      PARM2      PARM1      PARM0  
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000  
-----  
      SN      OPCODE  
0446FFA1 0444005E 04427F7F 04408080  
-----
```

Ver 01.13 Tue Jan 16 12:42:32 2001 "(29) Sending LFRILIM"

```
-----  
C O M M A N D   P A C K E T  
-----  
      PARM4      PARM3      PARM2      PARM1      PARM0  
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000  
-----  
      SN      OPCODE  
0446FFA0 0444005F 04420B0B 0440F4F4  
-----
```

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C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FF9F 04440060 04422323 0440DCDC

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FF9E 04440061 04427F7F 04408080

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FF9D 04440062 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:42:34 2001 "(30) Sending LFRLSOVD"

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FF9C 04440063 04420B0B 0440F4F4

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FF9B 04440064 04426363 04409C9C

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

SN OPCODE
0446FF9A 04440065 04427F7F 04408080

C O M M A N D P A C K E T

Center for Astrophysics & Space Astronomy

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FF99 04440066 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:42:36 2001 "(31) Sending LFRMDIR"

 C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FF98 04440067 04420B0B 0440F4F4

 C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FF97 04440068 04422626 0440D9D9

 C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FF96 04440069 04427F7F 04408080

 C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FF95 0444006A 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:42:39 2001 "(32) Sending LFRMENA"

 C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FF94 0444006B 04420B0B 0440F4F4

 C O M M A N D P A C K E T

Center for Astrophysics & Space Astronomy

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FF93 0444006C 04422424 0440DBDB

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FF92 0444006D 04427F7F 04408080

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FF91 0444006E 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:42:41 2001 "(33) Sending LFRMPWR"

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FF90 0444006F 04420B0B 0440F4F4

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FF8F 04440070 04422525 0440DADA

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0
045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FF8E 04440071 04427F7F 04408080

C O M M A N D P A C K E T

PARM4 PARM3 PARM2 PARM1 PARM0

045AFFFF 04580000 0456FFFF 04540000 0452FFFF 04500000 044EFFFF 044C0000 044AFFFF 04480000

 SN OPCODE
0446FF8D 04440072 04427F7F 04408080

Ver 01.13 Tue Jan 16 12:42:43 2001 "Test 5.1.1.1d completed successfully"