

DRCU\_OFF Mode Trans DRCU OFF  
 File: H\_COP\_SPI\_MDRF.xls  
 Author: L.Lucas-hp



## Procedure Summary

### Objectives

This procedure is a general mode transition procedure. The purpose of this procedure is to switch the DRCU OFF.

Based on procedure:SPIRE\_DRCU\_OFF  
 DRCU\_OFF  
 Version number:4.  
 Generated:27/03/2009

### Summary of Constraints

n/a

### Spacecraft Configuration

#### Start of Procedure

DRCU is ON

#### End of Procedure

DRCU is OFF

### Reference File(s)

#### Input Command Sequences

#### Output Command Sequences

HCSMDRF  
 HCSMDRFP  
 HCSMDRFR

### Referenced Displays

ANDs	GRDs	SLDs
ZAZ95999		
ZAZ90999		
SA_6_559		

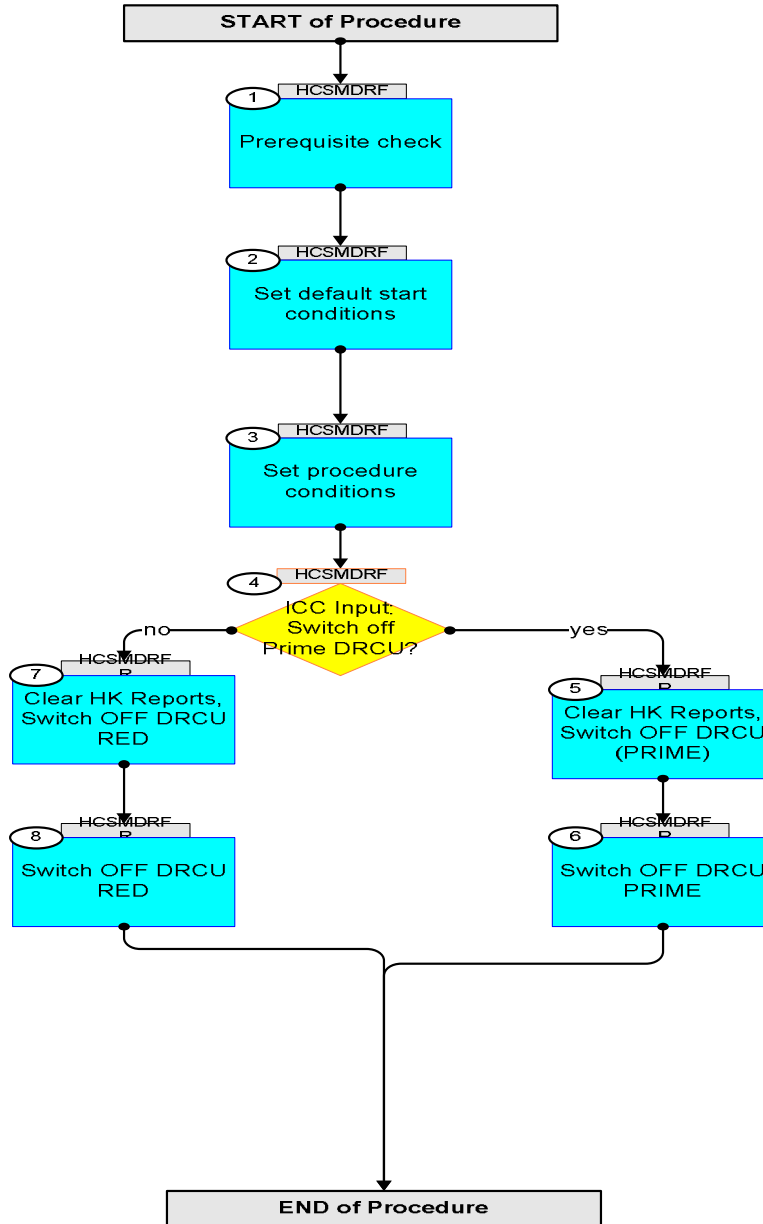
### Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
19/04/09		1	Created	L.Lucas-hp	
21/04/09	2.3	1.01	Validation : Text Updates	L.Lucas-hp	

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### Procedure Flowchart Overview





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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
	ET=+ UT=+00.00.01	SET_OBSID  Command Parameter(s) : OBSERVATION_ID SP00N500  Subsch. ID : 370 Det. descr. : SET OBSERVATION IDENTIFIER	SET_OBSID  SC000500  00000000 <hex>	TC	
		Verify Telemetry  OBSID SM10N500	= 00000000 <hex>	AND=ZAZ90999	
	ET=+ UT=+00.00.00	SET_OBS_STEP  Command Parameter(s) : OBSERVATION_STEP SP03N500  Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SET_OBS_STEP  SC003500  0 <hex>	TC	
	ET=+ UT=+00.00.01	SET_BBID  Command Parameter(s) : BUILDING_BLOCK_ID SP01N500  Subsch. ID : 370 Det. descr. : SET BUILDING BLOCK IDENTIFIER	SET_BBID  SC001500  80000000 <hex>	TC	
		Verify Telemetry  BBFULLTYPE SM2LN500	= Null	AND=ZAZ90999	
	ET=+ UT=+00.00.00	SET_OBS_STEP  Command Parameter(s) : OBSERVATION_STEP SP03N500  Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SET_OBS_STEP  SC003500  0 <hex>	TC	
	ET=+ UT=+00.00.01	SET_BBID  Command Parameter(s) : BUILDING_BLOCK_ID SP01N500  Subsch. ID : 370 Det. descr. : SET BUILDING BLOCK IDENTIFIER	SET_BBID  SC001500  80020001 <hex>	TC	
		Verify Telemetry  BBFULLTYPE SM2LN500	= StartObs	AND=ZAZ90999	
3		Set procedure conditions		Next Step: 4	
	ET=+ UT=+00.00.00	RESET_DRCU_COUNTERS  Subsch. ID : 370 Det. descr. : RESET DRCU COUNTERS	RESET_DRCU_COUNTERS  SCD00505	TC	
		Verify that the TRESET parameter has the same value as the THSK parameter  TRESET SM01T500	same as THSK	AND=ZAZ90999	
		THSK SM00T500	any	AND=ZAZ90999	
		Note that a TM(5,1) packet [New_Step_Report] is generated after each of the following SET_OBS_STEP telecommands			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
	ET=+ UT=+00.00.00	SET_OBS_STEP  Command Parameter(s) : OBSERVATION_STEP SP03N500  Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SET_OBS_STEP  SC003500  1 <hex>	TC	
	ET=+ UT=+00.00.01	SET_OBSID  Command Parameter(s) : OBSERVATION_ID SP00N500  Subsch. ID : 370 Det. descr. : SET OBSERVATION IDENTIFIER	SET_OBSID  SC000500  OBS_ID	TC	
		Verify Telemetry  OBSID SM10N500	OBS_ID	AND=ZAZ90999	
	ET=+ UT=+00.00.00	SET_OBS_STEP  Command Parameter(s) : OBSERVATION_STEP SP03N500  Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SET_OBS_STEP  SC003500  0 <hex>	TC	
	ET=+ UT=+00.00.01	SET_BBID  Command Parameter(s) : BUILDING_BLOCK_ID SP01N500  Subsch. ID : 370 Det. descr. : SET BUILDING BLOCK IDENTIFIER	SET_BBID  SC001500  80000000 <hex>	TC	
		Verify Telemetry  BBFULLTYPE SM2LN500	= Null	AND=ZAZ90999	
	ET=+ UT=+00.00.00	SET_OBS_STEP  Command Parameter(s) : OBSERVATION_STEP SP03N500  Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SET_OBS_STEP  SC003500  0 <hex>	TC	
	ET=+ UT=+00.00.01	SET_BBID  Command Parameter(s) : BUILDING_BLOCK_ID SP01N500  Subsch. ID : 370 Det. descr. : SET BUILDING BLOCK IDENTIFIER	SET_BBID  SC001500  8C020001 <hex>	TC	
		Verify Telemetry  BBFULLTYPE SM2LN500	= DRCU_OFF	AND=ZAZ90999	
	ET=+ UT=+00.00.00	SET_OBS_MODE  Command Parameter(s) : OBSERVING_MODE SP02N500  Subsch. ID : 370 Det. descr. : SET OBSERVING MODE	SET_OBS_MODE  SC002500  ff <hex>	TC	
		Verify Telemetry  MODE SM00M500	= DRCU_OFF	AND=ZAZ95999	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
	ET=+ UT=+00.00.00	SET_OBS_MODE  Command Parameter(s) : OBSERVING_MODE SP02N500  Subsch. ID : 370 Det. descr. : SET OBSERVING MODE	SET_OBS_MODE  SC002500  0 <hex>	TC	
		Verify Telemetry  MODE SM00M500	= DPU_ON	AND=ZAZ95999	
4		ICC Input: Switch off Prime DRCU?  type: [If]		Next Step: yes 5 no 7	
		Check with Instrument Team whether the Prime or Redundant DRCU is to be switched off			
End of Sequence					
	HCSMDRFP	TC Seq. Name :HCSMDRFP ( Switch OFF DRCU Pri )  TimeTag Type: Sub Schedule ID:  □			
5		Clear HK Reports, Switch OFF DRCU (PRIME)		Next Step: 6	
		Verify Telemetry is incrementing  TM2N SMT1N500		AND=SA_6_559	
		Verify Telemetry  MODE SM00M500	= DPU_ON	AND=SA_6_559	
5.1		Clear HK Reports			
		<b>WARNING:</b> The following TCs will stop production of HK packets from SPIRE. It is essential that the FCU LCL is switched OFF and the HK restarted before the spacecraft FDIR time-out is reached (90 seconds) and the RT considered 'invalid', and TM declared 'sick'			
	ET=+00.00.04 UT=+00.00.04	CLEAR_HK_REPORT  Command Parameter(s) : PCKTID_CLEARHK SPR6N500  TC Control Flags :  Subsch. ID : 370 Det. descr. : CLEAR HOUSEKEEPING PARAMETER REPORT DEFINITION	CLEAR_HK_REPORT  300 <hex>  GBM IL DSE --Y -- ---	TC	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
	ET=+00.00.01 UT=+00.00.01	CLEAR_HK_REPORT  CLEAR_HK_REPORT  Command Parameter(s) : PCKTID_CLEARHK                  SPR6N500  TC Control Flags :  GBM IL DSE --Y -- ---  Subsch. ID : 370 Det. descr. : CLEAR HOUSEKEEPING PARAMETER REPORT DEFINITION	SCR01500  301 <hex>	TC	
		Verify Telemetry is no longer incrementing TM2N                  SMT1N500		AND=SA_6_559	
		Verify Telemetry is no longer refreshing THSK                  SM00T500		AND=SA_6_559	
		Verify last Telemetry MODE                  SM00M500	= DPU_ON	AND=SA_6_559	
5.2		Set default end conditions			
		Note that a <b>TM(5,1)</b> packet [New_Step_Report] is generated after each of the following SET_OBS_STEP telecommands			
	ET=+ UT=+00.00.00	SET_OBS_STEP  SET_OBS_STEP  Command Parameter(s) : OBSERVATION_STEP                          SP03N500  Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SC003500  0 <hex>	TC	
	ET=+ UT=+00.00.01	SET_BBID  SET_BBID  Command Parameter(s) : BUILDING_BLOCK_ID                          SP01N500  Subsch. ID : 370 Det. descr. : SET BUILDING BLOCK IDENTIFIER	SC001500  80000000 <hex>	TC	
		Verify Telemetry BBFULLTYPE                  SM2LN500	= Null	AND=ZAZ90999	
	ET=+ UT=+00.00.00	SET_OBS_STEP  SET_OBS_STEP  Command Parameter(s) : OBSERVATION_STEP                          SP03N500  Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SC003500  0 <hex>	TC	
	ET=+ UT=+00.00.01	SET_BBID  SET_BBID  Command Parameter(s) : BUILDING_BLOCK_ID                          SP01N500  Subsch. ID : 370 Det. descr. : SET BUILDING BLOCK IDENTIFIER	SC001500  80030001 <hex>	TC	
		Verify Telemetry BBFULLTYPE                  SM2LN500	= EndObs	AND=ZAZ90999	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
	ET=+ UT=+00.00.00	SET_OBS_STEP  Command Parameter(s) : OBSERVATION_STEP SP03N500  Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SET_OBS_STEP  SC003500  1 <hex>	TC	
	ET=+ UT=+00.00.01	SET_OBSID  Command Parameter(s) : OBSERVATION_ID SP00N500  Subsch. ID : 370 Det. descr. : SET OBSERVATION IDENTIFIER	SET_OBSID  SC000500  00000000 <hex>	TC	
		Verify Telemetry  OBSID SM10N500	= 00000000 <hex>	AND=ZAZ90999	
	ET=+ UT=+00.00.00	SET_OBS_STEP  Command Parameter(s) : OBSERVATION_STEP SP03N500  Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SET_OBS_STEP  SC003500  0 <hex>	TC	
	ET=+ UT=+00.00.01	SET_BBID  Command Parameter(s) : BUILDING_BLOCK_ID SP01N500  Subsch. ID : 370 Det. descr. : SET BUILDING BLOCK IDENTIFIER	SET_BBID  SC001500  80000000 <hex>	TC	
		Verify Telemetry  BBFULLTYPE SM2LN500	= Null	AND=ZAZ90999	
6		Switch OFF DRCU PRIME		Next Step: END	
	ET=+ UT=+00.00.00	Execute Telecommand  SwOff_SpireHSFCU_N_L51  Subsch. ID : 10 Det. descr. : PCDU: TC(8,4,112,3) SPIRE HSFCU Nom - switch LCL_51 off	SwOff_SpireHSFCU_N_L51  DC51B170	TC	
		Verify Telemetry  SpirHsfN_L51_1S WM42C565	= OFF	AND=ZAZ95999	
		Verify Telemetry  SpireHsfN_L51_I WM408565	= 0.0 A	AND=ZAZ95999	
	ET=+ UT=+00.00.01	DEFINE_NEW_HK_REPORT  Command Parameter(s) : HKPCKTID_DEFINENEWHK SPR0N500 HKSID_DEFINENEWHK SPR1N500 HKINTERVAL_DEFINENEWHK SPR2N500 HKREPEAT_DEFINENEWHK SPR3N500 TABLEID_DEFINENEWHK SPR4N500  Subsch. ID : 370 Det. descr. : DEFINE NEW HOUSEKEEPING PARAMETER REPORT	DEFINE_NEW_HK_REPORT  SCR00500  300 <hex> 300 <hex> 7d0 <hex> 1 <hex> 0 <hex>	TC	



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify: Packet is being generated  Critical_HK_Parameter_Report Packet Mnemonic : SCRITHK00559 APID : 1280 Type : 3 Subtype : 25 PI1 : 768 PI2 :			
End of Sequence					
	HCSMDRFR	TC Seq. Name :HCSMDRFR ( Switch OFF DRCU Red )  TimeTag Type: Sub Schedule ID:  □			
7		Clear HK Reports, Switch OFF DRCU RED		Next Step: 8	
		Verify Telemetry is incrementing <b>TM2N</b> <b>SMT1N500</b>		AND=SA_6_559	
		Verify Telemetry <b>MODE</b> <b>SM00M500</b> = DPU_ON		AND=SA_6_559	
7.1		Clear HK Reports			
		<b>WARNING:</b> The following TCs will stop production of HK packets from SPIRE. It is essential that the FCU LCL is switched OFF and the HK restarted before the spacecraft FDIR time-out is reached (90 seconds) and the RT considered 'invalid', and TM declared 'sick'			
	ET=+ UT=+00.00.00	CLEAR_HK_REPORT  <b>CLEAR_HK_REPORT</b>  Command Parameter(s) : <b>PCKTID_CLEARHK</b> <b>SPR6N500</b> 300 <hex>  Subsch. ID : 370 Det. descr. : CLEAR HOUSEKEEPING PARAMETER REPORT DEFINITION	<b>SCR01500</b>	TC	
	ET=+ UT=+00.00.00	CLEAR_HK_REPORT  <b>CLEAR_HK_REPORT</b>  Command Parameter(s) : <b>PCKTID_CLEARHK</b> <b>SPR6N500</b> 301 <hex>  Subsch. ID : 370 Det. descr. : CLEAR HOUSEKEEPING PARAMETER REPORT DEFINITION	<b>SCR01500</b>	TC	
		Verify Telemetry is no longer incrementing <b>TM2N</b> <b>SMT1N500</b>		AND=SA_6_559	
		Verify Telemetry is no longer refreshing <b>THSK</b> <b>SM00T500</b>		AND=SA_6_559	
7.2		Set default end conditions			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Note that a TM(5,1) packet [R_New_Step_Report] is generated after each of the following SET_OBS_STEP telecommands			
	ET=+ UT=+00.00.00	SET_OBS_STEP  Command Parameter(s) : OBSERVATION_STEP SP03N500  Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SC003500  0 <hex>	TC	
	ET=+ UT=+00.00.01	SET_BBID  Command Parameter(s) : BUILDING_BLOCK_ID SP01N500  Subsch. ID : 370 Det. descr. : SET BUILDING BLOCK IDENTIFIER	SC001500  80000000 <hex>	TC	
	ET=+ UT=+00.00.00	SET_OBS_STEP  Command Parameter(s) : OBSERVATION_STEP SP03N500  Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SC003500  0 <hex>	TC	
	ET=+ UT=+00.00.01	SET_BBID  Command Parameter(s) : BUILDING_BLOCK_ID SP01N500  Subsch. ID : 370 Det. descr. : SET BUILDING BLOCK IDENTIFIER	SC001500  80030001 <hex>	TC	
	ET=+ UT=+00.00.00	SET_OBS_STEP  Command Parameter(s) : OBSERVATION_STEP SP03N500  Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SC003500  1 <hex>	TC	
	ET=+ UT=+00.00.01	SET_OBSID  Command Parameter(s) : OBSERVATION_ID SP00N500  Subsch. ID : 370 Det. descr. : SET OBSERVATION IDENTIFIER	SC000500  00000000 <hex>	TC	
	ET=+ UT=+00.00.00	SET_OBS_STEP  Command Parameter(s) : OBSERVATION_STEP SP03N500  Subsch. ID : 370 Det. descr. : SET OBSERVATION STEP	SC003500  0 <hex>	TC	
	ET=+ UT=+00.00.01	SET_BBID  Command Parameter(s) : BUILDING_BLOCK_ID SP01N500  Subsch. ID : 370 Det. descr. : SET BUILDING BLOCK IDENTIFIER	SC001500  80000000 <hex>	TC	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
8		Switch OFF DRCU RED		Next Step: END	
		Execute Telecommand <b>SwOff_SpireHSFCU_R_L52</b>  Subsch. ID : 10 Det. descr. : PCDU: TC(8,4,112,3) SPIRE HSFCU Red - switch LCL_52 off	DC52B170	TC	
		Verify Telemetry <b>SpirHsfR_L52_1S</b> <b>WM72C565</b>	= OFF	AND=ZAZ95999	
		Verify Telemetry <b>SpireHsfR_L52_I</b> <b>WM708565</b>	= 0.0 A	AND=ZAZ95999	
ET+ UT+00.00.01		DEFINE_NEW_HK_REPORT <b>DEFINE_NEW_HK_REPORT</b>  Command Parameter(s) : <b>HKPCKTID_DEFINENEWHK</b> <b>SPR0N500</b> 300 <hex> <b>HKSID_DEFINENEWHK</b> <b>SPR1N500</b> 300 <hex> <b>HKINTERVAL_DEFINENEWHK</b> <b>SPR2N500</b> 7d0 <hex> <b>HKREPEAT_DEFINENEWHK</b> <b>SPR3N500</b> 1 <hex> <b>TABLEID_DEFINENEWHK</b> <b>SPR4N500</b> 0 <hex>  Subsch. ID : 370 Det. descr. : DEFINE NEW HOUSEKEEPING PARAMETER REPORT	SCR00500	TC	
		Verify: Packet is being generated  Critical_HK_Parameter_Report Packet Mnemonic :        SCRITHK00559 APID :                      1280 Type :                        3 Subtype :                    25 PI1 :                         768 PI2 :			
End of Sequence					
<b>End of Procedure</b>					