SPIRE_CP_FUNC_PTC_PID_T2 PTC PID Tuning with Thermistor 2
File: H_COP_SPI_PTC2.xls
Author: L.Lucas-hp

Procedure Summary

Objectives

The purpose of this procedure is PID Tuning using PTC Thermistor #2

Based on procedure:
Name:SPIRE_CP_FUNC_PTC_PID_T2
Version number:2
Generated:27/03/2009

Summary of Constraints

n/a

Spacecraft Configuration

Start of Procedure

End of Procedure

Reference File(s)

Input Command Sequences

Output Command Sequences

HCSPTC2
HCSPTC2A
HCSPTC2B
HCSPTC2C
HCSPTC2D
HCSPTC2Q

Referenced Displays

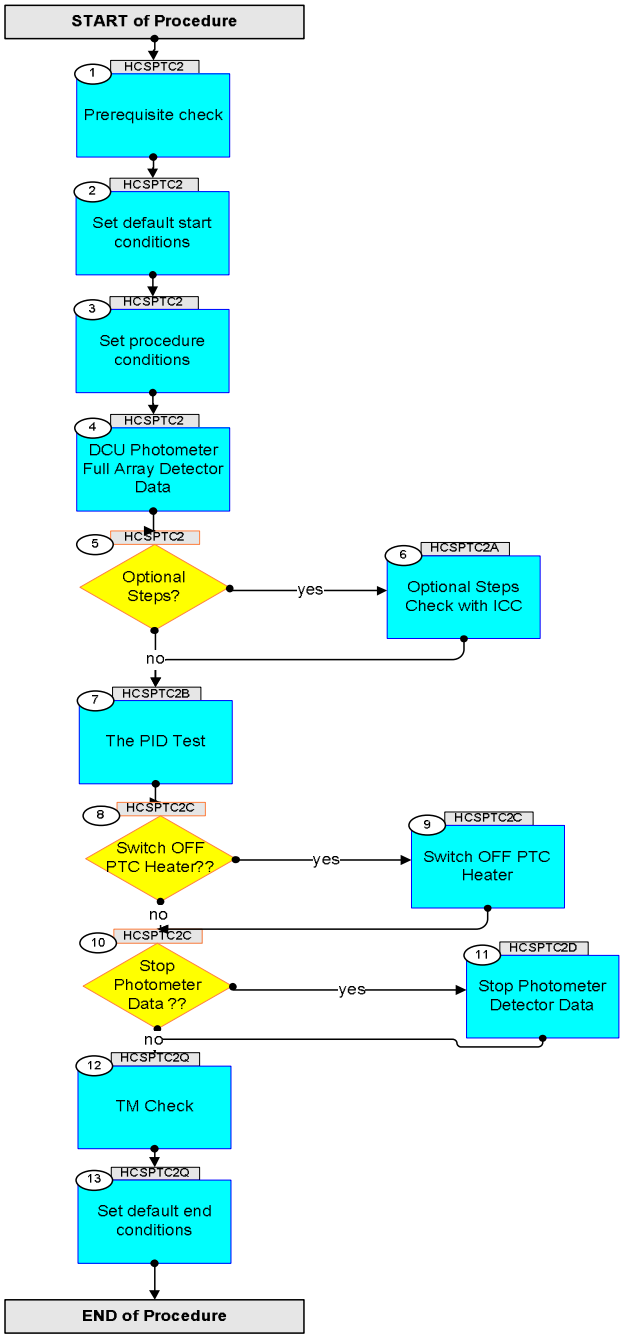
ANDs	GRDs	SLDs
ZAZ90999		
SA_4_559		
SA_1_559		

Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
19/04/09	2.3	1	Created	L.Lucas-hp	
04/05/09	2.4	2	Remove ETs TPF sequence =SOC Planable	L.Lucas-hp	

SPIRE_CP_FUNC_PTC_PID_T2 PTC PID Tuning with Thermistor 2
File: H_COP_SPI_PTC2.xls
Author: L.Lucas-hp

Procedure Flowchart Overview



SPIRE_CP_FUNC_PTC_PID_T2 PTC PID Tuning with Thermistor 2
File: H_COP_SPI_PTC2.xls
Author: L.Lucas-hp

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Beginning of Procedure		
		TC Seq. Name :HCSPTC2 (PTC PID Therm2) *TimeTag Type: Y* *Sub Schedule ID:*		
1		*Prerequisite check*		Next Step: 2
1.1		*HSC/ICC input*		
		Verify that the HSC has supplied a valid OBSID value: **OBS_ID** = 0xnnnn nnnn		
1.2		*Verify TM*		
2		*Set default start conditions*		Next Step: 3
		Note that a **TM(5,1)** 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>**	
	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** **80010001 <hex>**	
		Verify Telemetry **BBFULLTYPE** **SM2LN500**	**= ClearObs**	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** **1 <hex>**	

SPIRE_CP_FUNC_PTC_PID_T2 PTC PID Tuning with Thermistor 2
File: H_COP_SPI_PTC2.xls
Author: L.Lucas-hp

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.01	SET_OBSID **SET_OBSID** *Command Parameter(s) :* **OBSERVATION_ID** **SP00N500** *Subsch. ID : 370* Det. descr. : SET OBSERVATION IDENTIFIER	**SC000500** **00000000 <hex>**	
		Verify Telemetry **OBSID** **SM10N500**	**= 00000000 <hex>**	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>**	
	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>**	
		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>**	
	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** **80020001 <hex>**	
		Verify Telemetry **BBFULLTYPE** **SM2LN500**	**= StartObs**	AND=ZAZ90999
3		*Set procedure conditions*		Next Step: 4

SPIRE_CP_FUNC_PTC_PID_T2 PTC PID Tuning with Thermistor 2
File: H_COP_SPI_PTC2.xls
Author: L.Lucas-hp

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.00	RESET_DRCU_COUNTERS **RESET_DRCU_COUNTERS** *Subsch. ID : 370* Det. descr. : RESET DRCU COUNTERS	**SCD00505**	
		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		
	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** **1 <hex>**	
	ET=+ UT=+00.00.01	SET_OBSID **SET_OBSID** *Command Parameter(s) :* **OBSERVATION_ID** **SP00N500** *Subsch. ID : 370* Det. descr. : SET OBSERVATION IDENTIFIER	**SC000500** **OBS_ID**	
		Verify Telemetry **OBSID** **SM10N500**	**OBS_ID**	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>**	
	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>**	
		Verify Telemetry **BBFULLTYPE** **SM2LN500**	**= Null**	AND=ZAZ90999

SPIRE_CP_FUNC_PTC_PID_T2 PTC PID Tuning with Thermistor 2
File: H_COP_SPI_PTC2.xls
Author: L.Lucas-hp

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.00	SET_OBS_STEP **SET_OBS_STEP** *Command Parameter(s) :* **OBSERVATION_STEP SP03N500** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 370* Det. descr. : SET OBSERVATION STEP	**SC003500** **0 <hex>**	
	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** **88350001 <hex>**	
		Verify Telemetry **BBFULLTYPE SM2LN500**	**= Start_DCU_Data**	AND=ZAZ90999
4		*DCU Photometer Full Array Detector Data*		Next Step: 5
		Start DCU Photometer Full Array Detector Data:		
	ET=+ UT=+00.00.01	SET_OBS_STEP **SET_OBS_STEP** *Command Parameter(s) :* **OBSERVATION_STEP SP03N500** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 370* Det. descr. : SET OBSERVATION STEP	**SC003500** **1 <hex>**	
	ET=+ UT=+00.00.01	SEND_DRCU_COMMAND **SEND_DRCU_COMMAND** *Command Parameter(s) :* **DRCUCOMMAND SPD4N505** **OVERRIDE SPD9N505** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SEND A SINGLE COMMAND TO THE DRCU	**SCD06505** **843d0000 <hex>** **0 <hex>** (Def)	

SPIRE_CP_FUNC_PTC_PID_T2 PTC PID Tuning with Thermistor 2
File: H_COP_SPI_PTC2.xls
Author: L.Lucas-hp

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.00	SEND_DRCU_COMMAND **SEND_DRCU_COMMAND** *Command Parameter(s) :* **DRCUCOMMAND SPD4N505** **OVERRIDE SPD9N505** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SEND A SINGLE COMMAND TO THE DRCU	**SCD06505** **843c0000 <hex>** **0 <hex>** (Def)	
	ET=+ UT=+00.00.01	SEND_DRCU_COMMAND **SEND_DRCU_COMMAND** *Command Parameter(s) :* **DRCUCOMMAND SPD4N505** **OVERRIDE SPD9N505** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SEND A SINGLE COMMAND TO THE DRCU	**SCD06505** **843e0001 <hex>** **0 <hex>** (Def)	
	ET=+ UT=+00.00.01	SET_OBS_STEP **SET_OBS_STEP** *Command Parameter(s) :* **OBSERVATION_STEP SP03N500** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SET OBSERVATION STEP	**SC003500** **0 <hex>**	
	ET=+ UT=+00.00.01	SET_BBID **SET_BBID** *Command Parameter(s) :* **BUILDING_BLOCK_ID SP01N500** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SET BUILDING BLOCK IDENTIFIER	**SC001500** **80000000 <hex>**	
5		*Optional Steps?*		Next Step: yes 6 no 7

SPIRE_CP_FUNC_PTC_PID_T2 PTC PID Tuning with Thermistor 2
File: H_COP_SPI_PTC2.xls
Author: L.Lucas-hp

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		TC Seq. Name :HCSPTC2A (PTC Heater ON Option) *TimeTag Type: B* *Sub Schedule ID:*		
6		*Optional Steps* *Check with ICC*		Next Step: 7
		All the TCs in this STEP are OPTIONAL - Check with the Instrument Team to confirm if they should be executed or not		
		Switch on PTC Heater		
	ET=+ UT=+00.00.31	SEND_DRCU_COMMAND **SEND_DRCU_COMMAND** *Command Parameter(s) :* **DRCUCOMMAND SPD4N505** **OVERRIDE SPD9N505** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 370* Det. descr. : SEND A SINGLE COMMAND TO THE DRCU	**SCD06505** **A0C602BC <hex>** **0 <hex>** (Def)	
		Wait for 5 minutes for the temperatures to stabilise before resetting offsets		
		Stop DCU data		
	ET=+ UT=+00.05.00	SET_OBS_STEP **SET_OBS_STEP** *Command Parameter(s) :* **OBSERVATION_STEP SP03N500** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 370* Det. descr. : SET OBSERVATION STEP	**SC003500** **0 <hex>**	
	ET=+ UT=+00.00.00	SET_BBID **SET_BBID** *Command Parameter(s) :* **BUILDING_BLOCK_ID SP01N500** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SET BUILDING BLOCK IDENTIFIER	**SC001500** **88360001 <hex>**	

SPIRE_CP_FUNC_PTC_PID_T2 PTC PID Tuning with Thermistor 2
File: H_COP_SPI_PTC2.xls
Author: L.Lucas-hp

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.02	SET_OBS_STEP **SET_OBS_STEP** *Command Parameter(s) :* **OBSERVATION_STEP** **SP03N500** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SET OBSERVATION STEP	**SC003500** **1 <hex>**	
	ET=+ UT=+00.00.00	SEND_DRCU_COMMAND **SEND_DRCU_COMMAND** *Command Parameter(s) :* **DRCUCOMMAND** **SPD4N505** **OVERRIDE** **SPD9N505** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SEND A SINGLE COMMAND TO THE DRCU	**SCD06505** **843e0000 <hex>** **0 <hex>** (Def)	
	ET=+ UT=+00.00.01	FLUSH_FIFO **FLUSH_FIFO** *Command Parameter(s) :* **FIFOFLAGS** **SPD0N505** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : FORCE DPU TO READ SCIENCE DATA FROM FIFOS AND FLUSH CONTENTS	**SCD01505** **1000 <hex>**	
	ET=+ UT=+00.00.03	RESET_FIFOS **RESET_FIFOS** *Command Parameter(s) :* **RESETFLAGS** **SPDDN505** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : RESET FIFOS	**SCD07505** **7000 <hex>**	
	ET=+ UT=+00.00.00	SET_OBS_STEP **SET_OBS_STEP** *Command Parameter(s) :* **OBSERVATION_STEP** **SP03N500** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SET OBSERVATION STEP	**SC003500** **0 <hex>**	

SPIRE_CP_FUNC_PTC_PID_T2 PTC PID Tuning with Thermistor 2
File: H_COP_SPI_PTC2.xls
Author: L.Lucas-hp

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.01	SET_BBID **SET_BBID** *Command Parameter(s) :* **BUILDING_BLOCK_ID** **SP01N500** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SET BUILDING BLOCK IDENTIFIER	**SC001500** **80000000 <hex>**	
		Reset Photometer offsets		
	ET=+ UT=+00.00.03	SET_OBS_STEP **SET_OBS_STEP** *Command Parameter(s) :* **OBSERVATION_STEP** **SP03N500** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 370* Det. descr. : SET OBSERVATION STEP	**SC003500** **0 <hex>**	
	ET=+ UT=+00.00.00	SET_BBID **SET_BBID** *Command Parameter(s) :* **BUILDING_BLOCK_ID** **SP01N500** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SET BUILDING BLOCK IDENTIFIER	**SC001500** **881e0001 <hex>**	
	ET=+ UT=+00.00.02	SET_OBS_STEP **SET_OBS_STEP** *Command Parameter(s) :* **OBSERVATION_STEP** **SP03N500** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SET OBSERVATION STEP	**SC003500** **1 <hex>**	

SPIRE_CP_FUNC_PTC_PID_T2 PTC PID Tuning with Thermistor 2
File: H_COP_SPI_PTC2.xls
Author: L.Lucas-hp

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.01	SEND_DRCU_COMMAND **SEND_DRCU_COMMAND** *Command Parameter(s) :* **DRCUCOMMAND SPD4N505** **OVERRIDE SPD9N505** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SEND A SINGLE COMMAND TO THE DRCU	**SCD06505** **843c0010 <hex>** **0 <hex>** (Def)	
	ET=+ UT=+00.00.00	SEND_DRCU_COMMAND **SEND_DRCU_COMMAND** *Command Parameter(s) :* **DRCUCOMMAND SPD4N505** **OVERRIDE SPD9N505** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SEND A SINGLE COMMAND TO THE DRCU	**SCD06505** **843e0001 <hex>** **0 <hex>** (Def)	
	ET=+ UT=+00.00.03	SEND_DRCU_COMMAND **SEND_DRCU_COMMAND** *Command Parameter(s) :* **DRCUCOMMAND SPD4N505** **OVERRIDE SPD9N505** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SEND A SINGLE COMMAND TO THE DRCU	**SCD06505** **843e0000 <hex>** **0 <hex>** (Def)	
	ET=+ UT=+00.00.00	SEND_DRCU_COMMAND **SEND_DRCU_COMMAND** *Command Parameter(s) :* **DRCUCOMMAND SPD4N505** **OVERRIDE SPD9N505** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SEND A SINGLE COMMAND TO THE DRCU	**SCD06505** **843c0018 <hex>** **0 <hex>** (Def)	

SPIRE_CP_FUNC_PTC_PID_T2 PTC PID Tuning with Thermistor 2
File: H_COP_SPI_PTC2.xls
Author: L.Lucas-hp

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.01	SEND_DRCU_COMMAND **SEND_DRCU_COMMAND** *Command Parameter(s) :* **DRCUCOMMAND SPD4N505** **OVERRIDE SPD9N505** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SEND A SINGLE COMMAND TO THE DRCU	**SCD06505** **843e0001 <hex>** **0 <hex>** (Def)	
	ET=+ UT=+00.00.03	SEND_DRCU_COMMAND **SEND_DRCU_COMMAND** *Command Parameter(s) :* **DRCUCOMMAND SPD4N505** **OVERRIDE SPD9N505** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SEND A SINGLE COMMAND TO THE DRCU	**SCD06505** **843e0000 <hex>** **0 <hex>** (Def)	
	ET=+ UT=+00.00.01	FLUSH_FIFO **FLUSH_FIFO** *Command Parameter(s) :* **FIFOFLAGS SPD0N505** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : FORCE DPU TO READ SCIENCE DATA FROM FIFOS AND FLUSH CONTENTS	**SCD01505** **1000 <hex>**	
	ET=+ UT=+00.00.01	SEND_DRCU_COMMAND **SEND_DRCU_COMMAND** *Command Parameter(s) :* **DRCUCOMMAND SPD4N505** **OVERRIDE SPD9N505** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SEND A SINGLE COMMAND TO THE DRCU	**SCD06505** **843c0000 <hex>** **0 <hex>** (Def)	

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.00	SET_OBS_STEP **SET_OBS_STEP** *Command Parameter(s) :* **OBSERVATION_STEP** **SP03N500** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SET OBSERVATION STEP	**SC003500** **0 <hex>**	
	ET=+ UT=+00.00.01	SET_BBID **SET_BBID** *Command Parameter(s) :* **BUILDING_BLOCK_ID** **SP01N500** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SET BUILDING BLOCK IDENTIFIER	**SC001500** **80000000 <hex>**	
		TC Seq. Name :HCSPTC2B (PTC PID Therm2 RunVM) *TimeTag Type: B* *Sub Schedule ID:*		
7		*The PID Test*		Next Step: 8
		Preparations for the PID Test:		
	ET=+ UT=+00.00.32	SET_BBID **SET_BBID** *Command Parameter(s) :* **BUILDING_BLOCK_ID** **SP01N500** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 370* Det. descr. : SET BUILDING BLOCK IDENTIFIER	**SC001500** **8A170001 <hex>**	
7.1		*Execute PID Test. TPF from ICC required*		

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		The next TC (SCV02500: RUN_VM1)will require a TPF from SPIRE to MOC This sequence may be run more than once, at the request of ICC. A new TPF will be required, everytime the sequence is run. TM information is provided for info only.		
		TC Parameter SPV7N500 #01: a = Delta Required Temperature (ADC Units) - int TC Parameter SPV7N500 #02: b = PTC Temp Cmd - command to get the controlling temperature (TC2TEMP = 0x8C3F001C) TC Parameter SPV7N500 #03: c = PTC Loop Period (us) - int TC Parameter SPV7N500 #04: d = Kp (PID parameter)- float TC Parameter SPV7N500 #05: e = Ki (PID parameter)- float TC Parameter SPV7N500 #06: f = Kd (PID parameter)- float TC Parameter SPV7N500 #07: g = Ki limit - float		
		TC Parameter SPV7N500 #08: h = Low pass filter Gain - float TC Parameter SPV7N500 #09: i = Low pass filter coefficient b1 - float TC Parameter SPV7N500 #10: j = Low pass filter coefficient b2 - float TC Parameter SPV7N500 #11: k = DAC constant offset - float TC Parameter SPV7N500 #12: l = Max DAC value - int		
		TC Parameter SPV7N500 #13: m = Pulse Width Modulation (PWM) flag (non-zero if used) TC Parameter SPV7N500 #14: n = TM flag (no. of VM science frames to be packed into a VM Science TM packet - for loop period 0.2s, n should be 5 to produce 1 pkt/s. nmax =5) TC Parameter SPV7N500 #15: o = Initialisation count (if non-zero this additional number of values will be read into the signal registers before starting PID) - try value >2 TC Parameter SPV7N500 #16: p = Error Compensation Parameter - float (used to account for the Delta T between the thermistor and the main busbar)		
		Only send the next RUN_VM1 TC if advised by the Instrument Team		

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.03	RUN_VM1 **RUN_VM1** *Command Parameter(s) :* **TABLEID_RUNVM1 SPV4N500** **INDEX_RUNVM1 SPV5N500** **N_RUNVM1 SPV6N500** **DATA_RUNVM1 SPV7N500** **DATA_RUNVM1 SPV7N500** **DATA_RUNVM1 SPV7N500** **DATA_RUNVM1 SPV7N500** **DATA_RUNVM1 SPV7N500** **DATA_RUNVM1 SPV7N500** **DATA_RUNVM1 SPV7N500** **DATA_RUNVM1 SPV7N500** **DATA_RUNVM1 SPV7N500** **DATA_RUNVM1 SPV7N500** **DATA_RUNVM1 SPV7N500** **DATA_RUNVM1 SPV7N500** **DATA_RUNVM1 SPV7N500** **DATA_RUNVM1 SPV7N500** **DATA_RUNVM1 SPV7N500** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 370* Det. descr. : EXECUTE COMMAND LIST HELD IN A TABLE BY S/W DRIVEN VM1	**SCV02500** **51 <hex>** **0 <hex>** **16 <dec>** **1** **2** **3** **4** **5** **6** **7** **8** **9** **10** **11** **12** **13** **14** **15** **16**	
	ET=+ UT=+00.00.01	SET_BBID **SET_BBID** *Command Parameter(s) :* **BUILDING_BLOCK_ID SP01N500** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SET BUILDING BLOCK IDENTIFIER	**SC001500** **80000000 <hex>**	
		The Instrument Team will monitor the progress of the PTC PID test. A default wait time of 10 minutes is set in the procedure but it could be shorter or longer.		
		Confirm with the Instrument Team before executing the next block of TCs		

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.10.01	SET_BBID **SET_BBID** *Command Parameter(s) :* **BUILDING_BLOCK_ID** **SP01N500** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 370* Det. descr. : SET BUILDING BLOCK IDENTIFIER	**SC001500** **8A160001 <hex>**	
	ET=+ UT=+00.00.02	HALT_VM1 **HALT_VM1** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : HALT VM1	**SCV03500**	
		TC Seq. Name :HCSPTC2C (PTC Heater OFF) *TimeTag Type: B* *Sub Schedule ID:*		
8		*Switch OFF PTC Heater??*		Next Step: yes 9 no 10
		Check with Instrument Team if PTC HEATER should be switched OFF:		
9		*Switch OFF PTC Heater*		Next Step: 10
		Only execute the next TC if PTC HEATER is to be switched off, ortherwise skip the next TC		
	ET=+ UT=+00.00.04	SEND_DRCU_COMMAND **SEND_DRCU_COMMAND** *Command Parameter(s) :* **DRCUCOMMAND** **SPD4N505** **OVERRIDE** **SPD9N505** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 370* Det. descr. : SEND A SINGLE COMMAND TO THE DRCU	**SCD06505** **A0C60000 <hex>** **0 <hex>** (Def)	
		Check that the PTC heater has been switched OFF (+/- 0.01V) **TCHTRV** **SMF0A520**	**= 0.0 V**	AND=SA_4_559

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
10		*Stop Photometer Data ??*		Next Step: yes 11 no 12
		Check with Instrument Team if Photometer Detector Data should be stopped		
		TC Seq. Name :HCSPTC2D (Stop Phot Det Data) *TimeTag Type: B* *Sub Schedule ID:*		
11		*Stop Photometer Detector Data*		Next Step: 12
		Only execute the next two TCs if Photometer Detector Data is to be stopped		
	ET=+ UT=+00.00.01	SEND_DRCU_COMMAND **SEND_DRCU_COMMAND** *Command Parameter(s) :* **DRCUCOMMAND SPD4N505** **OVERRIDE SPD9N505** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 370* Det. descr. : SEND A SINGLE COMMAND TO THE DRCU	**SCD06505** **843E0000 <hex>** **0 <hex>** (Def)	
	ET=+ UT=+00.00.02	FLUSH_FIFO **FLUSH_FIFO** *Command Parameter(s) :* **FIFOFLAGS SPD0N505** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : FORCE DPU TO READ SCIENCE DATA FROM FIFOS AND FLUSH CONTENTS	**SCD01505** **7000 <hex>**	
	ET=+ UT=+00.00.04	SET_BBID **SET_BBID** *Command Parameter(s) :* **BUILDING_BLOCK_ID SP01N500** *TC Control Flags :* **GBM IL DSE** **--- -- ---** *Subsch. ID : 370* Det. descr. : SET BUILDING BLOCK IDENTIFIER	**SC001500** **80000000 <hex>**	

SPIRE_CP_FUNC_PTC_PID_T2 PTC PID Tuning with Thermistor 2
File: H_COP_SPI_PTC2.xls
Author: L.Lucas-hp

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		TC Seq. Name :HCSPTC2Q (End PTC PID Therm2) *TimeTag Type:* *Sub Schedule ID:*		
12		*TM Check*		Next Step: 13
		Verify Telemetry **VM1STAT** **SMV1N500**	**= FFFF <hex>**	AND=SA_1_559
13		*Set default end conditions*		Next Step: END
		Note that a **TM(5,1)** 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>**	
	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>**	
		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>**	
	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>**	

SPIRE_CP_FUNC_PTC_PID_T2 PTC PID Tuning with Thermistor 2
File: H_COP_SPI_PTC2.xls
Author: L.Lucas-hp

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry **BBFULLTYPE SM2LN500**	**= EndObs**	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** **1 <hex>**	
	ET=+ UT=+00.00.01	SET_OBSID **SET_OBSID** *Command Parameter(s) :* **OBSERVATION_ID SP00N500** *Subsch. ID : 370* Det. descr. : SET OBSERVATION IDENTIFIER	**SC000500** **00000000 <hex>**	
		Verify Telemetry **OBSID SM10N500**	**= 00000000 <hex>**	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>**	
	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>**	
		Verify Telemetry **BBFULLTYPE SM2LN500**	**= Null**	AND=ZAZ90999

End of Procedure