

Decontamination Heating Status Report
File: H_LEO_SYS_DECS.xls
Author: E. Picallo



Procedure Summary

Objectives

This procedure describes the steps needed to acquire the status of the ASW function "Decontamination Heating" (0xFF for running idle or 0x00 for stopped).

Moreover in the TM packet are also reported the following decontamination heating parameters:

Tmin1
Tmax1
Tmin2
Tmax2
Continuity Check Threshold
M1 Thermistor 1
M1 Thermistor 2
M1 Thermistor 3
M2 Thermistor 1
M2 Thermistor 2
M2 Thermistor 3
M1 Heater Mask
M2 Heater Mask

Summary of Constraints

Spacecraft Configuration

Start of Procedure

CDMU in default configuration, that is:
- PM A or B ON (nominally A)
- TM Encoder/OBT A or B active (nominally A)
- RM A and B enabled
- MM A and B ON

End of Procedure

CDMU in default configuration, that is:
- PM A or B ON (nominally A)
- TM Encoder/OBT A or B active (nominally A)
- RM A and B enabled
- MM A and B ON

Reference File(s)

Input Command Sequences

Output Command Sequences

HLYDECS

Referenced Displays

ANDs GRDs SLDs
(None)

Configuration Control Information

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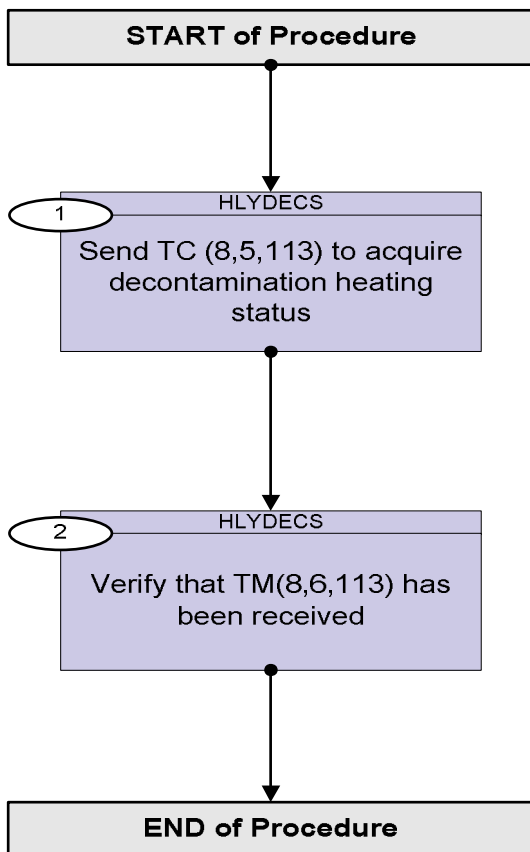


DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
01/08/08	1	1	Created	E. Picallo	
21/10/08		2	Display mode updated	E. Picallo	
07/01/09	2	3	CDMU ASW V3.8 and BSW V2.4 alignment	E. Picallo	
23/02/09		4	Add note about discrepancy on default dec. thresholds values	E. Picallo	
05/03/09	2.1	5	updated with CDMU ASW 3.8.2 default decontamination thresholds	E. Picallo	
07/04/09		6	Expected values for new decont strategy added	E. Picallo	
15/04/09	2.3	7	Decontamiation lines used for M1 are 4, 6 & 7 update	E. Picallo	

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Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
Beginning of Procedure				
TC Seq. Name : HLYDECS (Decont. Report) Report Decontamination Heating Status TimeTag Type: N Sub Schedule ID: <input type="checkbox"/>				
1		Send TC (8,5,113) to acquire decontamination heating status		Next Step: 2
		Report Decontamination Heating Status telecommand is used for requiring the status of the function as a telemetry packet. Default status of the function: "stopped".		
		Execute Telecommand <div style="text-align: right;">ReportDecontHeatSts</div> TC Control Flags : <div style="text-align: right;">GBM IL DSE --Y -- --</div> Subsch. ID : 10 Det. descr. : Report Decontamination Heating Status TC(8,5,113)	DC15M170	
2		Verify that TM(8,6,113) has been received		Next Step: END
		Only one of the following two Decontamination Heating Status Report TM(8,6,113) will be received Parameters repeated N=11 times: - Parameter ID (see below) - Value		
		- If the function is started:		
		Verify Packet Reception TM 8-6-113 Herschel Decon Heat Status Report - idle fixed Packet Details: <div style="text-align: right;"> APID: 16 Type: 8 Subtype: 6 PI1: 29183 PI2: 0 </div>	DecHtrStF_H	
		- If the function is stopped:		
		Verify Packet Reception TM 8-6-113 Herschel Decon Heat Status Report - stopped fixed Packet Details: <div style="text-align: right;"> APID: 16 Type: 8 Subtype: 6 PI1: 28928 PI2: 0 </div>	DecHtrStF_H	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Each TM packet contains the following parameters:		
		Verify Function ID Telemetry Function_ID DE008170	= DecontHeating	
		Verify Activity ID Telemetry DecHeatActivId DE275170		(None)
		Verify SID Telemetry SID DE010170	= 0 <dec>	(None)
		Verify number of parameters Telemetry DecHeatNRep DE276170		(None)
		Verify Parameter ID Telemetry DHPID1 DEZB0170	= Tmin1	(None)
		Verify Minimum temperature for Mirror 1 Telemetry DHTmin1 DEZB1170		(None)
		Verify Parameter ID Telemetry DHPID2 DEZB2170	= Tmax1	(None)
		Verify Maximum temperature for Mirror 1 Telemetry DHTmax1 DEZB3170		(None)
		Verify Parameter ID Telemetry DHPID3 DEZB4170	= Tmin2	(None)
		Verify Minimum temperature for Mirror 2 Telemetry DHTmin2 DEZB5170		(None)
		Verify Parameter ID Telemetry DHPID4 DEZB6170	= Tmax2	(None)
		Verify Maximum temperature for Mirror 2 Telemetry DHTmax2 DEZB7170		(None)
		Verify Parameter ID Telemetry DHPID5 DEZB8170	= ContChkThr	(None)
		Verify Continuity Check Threshold Telemetry DHContThr DEZB9170		(None)
		Verify Parameter ID Telemetry DHPID6 DEZC0170	= M1Thermistor1	(None)
		Verify M1 Thermistor 1 Telemetry DHM1Therm1 DEZC1170		(None)
		Verify Parameter ID Telemetry DHPID7 DEZC2170	= M1Thermistor2	(None)
		Verify M1 Thermistor 2 Telemetry DHM1Therm2 DEZC3170		(None)
		Verify Parameter ID Telemetry DHPID8 DEZC4170	= M1Thermistor3	(None)

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		Verify M1 Thermistor 3 Telemetry DHM1Therm3 DEZC5170		(None)
		Verify Parameter ID Telemetry DHPID9 DEZC6170	= M2Thermistor1	(None)
		Verify M2 Thermistor 1 Telemetry DHM2Therm1 DEZC7170		(None)
		Verify Parameter ID Telemetry DHPID10 DEZC8170	= M2Thermistor2	(None)
		Verify M2 Thermistor 2 Telemetry DHM2Therm2 DEZC9170		(None)
		Verify Parameter ID Telemetry DHPID11 DEZD0170	= M2Thermistor3	(None)
		Verify M2 Thermistor 3 Telemetry DHM2Therm3 DEZD1170		(None)
		Verify Parameter ID Telemetry DHPID12 DEZD3170	= 12 <dec>	(None)
		Verify M1 Heater Mask Telemetry DHM1HtrMask DEZD4170		(None)
		Verify M1 Heater Mask Heater #7 Telemetry DHM1H7Mask DEZD7170		(None)
		Verify M1 Heater Mask Heater #6 Telemetry DHM1H6Mask DEZD8170		(None)
		Verify M1 Heater Mask Heater #5 Telemetry DHM1H5Mask DEZD9170		(None)
		Verify M1 Heater Mask Heater #4 Telemetry DHM1H4Mask DEZDA170		(None)
		Verify M1 Heater Mask Heater #3 Telemetry DHM1H3Mask DEZDB170		(None)
		Verify M1 Heater Mask Heater #2 Telemetry DHM1H2Mask DEZDC170		(None)
		Verify M1 Heater Mask Heater #1 Telemetry DHM1H1Mask DEZDD170		(None)
		Verify Parameter ID Telemetry DHPID13 DEZD5170	= 13 <dec>	(None)
		Verify M2 Heater Mask Telemetry DHM2HtrMask DEZD6170		(None)
		Verify M2 Heater Mask Heater #2 Telemetry DHM2H2Mask DEZDE170		(None)
		Verify M2 Heater Mask Heater #1 Telemetry DHM2H1Mask DEZDF170		(None)

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p>The default decontamination values in CDMU ASW V 3.10 are:</p> <ul style="list-style-type: none"> - Tmin1 = 43.5 °C = 42612 RAW - Tmax1 = 44.5 °C = 42754 RAW - Tmin2 = 43.5 °C = 42664 RAW - Tmax2 = 44.5 °C = 42804 RAW - Continuity Check Threshold = 0.47 °C = 70 RAW 		
		<p>Thermal sensors to be used for M1 decontamination are:</p> <p>M1 Thermistor 1 = 997 TH A (T331) M1 Thermistor 2 = 999 TH A" (T332) M1 Thermistor 3 = 1184 TH C (T335)</p> <p>Thermal sensors to be used for M2 decontamination are:</p> <p>M2 Thermistor 1 = 1001 TH X (T339) M2 Thermistor 2 = 1002 TH Y (T341) M2 Thermistor 3 = 1202 TH Z (T342)</p>		
		<p>M1 Mask set to use:</p> <p>Heaters 1 (line 3), 2 (line 4), 4 (line 6) , 5 (line 7) and 6 (line 8) = (H7=0, H6=1, H5=1, H4=1, H3=0, H2=1, H1=1) = 0x003B = 59</p>		
		<p>M2 Mask set to use:</p> <p>Heaters 1 (line 1) and 2 (line 2) = (H2=1, H1=1) = 0x0003 = 3</p>		
		<p>According to the new decontamination strategy during telescope cool-down, the default decontamination parameters values will not be used.</p> <p>The procedure H_COP_SYS_DEC2 initiate the telescope decontamination function with the following parameters:</p> <p>M1 mask ON: lines 4, 6 and 7, M1 mask OFF: lines 3, 5, 8 and 9 M2 mask ON: lines 1 and 2 M2 mask OFF: none M1 lower threshold = 170K = -103.15°C M1 upper threshold = 171K = -102.15°C M2 lower threshold = 170K = -103.15°C M2 upper threshold = 171K = -103.15°C</p>		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p>Correspondance between decontamination heaters and lines:</p> <p>M2 Heater 1 HPS01 HCS1 (Decontamination Heating line 1) M2 Heater 2 HPS10 HCS1 (Decontamination Heating line 2)</p> <p>M1 Heater 1 HPS02 HCS1 (Decontamination Heating line 3) M1 Heater 2 HPS17 HCS1 (Decontamination Heating line 4) M1 Heater 3 HPS04 HCS1 (Decontamination Heating line 5) M1 Heater 4 HPS15 HCS1 (Decontamination Heating line 6) M1 Heater 5 HPS06 HCS1 (Decontamination Heating line 7) M1 Heater 6 HPS09 HCS1 (Decontamination Heating line 8) M1 Heater 7 HPS18 HCS1 (Decontamination Heating line 9)</p>		
End of Procedure				