Dump and interpretation of SEL
File: H_FCP_DHS_3015.xls
Author: S. Manganelli

Procedure Summary

Objectives

This procedure describes the steps needed to dump the Spacecraft Event Log (SEL).

The Spacecraft Event Log (SEL) is located in the Mass Memory and contains the following TM packet types:
- TM(1,x);
- TM(5,x).

Summary of Constraints

From an operational point of view the SEL is like any other packet store but with the following exceptions:

- SEL has a fixed packet store ID (1h/1d for MM A and 81h/129d for MM B);
- SEL may have a selection criterion that overlaps with other packet store(s) (i.e. one packet may be recorded in the SEL as well as in a standard packet store).

SEL is downlinked through TC (15,7); this TC will fail when there is an ongoing TC(8,4,2,3) (Check Mass Memory), TC(8,4,2,4) (Map Mass Memory), TC(8,4,2,5) (Turn Bank on/off) or TC(8,4,2,6) (Initialise Mass Memory) using the same MM board.

Moreover TC(15,7) will fail when there is already an ongoing TC(15,7) using the same virtual channel.

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

HFD3015B
HFD3015A
HFD3015C

Referenced Displays

ANDs **GRDs** **SLDs**

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ZAD22999
ZAZAO999

Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
15/11/07		1	Created	cmevi-hp	
16/11/07		2	Structure of procedure modified.	cmevi-hp	
16/01/08		3	Batch update of TC flags	S. Manganelli	
18/06/08	1	4	DB check (new industry release)	S. Manganelli	
23/11/08		5	Updated following industry inputs 16 oct 08	S. Manganelli	
12/01/09	2	6	Updated following OBSW 3_8	S. Manganelli	

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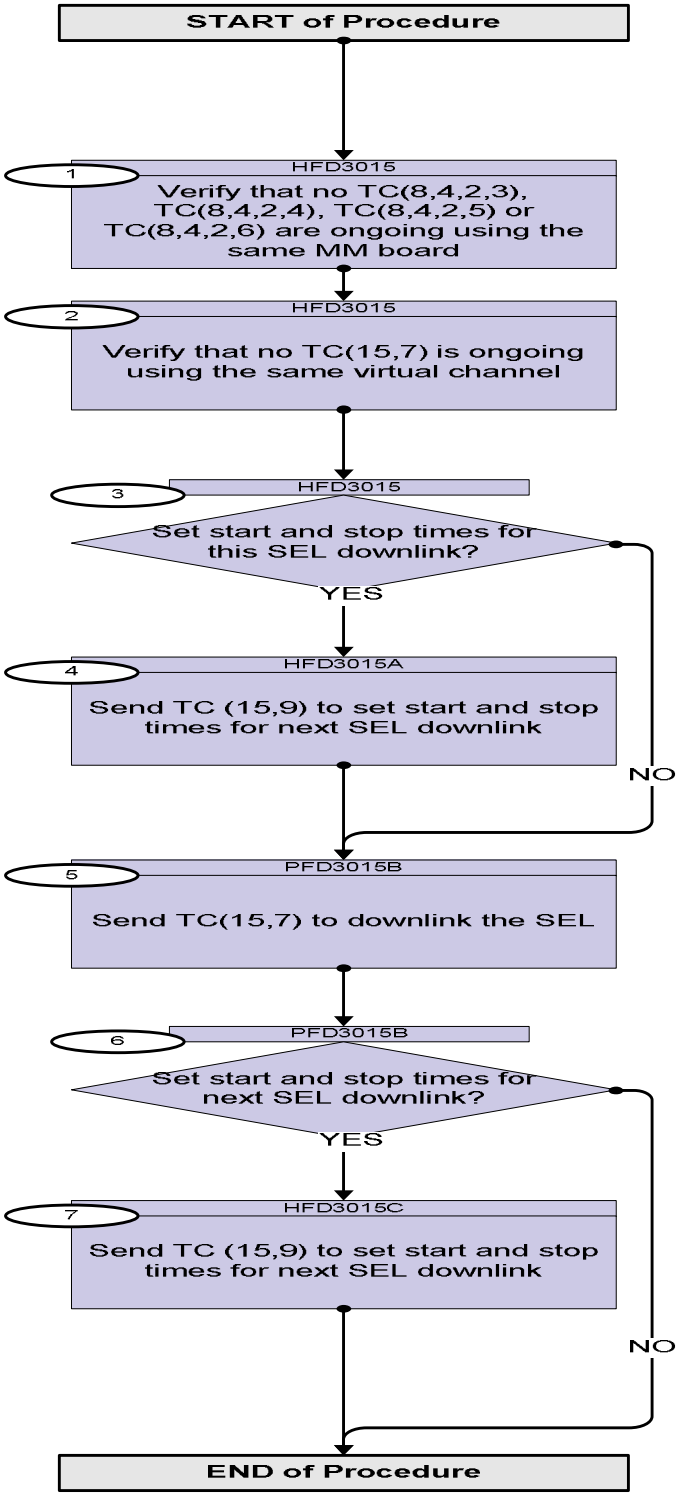
Procedure Flowchart Overview



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Beginning of Procedure		
		TC Seq. Name :HFD3015 (Dummy sequence) *TimeTag Type:* *Sub Schedule ID:* □		
1		*Verify that no TC(8,4,2,3), TC(8,4,2,4), TC(8,4,2,5) or TC(8,4,2,6) are ongoing using the same MM board*		Next Step: 2
		Verify Telemetry **TC_8-4-2-3_x** **DEE0J161**	**= FALSE**	AND=ZAD22999
		Verify Telemetry **TC_8-4-2-4_x** **DEE0K161**	**= FALSE**	AND=ZAD22999
		Verify Telemetry **TC_8-4-2-5_x** **DEE0L161**	**= FALSE**	AND=ZAD22999
		Verify Telemetry **TC_8-4-2-6_x** **DEE0M161**	**= FALSE**	AND=ZAD22999
2		*Verify that no TC(15,7) is ongoing using the same virtual channel*		Next Step: 3
		Verify Telemetry **DownloadOnVC2** **DELA1160**	**= 0 <dec>**	AND=ZAZAO999
3		*Set start and stop times for this SEL downlink?*		Next Step: NO 5 YES 4
		TC Seq. Name :HFD3015A (Set SEL time wind) *TimeTag Type: B* *Sub Schedule ID:* □		
4		*Send TC (15,9) to set start and stop times for next SEL downlink*		Next Step: 5

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		When this request is received by the CDMS, the time period for the next packet retrieval from Packet Stores will be set (different from the default setting). **When the downlinking is actually started at reception of a Telecommand (15,7) the CDMS downlinks the contents of the specified Packet Store falling within the specified time period.** **Whatever the value of Time Span, the retrieval ends at the latest when the last packet stored at the time of reception of the request has been downlinked.** **After completion of execution of the packet retrieval the downlink time period will be set to its default values, i.e. the next packet retrieval starts where the last retrieval has ended.**		
		In the TC(15,9) it is necessary to set the following parameters: **- Store ID: 1 for SEL in MMA, 129 for SEL in MMB;** **- Time Span: indicates how the packet range is specified.** The four possible values are # "**All**" (value = 0), the full contents of the Packet Store are to be downlinked; # "**Between**" (value = 1), the set of packets whose storage times are between Storage Time 1 and Storage Time 2 inclusive; # "**Before**" (value = 2), the set of packets whose storage times are Less than or equal to Storage Time 1; # "**After**" (value = 3), the set of packets whose storage times are Greater than or equal to Storage Time 1. **- Storage Time 1, Storage Time 2: optionals, the absolute time(s) defining the boundary(ies) of the range of packets to be downlinked.** Storage Time 1 is present if Time Span is not "All". Storage Time 2 is only present if Time Span is "Between".		
		WARNING: only one of the following TCs must be sent.		
4.1		*The entire contents of the specified SEL will be downloaded at reception of the next TC(15,7)*		
		Execute Telecommand **DownlinkTimeP_All** *Command Parameter(s) :* **Store_Id DH003160** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : Downlink Full Contents of Packet Store This Telecommand will not be included in the export	**DC163160** **1 for SEL in MMA, 129 for SEL in MMB**	

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
4.2		*The contents of the specified SEL between two Absolute dates (inclusive) will be downloaded at reception of the next TC(15,7)*		
		Execute Telecommand **DownlinkTimeP_Between** *Command Parameter(s) :* **Store_Id DH003160** **Storage_Time DH062160** **Storage_Time DH062160** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : Downlink Packets between Storage Time1 and Storage Time2 This Telecommand will not be included in the export	**DC164160** **1 for SEL in MMA, 129 for SEL in MMB Storage_time_1 Storage_time_2**	
4.3		*The contents of the specified SEL prior to a specific date will be downloaded at reception of the next TC(15,7)*		
		Execute Telecommand **DownlinkTimeP_Before** *Command Parameter(s) :* **Store_Id DH003160** **Storage_Time DH062160** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : Downlink Packets before Storage Time1 This Telecommand will not be included in the export	**DC165160** **1 for SEL in MMA, 129 for SEL in MMB Storage_time_1**	
4.4		*The contents of the specified SEL after a specific date will be downloaded at reception of the next TC(15,7)*		
		Execute Telecommand **DownlinkTimeP_After** *Command Parameter(s) :* **Store_Id DH003160** **Storage_Time DH062160** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : Downlink Packets after Storage Time1 This Telecommand will not be included in the export	**DC166160** **1 for SEL in MMA, 129 for SEL in MMB Storage_time_2**	

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		TC Seq. Name :HFD3015B (Dump SEL) *TimeTag Type: B* *Sub Schedule ID:*		
5		*Send TC(15,7) to downlink the SEL*		Next Step: 6
		In the TC(15,7) it is necessary to set the following parameters: **- Store ID: 1 for SEL in MMA, 129 for SEL in MMB;** **- N1: number of TM packet APIDs in the Packet Store Storage Selection Definitions that follows;** **If N1 = 0 (default), all stored TM packets are downlinked completely, taking into consideration the previously specified Time Period TC(15,9) if any, or the default time setting;** **If N1 > 0, the specified Types/Subtypes of Telemetry packets from the specified Application Processes will be downlinked, taking into consideration the previously specified Time Period TC(15,9) if any, or the default time setting.**		
		This Telecommand actually starts the downlinking of stored TM packets.		
		If no Telecommand (15,9) with a new downlink time period was sent in previous step, the default downlink period will start at the previous end time of the addressed Packet Store, and last to the time of reception of the TC(15,7) under execution.		
		If a TM packet subset selection is commanded, this selection shall only be effective until the requested downlinking session has finished. The default condition for the subset selection shall be that all data, that are stored in a Packet Store, are downlinked later on.		
		When this request is received by the CDMS, the contents matching with the specified packet subset is downlinked. **If a certain TM packet definition has no matching entry in the list of stored TM packets, it will be ignored and the downlinking of the rest of the data will be unaffected.**		
		In the TC(15,7) it is necessary to set the following parameters: **- Store ID: identifier of the Packet Store from which TM packets are to be downlinked** **1 for SEL in MMA, 129 for SEL in MMB;** **- N1: number of TM packet APIDs in the Packet Store Storage Selection Definitions that follows;**		

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		- APID: identifier of the unit/application for which TM packets are downlinked; **- Type: the associated Telemetry source packet Type;** **- N2: number of Subtype definitions that follow;** **- Sub-Type: the associated Telemetry packet Subtype of the specified Type;**		
		WARNING: only one of the following TCs must be sent.		
5.1		*All types of TM packets from all Application Processes, which are stored in the specified SEL, are to be downlinked within the time range set by a previously sent TC(15,9)*		□
		N1=0		
		Execute Telecommand **DownlinkPktStoreCont_A** *Command Parameter(s) :* **Store_Id DH003160** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : Downlink Packet Store Contents - All stored TM packets This Telecommand will not be included in the export	**DC162160** **1 for SEL in MMA, 129 for SEL in MMB**	
5.2		*The specified Type of Telemetry packet from the Application Process, covering all Subtypes, which are stored in the specified SEL, are to be downlinked within the time range set by a previously sent TC(15,9)*		□
		N1 > 0 and N2 = 0 The following is an example of SUM(N1) + SUM(N2) being odd.		

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand **DownlinkPktStoreCont_O** *Command Parameter(s) :* **Store_Id DH003160** **N1 DH004160** **App_Process_Id DH065160** **Type DH066160** **N2 DH005160** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : Downlink Packet Store Contents. - SUM(N1+N2) odd.	**DC171160** **1 for SEL in MMA, 129 for SEL in MMB** **1 <dec>** (Def) **Application_ID** **5 <dec>** **0 <dec>**	
		This Telecommand will not be included in the export		
5.3		*The specified Type and related Subtypes of Telemetry packets from the Application Process which are stored in the specified SEL, are to be downlinked within the time range set by a previously sent TC(15,9)*		□
		N1 > 0 and N2 = 1 The following is an example of SUM(N1) + SUM(N2) being even.		
		Execute Telecommand **DownlinkPktStoreCont_E** *Command Parameter(s) :* **Store_Id DH003160** **N1 DH004160** **App_Process_Id DH065160** **Type DH066160** **N2 DH005160** **Sub-Type DH067160** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10*	**DC161160** **1 for SEL in MMA, 129 for SEL in MMB** **1 <dec>** (Def) **Application_ID** **5 <dec>** **1 <dec>** (Def) **1 <dec>**	
		Det. descr. : Downlink Packet Store Contents. - SUM(N1+N2) even. This Telecommand will not be included in the export		
6		*Set start and stop times for next SEL downlink?*		Next Step: NO END YES 7
		TC Seq. Name :HFD3015C (Set SEL time wind) *TimeTag Type: B* *Sub Schedule ID:* □		

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
7		*Send TC (15,9) to set start and stop times for next SEL downlink*		Next Step: END
		When this request is received by the CDMS, the time period for the next packet retrieval from Packet Stores shall be set (different from the default setting). **When the downlinking is actually started by executing a Telecommand (15,7) the CDMS downlinks the contents of the specified Packet Store falling within the specified time period.** **Whatever the value of Time Span, the retrieval ends at the latest when the last packet stored at the time of reception of the request has been downlinked.** **After completion of execution of the packet retrieval the downlink time period shall be set to its default values, i.e. the next packet retrieval starts where the last retrieval has ended.**		
		In the TC(15,9) it is necessary to set the following parameters: **- Store ID: 1 for SEL in MMA, 129 for SEL in MMB;** **- Time Span: indicates how the packet range is specified.** The four possible values are # "**All**" (value = 0), the full contents of the Packet Store are to be downlinked; # "**Between**" (value = 1), the set of packets whose storage times are between Storage Time 1 and Storage Time 2 inclusive; # "**Before**" (value = 2), the set of packets whose storage times are Less than or equal to Storage Time 1; # "**After**" (value = 3), the set of packets whose storage times are Greater than or equal to Storage Time 1. **- Storage Time 1, Storage Time 2: optionals, the absolute time(s) defining the boundary(ies) of the range of packets to be downlinked.** Storage Time 1 is present if Time Span is not "All". Storage Time 2 is only present if Time Span is "Between".		
		WARNING: only one of the following TCs must be sent.		
7.1		*The entire contents of the specified SEL will be downloaded at reception of the next TC(15,7)*		

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand **DownlinkTimeP_All** *Command Parameter(s) :* **Store_Id DH003160** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : Downlink Full Contents of Packet Store This Telecommand will not be included in the export	**DC163160** **1 for SEL in MMA, 129 for SEL in MMB**	
7.2		*The contents of the specified SEL between two Absolute dates (inclusive) will be downloaded at reception of the next TC(15,7)*		
		Execute Telecommand **DownlinkTimeP_Between** *Command Parameter(s) :* **Store_Id DH003160** **Storage_Time DH062160** **Storage_Time DH062160** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : Downlink Packets between Storage Time1 and Storage Time2 This Telecommand will not be included in the export	**DC164160** **1 for SEL in MMA, 129 for SEL in MMB** **Storage_time_1** **Storage_time_2**	
7.3		*The contents of the specified SEL prior to a specific date will be downloaded at reception of the next TC(15,7)*		
		Execute Telecommand **DownlinkTimeP_Before** *Command Parameter(s) :* **Store_Id DH003160** **Storage_Time DH062160** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : Downlink Packets before Storage Time1 This Telecommand will not be included in the export	**DC165160** **1 for SEL in MMA, 129 for SEL in MMB** **Storage_time_1**	
7.4		*The contents of the specified SEL after a specific date will be downloaded at reception of the next TC(15,7)*		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand **DownlinkTimeP_After** *Command Parameter(s) :* **Store_Id DH003160** **Storage_Time DH062160** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : Downlink Packets after Storage Time1 This Telecommand will not be included in the export	**DC166160** **1 for SEL in MMA, 129 for SEL in MMB Storage_time_1**	
		End of Procedure		