

Define housekeeping or diagnostic packet
File: H_FCP_DHS_3001.xls
Author: S. Manganelli



Procedure Summary

Objectives

This procedure describes the steps needed to define an housekeeping or a diagnostic packet.

Summary of Constraints

In TCs (3,1), (3,2), (3,9) and (3,11) valid HK Packet IDs are 0 to 0xFFFE; note that these TCs will be delayed when one of these TCs is already ongoing.

It is not possible to define a HK Packet and a Diagnostic Packet with the same HK Packet ID. It is not possible to have more than one HK Packets with the same HkId even if the SIDs are different.

Using HK Packet IDs 0 to 15 in a TC(3,1) results in essential TM(3,25) packets. Other HK Packet IDs in a TC(3,1) results in non-essential TM(3,25) packets. All TC(3,2) result in TM(3,26) packets.

Maximum 64 HK/Diagnostic Packets may be defined at the same time.

It is not possible to have more than one definition of a HkId definition ongoing at the same time. I.e. the definition of one HkId has to be completed, using one or several TCs, before the next HkId can be defined.

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

HFD3001A
HFD3001C
HFD3001D
HFD3001F

Referenced Displays

ANDs GRDs SLDs

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(None)

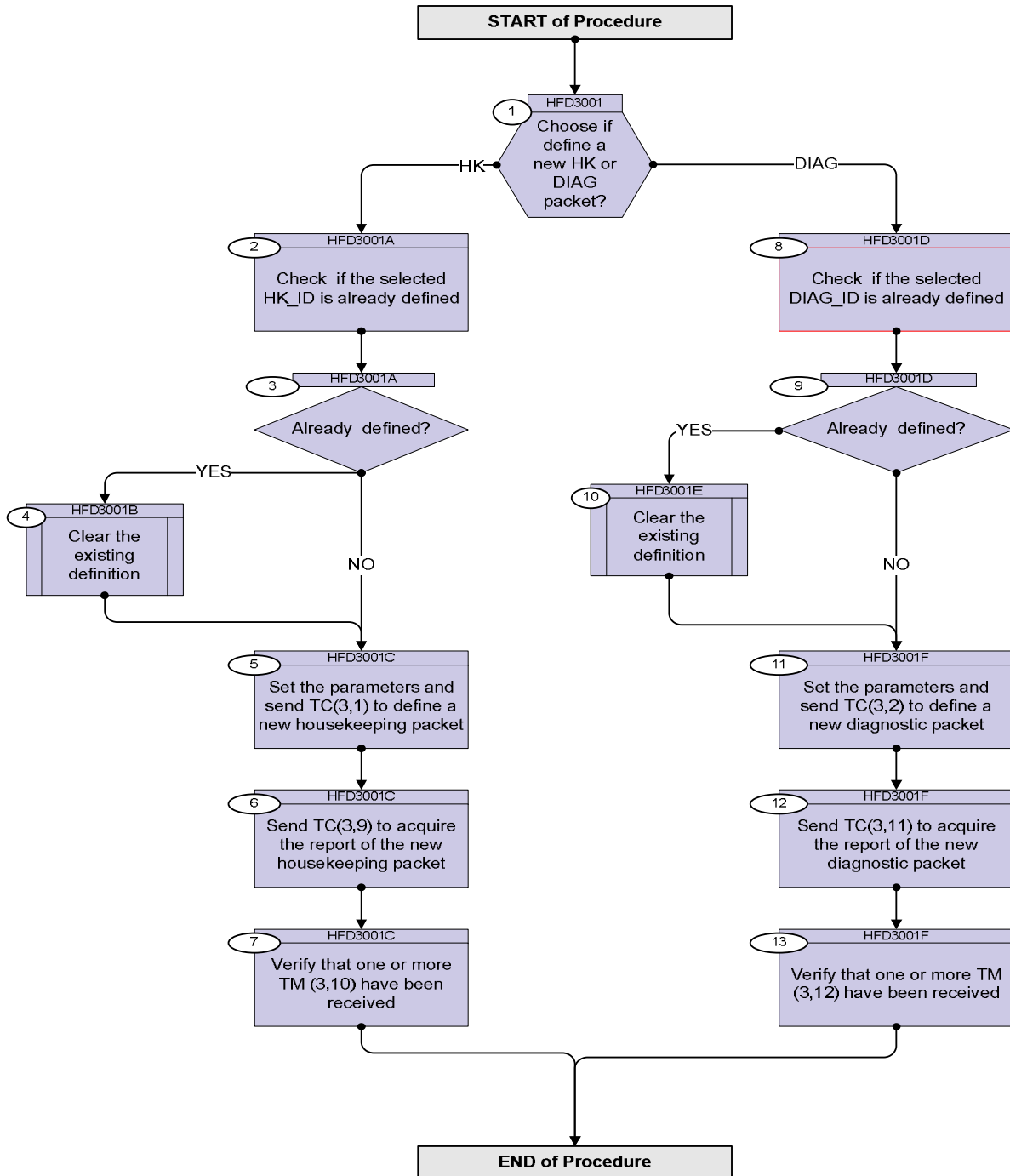
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
15/11/07		1	Created	cmevi-hp	
15/11/07		2	Some descriptions changed.	cmevi-hp	
15/11/07		3	Some comments modified.	cmevi-hp	
10/12/07		4	Dummy sequence deleted.	cmevi-hp	
16/01/08	1	5	Batch update of TC flags	S. Manganelli	
17/11/08		6	Updated following industry inputs 10 oct 08, plus added list of standard HK / Diag packets	S. Manganelli	
12/01/09	2	7	Updated following OBSW 3_8	S. Manganelli	
15/03/09	2.2	8	Fixed MOIS FP bug	S. Manganelli	

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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 :HFD3001 (Dummy sequence) TimeTag Type: N Sub Schedule ID: <input type="checkbox"/>				
1		Choose if define a new HK or DIAG packet?		Next Step: HK 2 DIAG 8
TC Seq. Name :HFD3001A (Check HK_ID) TimeTag Type: N Sub Schedule ID: <input type="checkbox"/>				
2		Check if the selected HK_ID is already defined		Next Step: 3
		Ask for the on board definition related to the specified Packet_ID for a HK packet by sending TC(3,9) in case the packet ID is the HK range.		
		Execute Telecommand <div style="text-align: right;">ReportHKPackDef</div> Command Parameter(s) : <div style="display: flex; justify-content: space-between;"> <div>N</div> <div>DH030180</div> <div>1 <dec> (Def)</div> </div> <div style="display: flex; justify-content: space-between;"> <div>HK_PKT_ID</div> <div>DH031180</div> <div>HK_ID</div> </div> TC Control Flags : <div style="text-align: right;">GBM IL DSE</div> <div style="text-align: right;">--Y -- --</div> Subsch. ID : 10 Det. descr. : Report Housekeeping Packet Definitions	DC302180	
3		Already defined?		Next Step: NO 5 YES 4
		Verify Packet Reception TC Execution Failure - HK-Diag Packet Not Defined Packet Details: <div style="display: flex; justify-content: space-between;"> <div>APID:</div> <div>16</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Type:</div> <div>1</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Subtype:</div> <div>8</div> </div> <div style="display: flex; justify-content: space-between;"> <div>PI1:</div> <div>13</div> </div> <div style="display: flex; justify-content: space-between;"> <div>PI2:</div> <div></div> </div>	D_TcExeF113	
		Verify Packet Telemetry <div style="display: flex; justify-content: space-between;"> <div>HK_PKT_ID</div> <div>DEZ80180</div> <div>= HK_ID</div> </div>		(None)

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
<p><i>TC Seq. Name :HFD3001B (Clear HK definition)</i></p> <p><i>TimeTag Type:</i> <i>Sub Schedule ID:</i></p> <p><input type="checkbox"/></p>				
4		Clear the existing definition		Next Step: 5
		Execute procedure H_FCP_DHS_3002.		
<p><i>TC Seq. Name :HFD3001C (Define new HK)</i></p> <p><i>TimeTag Type: N</i> <i>Sub Schedule ID:</i> <i>Formal Parameter List :</i> HK_PKT_ID HK_ID= <dec></p>				
5		Set the parameters and send TC(3,1) to define a new housekeeping packet		Next Step: 6
		<p>NOTE: Only 64 HK/Diagnostic Packets may be defined at the same time. There is no means to assess how many packets are defined. In case the limit is reached the event TM(1,8,9) 'Too Many HK/Diag Packets' will be raised.</p>		
		<p>In the TC(3,1) it is necessary to set the following parameters:</p> <p>HK Packet ID: identifies uniquely a Housekeeping TM packet definition. Using HK Packet IDs 0 to 15 in a TC(3,1) results in essential TM(3,25) packets.</p> <p>The Structure Identifier (SID): defines the structure of the parameter field, using following convention: # 0x0000 - 7FFF only regular parameters (ie non USD) # 0x8000 - BFFF only USD parameters.</p> <p>Sampling Interval: expressed in multiples of the sampling period of the default HK packet of the addressed Application/ Unit. Allowed values : 1, 2, 4, 8...512 (HK TM packets can be generated at the default period, or at a smaller rate/ frequency).</p>		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p>Segment-Identifier: as a new Packet may contain more parameters than can be loaded with a single TC-packet, they have to be loaded by a sequence of TC-packets, each of them identified by a unique Segment-Identifier and carrying a segment of the overall parameter field.</p> <p>The Segment-ID shall always start with 1, and be incremented one by one up to K for the last segment (allowed range : 1 to 254). After transmission of K Telecommands a TC(3,1) shall be sent with Segment ID set to FFhex, and N set to zero.</p> <p>If a new packet definition is loaded with a single TC-packet only, the Segment-ID shall be set to zero.</p>		
		<p>N: defines the number of parameters in the data field of the definition. With each TC(3,1) a maximum of 114 regular Parameter-Identifiers (ie non USD) or 28 USD parameters can be loaded for the definition of a new HK Packet. As the actual length of the field needed for certain parameters depend on their type, the maximum number of segments, or parameters, of a HK Packet is user-specific.</p> <p>Parameter ID: repeated N times, identifies uniquely the parameter to be sampled. If a certain parameter shall be sampled and reported more than once in a certain HK packet, its Parameter ID shall be listed with the corresponding number of entries at the end of the data field.</p>		
		<p>USD alternative: When Parameter ID is set to the dedicated value 0xFFFF, 3 additional 16-bit words are required, namely: # RAM start address MSB (using logical address) # RAM start address LSB (using logical address) # Length in number of bytes.</p>		
		<p>WARNING: TC(3,1) is a variable length TC which does not allow the definition of a generic procedure. The following TCs are intended to be just examples of the different possibilities.</p>		
5.1		<p><i>HK packet definition containing regular parameters (non USD)</i></p>		<input type="checkbox"/>

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch																								
		<p>This illustrates :</p> <ul style="list-style-type: none"> # the setting of the Segment_ID to 0, as the packet is fully defined using a single TC, # two regular parameters (non USD) are being included, the last one being super-commutated, in this case it will be sampled twice. <p>Note</p> <ul style="list-style-type: none"> # The SID is within the range 0x0000 to 0x7FFF as it only contains regular parameters. # Being non USD parameter the Parameter IDs are different of 0xFFFF. # The super-commutated parameters are defined after all other parameters in the packet. 																										
		<p>Execute Telecommand</p> <p style="text-align: center;">DefineHKParReport</p> <p>Command Parameter(s) :</p> <table border="0"> <tr> <td style="padding-right: 20px;">HK_Packet_ID</td> <td>ZH000999</td> <td>Packet_ID</td> </tr> <tr> <td>SID</td> <td>ZH001999</td> <td>3000 <hex></td> </tr> <tr> <td>Sampling_Interv</td> <td>ZH002999</td> <td>1 <dec></td> </tr> <tr> <td>Segment-ID</td> <td>ZH003999</td> <td>0 <dec></td> </tr> <tr> <td>N</td> <td>ZH004999</td> <td>3 <dec></td> </tr> <tr> <td>Parameter_ID</td> <td>ZH005999</td> <td>DEL60160</td> </tr> <tr> <td>Parameter_ID</td> <td>ZH005999</td> <td>DEL5F160</td> </tr> <tr> <td>Parameter_ID</td> <td>ZH005999</td> <td>DEL5F160</td> </tr> </table> <p>TC Control Flags :</p> <p style="text-align: center;">GBM IL DSE</p>	HK_Packet_ID	ZH000999	Packet_ID	SID	ZH001999	3000 <hex>	Sampling_Interv	ZH002999	1 <dec>	Segment-ID	ZH003999	0 <dec>	N	ZH004999	3 <dec>	Parameter_ID	ZH005999	DEL60160	Parameter_ID	ZH005999	DEL5F160	Parameter_ID	ZH005999	DEL5F160	ZC000999	
HK_Packet_ID	ZH000999	Packet_ID																										
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Parameter_ID	ZH005999	DEL5F160																										
Parameter_ID	ZH005999	DEL5F160																										
		<p style="text-align: center;">--Y -- --</p> <p>Subsch. ID : 10 Det. descr. : Define New Housekeeping Parameter Report This Telecommand will not be included in the export</p>																										
5.2		HK packet definition containing USD parameter		□																								
		<p>This illustrates :</p> <ul style="list-style-type: none"> # the setting of the Segment_ID to 0, as the packet is fully defined using a single TC, # two USD parameters are being included, the last one being super-commutated, in this case it will be sampled four times. <p>Note</p> <ul style="list-style-type: none"> # The SID is within the range 0x8000 to 0xBFFF as it only contains USD parameters. # Being USD parameters the Parameter ID is fixed to 0xFFFF for all of them. # The length has to be lower or equal to 1004, this being the maximum size which can fit within a TM packet. # Identical USD parameters not listed next to each other are treated as separate parameters. # The super-commutated parameters are defined after all other parameters in the packet. 																										

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand ReportHKPackDef Command Parameter(s) : N DH030180 HK_PKT_ID DH031180 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : Report Housekeeping Packet Definitions	DC302180 1 <dec> (Def) HK_ID	
7		Verify that one or more TM (3,10) have been received		Next Step: END
		<p>If parameters contained in the HK allow its reporting with a single TM-packet (3,10), the Segment-Identifier will be set to zero.</p> <p>If parameters contained in the HK Packet requires, for its reporting, a sequence of TM-packets, each of them will be identified by a unique Segment-Identifier and will carry a segment of the overall parameter field.</p> <p>The Segment-ID will always start with 1, and be incremented up to K for the last segment (allowed range : 1 to 254).</p> <p>After transmission of K TM-packets a TM(3,10) will be sent with Segment_ID set to FFhex, and N set to zero.</p>		
		<u>WARNING: the following is intended to be just an example and is consistent with the commands TC(3.1) sent.</u>		
7.1		Packet containing only regular parameters (non USD)		<input type="checkbox"/>
		Note: # SID in the range 0x0000 - 0x3FFF will result in the reception of D_TM_Hk_Def0 (PI1=0)		
		Verify Packet Reception CDMU_TM_HKParamReport_pi1_0 D_TM_Hk_Def0 Packet Details: APID: 16 Type: 3 Subtype: 10 PI1: 0 PI2:		
		Note: # SID in the range 0x4000 - 0x7FFF will result in the reception of D_TM_Hk_Def1 (PI1=1)		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Packet Reception CDMU_TM_HKParamReport_pi1_1 Packet Details: APID: 16 Type: 3 Subtype: 10 PI1: 1 PI2:	D_TM_Hk_Def1	
		Each TM packet contains the following parameters:		
		Verify Telemetry HK_Packet_ID ZE000999		(None)
		Verify Telemetry SID ZE001999	As commanded in TC(3,1)	(None)
		Verify Telemetry Samp_Interval ZE002999	As commanded in TC(3,1)	(None)
		Verify Telemetry 0 if the definition required only 1 TC(3,1) or 1..K as commanded followed by one TM(3,10) with SegmentID set to 0xFF Segment-ID ZE003999	as commanded	(None)
		Verify Telemetry N ZE004999	as commanded	(None)
		The following parameter is repeated N times and in the same order as commanded:		
		Verify Telemetry Parameter_ID ZE005999	as commanded	(None)
7.2		Packet containing only USD parameters		<input type="checkbox"/>
		Note: # SID in the range 0x8000 - 0xBFFF will result in the reception of D_TM_Hk_Def2 (PI1=2)		
		Verify Packet Reception CDMU_TM_HKParamReport_pi1_2 Packet Details: APID: 16 Type: 3 Subtype: 10 PI1: 2 PI2:	D_TM_Hk_Def2	
		Each TM packet contains the following parameters:		
		Verify Telemetry HK_Packet_ID ZE000999		(None)
		Verify Telemetry SID ZE001999	As commanded in TC(3,1)	(None)

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry Samp_Interval ZE002999	As commanded in TC(3,1)	(None)
		Verify Telemetry 0 if the definition required only 1 TC(3,1) or 1..K as commanded followed by one TM(3,10) with SegmentID set to 0xFF Segment-ID ZE003999	as commanded	(None)
		Verify Telemetry N ZE004999	as commanded	(None)
		The following 3 parameters are repeated N times and in the same order as commanded:		
		Verify Telemetry USD_ParID_FFFF ZE006999	= FFFF <hex>	(None)
		Verify Telemetry 32 bits logical address USD_ParID_Add ZE007999	as commanded (MSB+LSB)	(None)
		Verify Telemetry USD_ParID_Leng ZE008999	as commanded	(None)
<p>TC Seq. Name :HFD3001D (Check DIAG_ID)</p> <p>TimeTag Type: N Sub Schedule ID: <input type="checkbox"/></p>				
8		Check if the selected DIAG_ID is already defined		Next Step: 9
		Ask for the on board definition related to the specified Packet_ID for a Diagnostic Packet by sending TC(3,11) in case the packet ID is the Diagnostic range.		
		Execute Telecommand ReportDiagPackDef DC303180 Command Parameter(s) : N DH030180 1 <dec> (Def) HK_PKT_ID DH031180 DIAG_ID TC Control Flags : GBM IL DSE --Y -- -- Subsch. ID : 10 Det. descr. : Report Diagnostic Packet Definitions		
9		Already defined?		Next Step: NO 11 YES 10

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		<p>In the TC(3,2) it is necessary to set the following parameters:</p> <p>HK Packet ID: identifies uniquely a Diagnostics TM packet definition.</p> <p>The Structure Identifier (SID): defines the structure of the parameter field, using following convention: # 0x0000 - 7FFF only regular parameters (ie non USD) # 0x8000 - BFFF only USD parameters.</p> <p>Sampling Interval: expressed in multiples of the sampling period of the default Diag packet of the addressed Application/ Unit. Allowed values : 1, 2, 4, 8...512 (Diagnostic TM packets can be generated at the default period, or at a smaller rate/ frequency).</p>		
		<p>Segment-Identifier: as a new Packet may contain more parameters than can be loaded with a single TC-packet, they have to be loaded by a sequence of TC-packets, each of them identified by a unique Segment-Identifier and carrying a segment of the overall parameter field.</p> <p>The Segment-ID shall always start with 1, and be incremented one by one up to K for the last segment (allowed range : 1 to 254). After transmission of K Telecommands a TC(3,2) shall be sent with Segment ID set to FFhex, and N set to zero.</p> <p>If a new packet definition is loaded with a single TC-packet only, the Segment-ID shall be set to zero.</p>		
		<p>N: defines the number of parameters in the data field of the definition. With each TC(3,2) a maximum of 114 regular Parameter-Identifiers (ie non USD) or 28 USD parameters can be loaded for the definition of a new Diagnostic Packet. As the actual length of the field needed for certain parameters depend on their type, the maximum number of segments, or parameters, of a Diagnostics Packet is user-specific.</p> <p>Parameter ID: repeated N times, identifies uniquely the parameter to be sampled. If a certain parameter shall be sampled and reported more than once in a certain Diagnostic packet, its Parameter ID shall be listed with the corresponding number of entries at the end of the data field.</p>		
		<p>USD alternative: When Parameter ID is set to the dedicated value 0xFFFF, 3 additional 16-bit words are required, namely: # RAM start address MSB (using logical address) # RAM start address LSB (using logical address) # Length in number of bytes.</p>		
		<p>WARNING: TC(3,2) is a variable length TC which does not allow the definition of a generic procedure. The following TCs are intended to be just examples of the different possibilities.</p>		

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11.1		<i>Diag packet definition containing regular parameters (non USD)</i>		<input type="checkbox"/>																												
		<p>This illustrates :</p> <ul style="list-style-type: none"> # the setting of the Segment_ID to 0, as the packet is fully defined using a single TC, # two regular parameters (non USD) are being included, the last one being super-commutated, in this case it will be sampled twice. <p>Note</p> <ul style="list-style-type: none"> # The SID is within the range 0x0000 to 0x7FFF as it only contains regular parameters. # Being non USD parameter the Parameter IDs are different of 0xFFFF. # The super-commutated parameters are defined after all other parameters in the packet. 																														
		<p>Execute Telecommand</p> <p style="text-align: center;">DefineDiagParReport</p> <p>Command Parameter(s) :</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">HK_Packet_ID</td> <td style="width: 20%;">ZH000999</td> <td style="width: 20%;">Packet_ID</td> <td style="width: 30%;">5000 <hex></td> </tr> <tr> <td>SID</td> <td>ZH001999</td> <td>1 <dec></td> <td></td> </tr> <tr> <td>Sampling_Interv</td> <td>ZH002999</td> <td>0 <dec></td> <td></td> </tr> <tr> <td>Segment-ID</td> <td>ZH003999</td> <td>3 <dec></td> <td></td> </tr> <tr> <td>N</td> <td>ZH004999</td> <td>DEL60160</td> <td></td> </tr> <tr> <td>Parameter_ID</td> <td>ZH005999</td> <td>DEL5F160</td> <td></td> </tr> <tr> <td>Parameter_ID</td> <td>ZH005999</td> <td>DEL5F160</td> <td></td> </tr> </table> <p>TC Control Flags :</p> <p style="text-align: center;">GBM IL DSE</p> <p style="text-align: center;">--Y -- ---</p>	HK_Packet_ID	ZH000999	Packet_ID	5000 <hex>	SID	ZH001999	1 <dec>		Sampling_Interv	ZH002999	0 <dec>		Segment-ID	ZH003999	3 <dec>		N	ZH004999	DEL60160		Parameter_ID	ZH005999	DEL5F160		Parameter_ID	ZH005999	DEL5F160			
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Parameter_ID	ZH005999	DEL5F160																														
		<p>Subsch. ID : 10</p> <p>Det. descr. : Define New Diagnostic Parameter Report</p> <p>This Telecommand will not be included in the export</p>																														
11.2		<i>Diag packet definition containing USD parameter</i>		<input type="checkbox"/>																												

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		<p>Execute Telecommand</p> <p style="text-align: center;">DefineDiagParReport_USD</p> <p>Command Parameter(s) :</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">HK_Packet_ID</td> <td style="width: 20%;">ZH000999</td> <td style="width: 20%;">Packet_ID</td> <td style="width: 30%;">B000 <hex></td> </tr> <tr> <td>SID</td> <td>ZH001999</td> <td>1 <dec></td> <td>0 <dec></td> </tr> <tr> <td>Sampling_Interv</td> <td>ZH002999</td> <td>5 <dec></td> <td>020C <hex></td> </tr> <tr> <td>Segment-ID</td> <td>ZH003999</td> <td>4510 <hex></td> <td>4 <dec></td> </tr> <tr> <td>N</td> <td>ZH004999</td> <td>020F <hex></td> <td>FFC0 <hex></td> </tr> <tr> <td>RAM_START_MSB</td> <td>ZH006999</td> <td>36 <dec></td> <td></td> </tr> <tr> <td>RAM_START_LSB</td> <td>ZH007999</td> <td></td> <td></td> </tr> <tr> <td>Length</td> <td>ZH008999</td> <td></td> <td></td> </tr> <tr> <td>RAM_START_MSB</td> <td>ZH006999</td> <td></td> <td></td> </tr> <tr> <td>RAM_START_LSB</td> <td>ZH007999</td> <td></td> <td></td> </tr> <tr> <td>Length</td> <td>ZH008999</td> <td></td> <td></td> </tr> </table>	HK_Packet_ID	ZH000999	Packet_ID	B000 <hex>	SID	ZH001999	1 <dec>	0 <dec>	Sampling_Interv	ZH002999	5 <dec>	020C <hex>	Segment-ID	ZH003999	4510 <hex>	4 <dec>	N	ZH004999	020F <hex>	FFC0 <hex>	RAM_START_MSB	ZH006999	36 <dec>		RAM_START_LSB	ZH007999			Length	ZH008999			RAM_START_MSB	ZH006999			RAM_START_LSB	ZH007999			Length	ZH008999			ZC003999	
HK_Packet_ID	ZH000999	Packet_ID	B000 <hex>																																													
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		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">RAM_START_MSB</td> <td style="width: 20%;">ZH006999</td> <td style="width: 20%;">RAM_START_MSB</td> <td style="width: 30%;">020F <hex></td> </tr> <tr> <td>RAM_START_LSB</td> <td>ZH007999</td> <td>RAM_START_LSB</td> <td>FFC0 <hex></td> </tr> <tr> <td>Length</td> <td>ZH008999</td> <td>Length</td> <td>36 <dec></td> </tr> <tr> <td>RAM_START_MSB</td> <td>ZH006999</td> <td>RAM_START_MSB</td> <td>020F <hex></td> </tr> <tr> <td>RAM_START_LSB</td> <td>ZH007999</td> <td>RAM_START_LSB</td> <td>FFC0 <hex></td> </tr> <tr> <td>Length</td> <td>ZH008999</td> <td>Length</td> <td>36 <dec></td> </tr> <tr> <td>RAM_START_MSB</td> <td>ZH006999</td> <td>RAM_START_MSB</td> <td>020F <hex></td> </tr> <tr> <td>RAM_START_LSB</td> <td>ZH007999</td> <td>RAM_START_LSB</td> <td>FFC0 <hex></td> </tr> <tr> <td>Length</td> <td>ZH008999</td> <td>Length</td> <td>36 <dec></td> </tr> </table> <p>TC Control Flags :</p> <p style="text-align: center;">GBM IL DSE --Y -- --</p> <p>Subsch. ID : 10 Det. descr. : Define New Diagnostic Parameter Report - USD alternative</p>	RAM_START_MSB	ZH006999	RAM_START_MSB	020F <hex>	RAM_START_LSB	ZH007999	RAM_START_LSB	FFC0 <hex>	Length	ZH008999	Length	36 <dec>	RAM_START_MSB	ZH006999	RAM_START_MSB	020F <hex>	RAM_START_LSB	ZH007999	RAM_START_LSB	FFC0 <hex>	Length	ZH008999	Length	36 <dec>	RAM_START_MSB	ZH006999	RAM_START_MSB	020F <hex>	RAM_START_LSB	ZH007999	RAM_START_LSB	FFC0 <hex>	Length	ZH008999	Length	36 <dec>										
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		This Telecommand will not be included in the export																																														
12		Send TC(3,11) to acquire the report of the new diagnostic packet		Next Step: 13																																												
		After reception of this TC, the CDMU BSW shall generate one or several TM packets with a copy of the structure definition of the requested Diagnostic Packet.																																														

Define housekeeping or diagnostic packet
 File: H_FCP_DHS_3001.xls
 Author: S. Manganelli



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p>In the TC(3,11) it is necessary to set the following parameters:</p> <p>N: defines the number of Diagnostic Packets that shall be reported.</p> <p>HK Packet ID: repeated N times, identifies uniquely a Diagnostic TM packet definition in memory, which shall be reported.</p>		
		<p>In this case to acquire the new diagnostic packet, N has to be equal to 1 and HK Packet ID has to be the same used in TC(3,2).</p>		
		<pre>Execute Telecommand ReportDiagPackDef DC303180 Command Parameter(s) : N DH030180 1 <dec> (Def) HK_PKT_ID DH031180 DIAG_ID TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : Report Diagnostic Packet Definitions</pre>		
13		<p>Verify that one or more TM (3,12) have been received</p>		Next Step: END
		<p>If parameters contained in the Diagnostic-Packet allow its reporting with a single TM-packet (3,12), the Segment-Identifier will be set to zero.</p> <p>If parameters contained in the Diagnostic-Packet requires, for its reporting, a sequence of TM-packets, each of them will be identified by a unique Segment-Identifier and will carry a segment of the overall parameter field.</p> <p>The Segment-ID will always start with 1, and be incremented up to K for the last segment (allowed range : 1 to 254).</p> <p>After transmission of K TM-packets a TM(3,12) will be sent with Segment_ID set to FFhex, and N set to zero.</p>		
		<p>WARNING: the following is intended to be just an example and is consistent with the commands TC(3,2) sent.</p>		
13.1		<p>Packet containing only regular parameters (non USD)</p>		☐
		<p>Note: # SID in the range 0x0000 - 0x3FFF will result in the reception of D_TM_DgnDef0 (P11=0)</p>		

Define housekeeping or diagnostic packet
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Packet Reception CDMU_TM_DiagParamReport_pi1_0 Packet Details: APID: 16 Type: 3 Subtype: 12 PI1: 0 PI2:	D_TM_DgnDef0	
		Note: # SID in the range 0x4000 - 0x7FFF will result in the reception of D_TM_DgnDef1 (PI1=1)		
		Verify Packet Reception CDMU_TM_DiagParamReport_pi1_1 Packet Details: APID: 16 Type: 3 Subtype: 12 PI1: 1 PI2:	D_TM_DgnDef1	
		Each TM packet contains the following parameters:		
		Verify Telemetry HK_Packet_ID ZE000999		(None)
		Verify Telemetry SID ZE001999	As commanded in TC(3,2)	(None)
		Verify Telemetry Samp_Interval ZE002999	As commanded in TC(3,2)	(None)
		Verify Telemetry 0 if the definition required only 1 TC(3,2) or 1..K as commanded followed by one TM(3,12) with SegmentID set to 0xFF Segment-ID ZE003999	as commanded	(None)
		Verify Telemetry N ZE004999	as commanded	(None)
		The following parameter is repeated N times and in the same order as commanded:		
		Verify Telemetry Parameter_ID ZE005999	as commanded	(None)
13.2		Packet containing only USD parameters		☐
		Note: # SID in the range 0x8000 - 0xBFFF will result in the reception of D_TM_DgnDef2 (PI1=2)		

Define housekeeping or diagnostic packet
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Packet Reception CDMU_TM_DiagParamReport_pi1_2 Packet Details: APID: 16 Type: 3 Subtype: 12 PI1: 2 PI2:	D_TM_DgnDef2	
		Each TM packet contains the following parameters:		
		Verify Telemetry HK_Packet_ID ZE000999		(None)
		Verify Telemetry SID ZE001999	As commanded in TC(3,2)	(None)
		Verify Telemetry Samp_Interval ZE002999	As commanded in TC(3,2)	(None)
		Verify Telemetry 0 if the definition required only 1 TC(3,2) or 1..K as commanded followed by one TM(3,12) with SegmentID set to 0xFF Segment-ID ZE003999	as commanded	(None)
		Verify Telemetry N ZE004999	as commanded	(None)
		The following 3 parameters are repeated N times and in the same order as commanded:		
		Verify Telemetry USD_ParID_FFFF ZE006999	= FFFF <hex>	(None)
		Verify Telemetry 32 bits logical address USD_ParID_Add ZE007999	as commanded (MSB+LSB)	(None)
		Verify Telemetry USD_ParID_Leng ZE008999	as commanded	(None)
End of Procedure				

Define housekeeping or diagnostic packet
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Standard HK DIAG packets

HKID	SID	INTVL	Type	s_type	APID	SPID	DESCRIPTION	TPCF_NAME
0	0	4	3	25	16	260130999	Her CDMU Essential HR	D_H_Hk_EssHR
8	4096	64	3	25	16	260131999	Her CDMU Essential LR	D_H_Hk_EssLR
64	8192	1	3	25	18	260132999	Her CDMU Periodic P1	D_H_Hk_P1
65	8582	4	3	25	18	260133999	Her CDMU Periodic P4	D_H_Hk_P4
66	8972	64	3	25	18	260134999	Her CDMU Periodic P64	D_H_Hk_P64
67	9362	128	3	25	18	260146999	Her CDMU Periodic P128	D_H_Hk_P128
68	9752	512	3	25	18	260141999	Her CCUA Mon 1 Data	D_H_CCU_A_M1
71	10922	512	3	25	18	260144999	Her CCUB Mon 1 Data	D_H_CCU_B_M1
96	20480	8	3	26	18	260135999	Her CDMU Diagnostic BSW1	D_H_Dgn_BSW1
97	20870	8	3	26	18	260136999	Her CDMU Diagnostic BSW2	D_H_Dgn_BSW2
98	21260	8	3	26	18	260137999	Her CDMU Diagnostic BSW3	D_H_Dgn_BSW3
99	21650	64	3	26	18	260138999	Her CDMU Diagnostic ASW1	D_H_Dgn_ASW1
100	22040	64	3	26	18	260139999	Her CDMU Diagnostic TCS	D_H_Dgn_TCS
101	22430	1	3	26	18	260140999	Her DLCM Data from CCUA	D_H_CCU_A_DC
102	22820	8	3	26	18	260141999	Her CCUA Mon 2 Data	D_H_CCU_A_M1
103	23210	1	3	26	18	260143999	Her DLCM Data from CCUB	D_H_CCU_B_DC
104	23600	8	3	26	18	260144999	Her CCUB Mon 2 Data	D_H_CCU_B_M1
105	23942	256	3	26	18	260147999	Her CDMU Diagnostic BSW4	D_H_Dgn_BSW4
106	24380	8	3	26	18	260148999	Her CDMU Diagnostic ASW2	D_H_Dgn_ASW2
120	25000	4	3	26	18	264000999	P DTM SPIRE LL	SPIRE LL